Cultural Studies of Science Education 16

Giuliano Reis
Michael Mueller
Rachel Gisewhite
Luiz Siveres
Renato Brito *Editors*

# Sociocultural Perspectives on Youth Ethical Consumerism

Springer

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Volume 16

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*Editors*
Giuliano Reis
University of Ottawa
Ottawa, ON, Canada

Rachel Gisewhite
Trezevant High School
Memphis, TN, USA

Renato Brito
Catholic University of Brasília
Brasilia, Distrito Federal, Brazil

Michael Mueller
University of Alaska Anchorage
Anchorage, AK, USA

Luiz Siveres
Catholic University of Brasilia
Brasilia, Distrito Federal, Brazil

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# Endorsements

*A wide range of science, technology, and environmental educators from Australia, Brazil, Canada, the Netherlands, and the United States have combined their perspectives to produce this exciting, innovative, timely, and important book. It should be essential reading for all teachers, teacher educators, and curriculum developers keen to address key issues raised by a commitment to assist students in refining their understanding of what constitutes socially, culturally, ethically, and politically responsible consumer practices and supporting them in formulating and engaging in effective individual and collective action.*
—— **Derek Hodson**, Emeritus Professor of Science Education, Ontario Institute for Studies in Education (OISE), University of Toronto, Professor of Science Education at The University of Auckland (New Zealand), and Founding Editor of the *Canadian Journal of Science, Mathematics and Technology Education* (CJSMTE)

*The authors in the book deconstruct and analyze intricate economic, sociopolitical, and affective networks that are behind the cycles of production, distribution, and consumption of objects that are present in youngsters' daily lives and their attitudes towards them. Apart from breaking new ground by proposing and discussing socioculturally informed research about the topic, the book connects with pedagogical approaches that value critical perspectives on the nature of the relationship between science, technology, society, and environment. It is a must-read for both researchers and practitioners interested in issues related to sustainability and citizenship education.*
—— **Isabel Martins**, Professor of Science Education, Universidade Federal do Rio de Janeiro/Federal University of Rio de Janeiro (UFRJ)

# Book Abstract

This exciting new book will share, examine, discuss, and advance current practice-based and theoretical knowledges around how youth define and engage with consumerism to provoke a larger conversation within science and environmental education. It is also geared towards unveiling those literacy praxes that can assist youth to adopt more ethically oriented philosophy and consumerist habits. More specifically, this book seeks to study how youth's participation in the global consumer market intersects with media (and) technologies, new literacies, science, and the environment from sociocultural perspectives. In addition, it considers how school science has mediated youth participation in hyperconsumerism, from perceptions contextually situated with food and technology to shelter and transportation. The main premise of the book is that "giving voice to children is not simply or only about letting children speak; it is about exploring their unique contribution to our understanding of and theorizing about the social world that children's perspective can provide… it is about the intellectual promise of positioning children as social actors" (James 2007, p. 262). Therefore, authors are invited to consider the following questions in preparation for their submissions: What is known about youth's consumerism? How do youth build their identity as consumers? How and why do they consume? What is the role of (school) science, media, and technology in youth's consumerism practices? What are the current methodologies being employed in the field of youth consumerism research? What is not yet known about youth consumerism? What does youth ethical consumerism look like? What are the possible directions for future research in youth consumerism in the broad fields of science and environmental education? In which ways sociocultural approach to youth consumerism can benefit the scholarly world of education? This important and timely book is a must-read for those interested in topics such as critical youth studies, critical media literacy, STEM (science-technology-engineering-mathematics), arts-based research, STSE (science-technology-society-environment) education, citizenship education, cultural studies, policy studies, curriculum studies, socioscientific issues, technology, sustainability, food studies, social justice, poverty, and consumer behavior.

Giuliano Reis (greis@uottawa.ca)
Michael Mueller (ak.mikem@gmail.com)
Rachel Gisewhite (rachel.gisewhite@gmail.com)
Luiz Siveres (luiz.siveres@catolica.edu.br)
Renato Brito (renatoorios@gmail.com)

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I, Giuliano Reis, would like to thank my family for being my *raison d'être* and for always reminding me that there is more to life than our daily miseries: Juliana, Ana-Julia, and Maria-Luiza Reis. I could not forget to thank Mike Muller for the vital mentorship and kind comradeship provided throughout the project.

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I, Renato Brito, would like to thank my family for always supporting me in all my projects and "adventures," specially my grandfather Sebastian and my uncle Carmo, who have always been a geography of my way.

# Contents

# Sociocultural Perspectives on Youth Ethical Consumerism

Any economic, technological, and ideological changes have an impact on society. Thus, the present overvaluation of competitiveness and individualism weakens our sense of collective wellbeing. For example, social networks, which have been boosted by recent technological advances, can bring people together while also distancing them by potentializing and perpetuating notions that hyperconsumerism is an appropriate measure of success (Turkle 2012).

To make matters worse, advertisers can collect and analyze individual consumer preferences and desires to make their selling tactics even more effective. This, in turn, allows for consumption to fill gaps in our daily (virtual or real) lives, which then intensifies comparisons among us to decide who is the happiest. In part because competition and individualism are intrinsic to human relations, citizens end up being placed in different levels (hierarchical) of consumption as part of a neoliberal socioeconomic caste system that is both meritocratic and oppressive.

In other words, exacerbated consumption creates damaging stressors for individuals, their communities, and the environment. In a context where new technologies are used to intensify international trade, financial accumulation is favored over the overall socio-ecological health of the planet. In sum, profit maximization (whether in the private or public sphere) generates social, personal, and environmental costs that we cannot – or must not – ignore.

Young people are particularly vulnerable to partaking in excessive consumption. Since they are in the process of forming their identity , they can be easily absorbed by the consumer dynamics of our time. Therefore, although in the midst of fighting for social transformation, popular cohesion, humanitarian causes, and the environment, youth also face anguish linked to a social experience that is often depleted of meaning.

The scientific community is observant of these matters, as evidenced in the discussions promoted by Gilles Lipovetsky (2005), who talks about the constant manifestation of individualism and the appreciation of appearances in the contemporary period – or *acts of emptiness*. Other authors, like Cornelius Castoriadis (2006) and Zygmunt Bauman (2011), denounce the relative conformity with the economic reality based on the constant growth of production and consumption, which affects the

human condition itself. In this context, young people are encouraged to associate happiness with consumer capacity, which is easily displayed in a world made so close and so distant by the explosion of social networks.

Nonetheless, the current educational system – already globalized (Gilbert 2004) – gradually becomes more competitive and geared to the current labor market that offers scarce employability opportunities even for young college graduates. In addition, neoliberal rhetoric attributes a strategic role to school education because it contributes to the transmission and perpetuation of neoliberal principles, correlated with an idea of inconsequent and excessive consumption among students. This fact is very worrying, and for this very reason this book presents discussions about how schools can regain its character as a democratic space for the debate on the fight against environmentally unsustainable consumption practices and the promotion of ethical consumption.

In this process of reconquest, it is necessary to recognize the importance of teachers and students as political agents as well as the teaching-learning relationship that exists between them. Otherwise, the idea of "better days" is born already dead. In short, the book seeks to debate the participation of youth in the consumer market, with particular emphasis on the importance of schools as privileged places to address the role of ethics in unbridled youth consumerism.

More specifically, Chap. 1 is devoted to an introduction to the book. In addition, the authors Giuliano Reis, Michael Mueller, and Rachel Luther present a brief reflection on ways in which youth consumerism materializes in daily life. In this way, they seek to prepare the reader for all subsequent chapters.

Chapter 2, developed by Jenny Martin and Lyn Carter, looks at sustainable development from the perspective of scientific literacy. To that end, the authors proposed some activities for first-year undergraduates to make them reflect on their own consumption practices. The results obtained from this experiment are discussed as well as the difficulties that young people face as global citizens (potential future teachers) and members of a generation characterized by consumerism.

In Chap. 3, Christina Nash discusses the inclusion of technology in different spheres of everyday life. In particular, she argues in favor of using it as a tool to raise environmental awareness among young consumers. She worked specifically with primary teachers in the re-signification of their understanding of the importance of technology and media literacies to conversations about the environment and consumerism.

In Chap. 4, Snežana Ratković, Dragana Martinovic, and Trevor Norris address the importance of school curricula in the ideological education of students, which reinforce the strategic role of education in perpetuating the status quo. The authors examine youth consumerism through the study of math, science, and social science curricula in the province of Ontario (Canada).

Chapter 5, also published fully in Portuguese here, advocates for the pursuit of happiness, as opposed to individualism, competitiveness, and absurd levels of consumption. In a systemic way, the authors discuss the recognition of three specific types of ethics – authenticity, reconnection, and sociability – as important contributions to a less fragmented but more authentically happy life for young people.

Chapter 6 looks at actor-network theory as a tool to contrapose consumerism, which arises from the consolidation of the global economic system. John Bencze, Lyn Carter, and Mirjan Krstovic offer an in-depth analysis of the role of education in this context and report on a case study of a teacher who aims to stimulate critical thinking in his students, in order to fight the consumer logic and find solutions for current socio-environmental problems.

In Chap. 7, Jesse Bazzul discusses how biology textbooks contain ideas linked to neoliberalism, capitalism, gender, and ethical issues. The author is also concerned with discussing concrete ways in which students can assume their role as ethical actors when it comes to current consumerism practices.

Chapter 8, written by Sara Tolbert and Alexandra Schindel, suggests that school experiences are opportunities to engage with ethical, environmental, and economic issues. More specifically, the authors discuss how sustainability practices could be promoted in a more pedagogical way, especially in contexts of economic oppression. An ethics of land and people care are presented as well as case studies that demonstrate how young people can benefit from reconsidering their consumption practices.

In Chap. 9, Helen Kopnina works with the concepts of sustainable production and consumption through the study of productive ways, such as closed production circuit, circular economy, the steady-state economy, and C2C (cradle to cradle) . A case study was carried out where university students designed a business plan for a company that aimed at transitioning from a linear economy model to a circular one. Thus, the chapter seeks to create a correspondence between what is taught in the academic environment and the practical applications in society.

In Chap. 10, Carolina Rodriguez Castano focuses on the issue of education in promoting speciesist ideologies, which legitimize the brutal and unethical use of other animal species. This insistent subjugation of other animal species by man contributes to the creation of an unsustainable way of life as it commodifies life by transforming living beings into economic goods. Here, the author defends the need for young people to be able to identify education as a space for debate on themes such as animal rights, social justice, and anti-consumerism.

In Chap. 11, Nathan Hensley criticizes the current curriculum model used in American education. According to the author, the curriculum is instrumentalist and focused primarily on the training of future workers and consumers. In order to establish a counterpoint to this paradigm, the author defends the need to transcend and transform the scientific-industrial approach to education, which would involve actions such as deceleration, disconnection, and reconnection, as well as greater attention to ecological issues. Each of these components is necessary in a transformative education that promotes significant engagement among students, their environment, and their curriculum. Only in this way would the school be contributing to the formation of citizens who are critical and aware of the contemporary socio-environmental challenges, making them capable of dealing with other related issues.

In Chap. 12, Princess Daazhraii Johnson explores youth ethical consumption in Alaska. She discusses how the connections that humans establish with each other, with the animals, and with the space in which they live are influenced by

(and influence) the current practices of consumption. In this sense, Alaska presents an interesting picture: while it is heavily dependent on fossil fuels and has undergone rapid anthropogenic climate change, this same state also adheres to values such as zero waste and respect for the environment originating from traditional native populations. This last aspect is defended as an important philosophy to be rescued. Such an effort is vital for finding solutions to ensure a healthy environment for future generations.

In Chap. 13, Giuliano Reis introduces personal narratives to address the ethical consumerism from a family-based perspective. He criticizes the commercialization of school education and teaching in order to promote a reflection of their impact on the way young people are introduced to unbridled consumer practices. This contribution invites readers to reconsider their own experiences of teaching and learning about consumption as a way to promote sustainable and responsible practices in society.

In Chap. 14, Sophia Jeong, Sun Young Jeong, Mutlu Sen, and Deborah J. Tippins explore an educational activity based on the Zika virus epidemic in 2016, which was used to train future science teachers in addressing socio-environmental issues. The authors present the debate that emerged about the use of strong pesticides for mosquito population control and the possible messages associated with the commodification of health, disease, and the feminine body.

Finally, Chap. 15, written by Wolff-Michael Roth, deals with the polysemy of the term consumerism and the differences between a historical-cultural approach and a constructivist one to the subject. It also discusses the political role of the school, often conniving with the practices of inconsequential consumption.

The contributions of this volume point to possible answers to the following questions: In a context where individuality is confused with the power of consumption of mass products, how do young people construct their identity? That is, how and why do they consume? What actions do they take to oppose the status quo? Is it possible to speak of solidarity in a consumer society? What methodologies are being used to research youth consumerism? What other roles can be taken by scientific and environmental education at schools in relation to consumer practices of teachers and students? How do media and technology fit into this discussion? What has not yet been discussed on the subject and what directions can be considered?

The various chapters – written by a rich diversity of researchers from renowned institutions – explore the issue of youth ethical consumerism from the standpoint of sociocultural theory embedded within the context of scientific and environmental education. At the same time, the authors were not restricted to criticism, also advancing ideas that aim to help educators and young people to adopt ethically oriented philosophies and consumption habits. In this way, they express their hope that it is possible to consume in socio-ecologically sustainable ways, that is, just and responsible towards one another, be it human or not.

Finally, it is important to consider that the study of the impact of consumption among young people is relevant to the understanding of consumer practices throughout society and vice versa. After all, the various social groups that make up our globalized society are interrelated in time and space, thus constantly influencing

each other. Therefore, it can be said that we all share (albeit disproportionately) responsibility for life on the planet.

Catholic University of Brasilia
Brasilia, Distrito Federal, Brazil

Luiz Síveres
Renato Brito
Idalberto Neves Júnior

University of Caxias do Sul
Caxias do Sul, Rio Grande do Sul, Brazil

Paulo César Nodari

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**Luiz Síveres** (PhD in sustainable development, University of Brasilia) is currently the director of the Graduate Program in Education at the Catholic University of Brasilia (Universidade Católica de Brasília – UCB). His main research interests are in the areas of teaching and learning and teacher education.

**Renato Brito** received his PhD in education from the Catholic University of Brasilia. He is the author of the book *Management and School Community: Tools for the Construction of a School Different from the Common* (Liberlivro/Unesco 2013).

**Idalberto Neves Júnior** is a doctoral student in education at the Catholic University of Brasilia. His main research interests are in the areas of teaching and learning and teacher education.

**Paulo César Nodari** (PhD in philosophy, Pontifical Catholic University of Rio Grande do Sul [PUC-RS]/University of Tübingen [Germany]) is currently a professor at the University of Caxias do Sul (UCS). His main research interests are in the areas of ethics, freedom, human rights, peace, anthropology, and education.

# Perspectivas Socioculturais sobre Consumismo Ético Juvenil

Quaisquer mudanças econômicas, tecnológicas e ideológicas acarretam impactos sociais. Assim, a presente supervalorização da competitividade e do individualismo enfraquece o nosso bem-estar, principalmente no tocante à coletividade. Por exemplo, as redes sociais, frutos de avanços tecnológicos ainda recentes, ao mesmo tempo em que parecem facilitar o contato entre as pessoas, também nos distanciam quando potencializam os desejos de hiperconsumismo (Turkle 2012).

Ao coletarem e analisarem as preferências e desejos individuais de consumo dos seus usuários, para que determinados anunciantes possam tornar suas táticas de venda ainda mais efetivas, as redes sociais também alimentam uma preocupação constante do consumidor acerca do aumento do poder aquisitivo como medida de sucesso. Assim, o consumo acaba por preencher lacunas da vivência cotidiana – virtuais ou não – intensificando as comparações sociais. A competição e o individualismo passam a exercer um importante papel nas relações humanas. Como consequência, os cidadãos passam a ser enquadrados em níveis distintos (hierarquizados) de consumo num sistema de castas socioeconômicas, ao mesmo tempo meritocrático e opressor.

Em suma, o consumo exacerbado (consumismo) vai ao encontro da ideologia neoliberal e cria importantes estressores para os indivíduos, assim como para as comunidades onde moram e todo o ambiente natural ao redor delas. Dessa forma, em um contexto onde as novas tecnologias podem ser utilizadas para intensificar o comércio internacional, a acumulação financeira é favorecida em detrimento do bem-estar social e ambiental. Mais ainda, a potencialização do lucro (seja na esfera privada ou pública) gera custos sociais, pessoais e ambientais que não podem – ou devem – ser ignorados.

Os jovens são particularmente vulneráveis a esta situação de excessivo consumo. Em vista de que se encontram em processo de formação da sua identidade, eles são facilmente absorvidos pela dinâmica consumidora proposta pela sociedade. Dessa forma, em meio à esperança depositada na transformação social em prol do bem-estar e da coesão popular, das causas humanitárias e do meio ambiente, a juventude também enfrenta angústias ligadas a uma vivência social muitas vezes esvaziada.

A comunidade científica manifesta preocupação sobre esta última, como podemos evidenciar a partir das discussões promovidas por Gilles Lipovetsky (2005). O autor discorre sobre a manifestação constante do individualismo e a valorização da aparência sobre a essência no período contemporâneo – ou *age of emptiness*, em Inglês. Outros autores denunciam ainda uma relativa conformidade com a realidade econômica pautada no constante crescimento da produção e do consumo, o que afeta a própria condição humana, como é o entendimento de Cornelius Castoriadis (2006) e Zygmunt Bauman (2011). No que concerne à juventude, os mais jovens são incitados a associar felicidade com capacidade de consumo, uma vez que esta é fácil de ser exibida em um mundo tornado tão próximo e tão distante pela explosão das redes sociais.

Não obstante, o atual sistema educacional – por alguns dito globalizado (Gilbert 2004) – gradativamente se torna mais competitivo e voltado para o atual mercado de trabalho, o qual oferece oportunidades escassas de empregabilidade mesmo para aqueles jovens que possuem diploma universitário. A retórica neoliberal atribui um papel estratégico à educação escolar uma vez que esta contribui para a transmissão e perpetuação dos princípios neoliberais, correlatos com uma ideia de consumo inconsequente e desmedido entre os estudantes. Tal fato é bastante preocupante, e por isso mesmo este livro apresenta discussões sobre como a escola pode reconquistar seu caráter de espaço democrático para o debate sobre o combate às práticas de consumo ambientalmente insustentáveis e a promoção do consumo ético.

Neste processo de reconquista, há de se reconhecer a importância de professores e alunos enquanto agentes políticos, bem como das relações de ensino-aprendizagem que se estabelecem entre ambos. Caso contrário, o ideário de "dias melhores," como qualquer outro processo de transformação social que perpassa a questão educacional, já nasce defunto. Em suma, o livro busca debater a participação da juventude no mercado consumidor com especial destaque para a importância da escola como local privilegiado para tratar do papel da ética no consumismo juvenil desenfreado.

Em se tratando das contribuições selecionadas para este livro, o **capitulo 1** é dedicado a uma introdução aprofundada da obra. Além disso, os autores Giuliano Reis, Michael Mueller e Rachel Luther apresentam uma breve reflexão sobre formas como o consumismo juvenil se materializa no cotidiano. Dessa forma, eles buscam preparar o leitor para os capítulos subsequentes.

O **capítulo 2**, desenvolvido por Jenny Martin e Lyn Carter, trata do tema desenvolvimento sustentável sob a ótica do letramento cientifico. Para tal, as autoras propuseram algumas atividades para graduandos de primeiro ano que os possibilitassem refletir sobre suas próprias práticas de consumo. Elas discutem os resultados obtidos a partir de uma perspectiva sociocultural, bem como debatem sobre as dificuldades que os jovens enfrentam enquanto cidadãos globais, membros de uma geração caracterizada pelo consumismo, além da própria projeção profissional que estão inseridos, ou seja, enquanto potenciais professores.

Christina Nash discute no **capítulo 3** a inserção da tecnologia nas diferentes esferas da vida cotidiana. Em especial, argumenta sobre as possibilidades de utilização da mesma pelos jovens como ferramenta de conscientização das práticas de

consumo e sobre o meio ambiente. Para isso, trabalhou especificamente com professores da educação básica na ressignificação do que entendiam como alfabetização tecnológica e também midiática, bem como a sensibilização dos mesmos sobre as potencialidades desses temas para as discussões ambientais e sobre o consumismo.

No **capítulo 4**, Snežana Ratković, Dragana Martinovic e Trevor Norris discorrem sobre a importância dos currículos escolares na formação ideológica dos estudantes, o que reforça o papel estratégico da educação escolar na perpetuação do *status quo*. Os autores trabalham o tema do consumismo juvenil a partir do estudo dos currículos de matemática, ciências e ciências sociais na educação básica da província de Ontário (Canadá).

O **capítulo 5**, aqui publicado integralmente em Português, defende a busca pela felicidade em contraposição ao individualismo, a competitividade e aos níveis absurdos de consumo contemporâneos. De maneira sistêmica, os autores discutem o reconhecimento de três tipos específicos de ética – ética da autenticidade, ética da religação e ética da sociabilidade – como importantes contributos para uma vida menos fragmentada e mais autenticamente feliz para os jovens.

O **capítulo 6** trata da aplicabilidade da Teoria Ator-Rede enquanto ferramenta de contraposição ao consumismo oriundo da consolidação do sistema econômico global. John Bencze, Lyn Carter e Mirjan Krstovic discutem de modo aprofundado o papel da educação nesse contexto ao relatar um estudo de caso de um professor que visa estimular em seus alunos um modo de pensar crítico, contrario a lógica consumista e voltado a solução dos problemas socioambientais atuais.

No **capitulo 7**, Jesse Bazzul discorre sobre as subjetividades presentes nos livros didáticos de biologia, especialmente as ligadas ao neoliberalismo, ao capitalismo, às questões de gênero e ética. O autor ainda se preocupa em discutir maneiras concretas de como os estudantes podem assumir seu papel de atores éticos nas questões atuais ligadas ao consumo.

O **capítulo 8**, escrito por Sara Tolbert e Alexandra Schindel, apresenta experiências escolares enquanto possibilidades de engajamento ético com a temática ambiental e econômica, ambas fortemente ligadas as práticas de consumo juvenil. Mais especificamente, os autores discutem como práticas de sustentabilidade poderiam ser promovidas de maneira mais pedagógica, especialmente em contextos de opressão econômica. É apresentada uma ética de cuidado da terra e dos povos, bem como estudos de caso que evidenciam como os jovens podem se beneficiar da reconsideração de suas práticas de consumo.

No **capítulo 9**, Helen Kopnina trata dos conceitos de produção e consumo sustentáveis a partir do estudo de modos produtivos, como a produção em circuito fechado, a economia circular, a economia de estado estacionário e a C2C (do Inglês "Cradle to Cradle," ou "de berço a berço"). É feita a discussão de um estudo de caso onde estudantes universitários realizaram um plano de negócios para uma empresa, o qual visava a transição de uma modelo de economia linear para uma circular. Assim, o texto busca criar uma correspondência entre o que é ensinado no meio acadêmico e sua aplicação prática na sociedade.

O **capitulo 10**, de Carolina Castano Rodriguez, centra-se na questão da educação na promoção das ideologias especistas, as quais legitimam a utilização antiética e brutal das demais espécies animais. Esta insistente subjugação das outras espécies animais pelo homem contribui para a criação um modo de vida insustentável pois comodifica a vida, transformando indivíduos em bens econômicos. Aqui, defende-se a necessidade de lutar para que os jovens possam identificar a educação enquanto espaço de debate para temas como o direito dos animais, a justiça socioambiental e o anti-consumismo.

O **Capitulo 11**, de autoria de Nathan Hensley, critica o modelo atual de currículo utilizado na educação estadunidense. Segundo o autor, a grade curricular é instrumentalista e voltada primariamente para a formação de futuros trabalhadores e consumidores. Para estabelecer um contraponto a esse paradigma, o autor defende a necessidade de transcender e transformar a abordagem científica-industrial da educação, o que envolveria ações como desaceleração, desconexão e reconexão, além de uma maior atenção às questões ecológicas. Cada um desses componentes é necessário numa educação transformadora e que promova um engajamento significativo entre os estudantes, seu entorno e sua grade curricular. Somente assim a escola estaria contribuindo para a formação de cidadãos críticos e conscientes dos desafios socioambientais contemporâneos, tornando-os também capazes de lidar com outras questões desta natureza.

**Capitulo 12**, Princess Daazhraii Johnson explora no capítulo 12 o consumo ético juvenil no Estado do Alasca (Estados Unidos). O texto discute como as conexões que os seres humanos estabelecem entre si, com os animais e com o espaço em que vivem são influenciadas (e influenciam) as atuais praticas de consumo. Neste sentido, o Alasca apresenta um interessante panorama: enquanto possui uma grande dependência sobre os combustíveis fósseis e sofreu rápidas mudanças climáticas antropogênicas, este mesmo estado também hospeda valores de desperdício zero e respeito ao meio ambiente originários de suas populações nativas tradicionais. Esse último aspecto é defendido como uma importante filosofia a ser resgatada. Tal esforço é válido no sentido de encontrar soluções para garantir um meio ambiente saudável para as futuras gerações.

O **Capitulo 13**, de Giuliano Reis, recorre à análise de histórias pessoais para a abordagem do consumo ético, especificamente, por meio da perspectiva familiar. Parte-se da crítica à mercantilização da educação escolar e do ensino, no sentido de promover a reflexão sobre os seus impactos na forma como os jovens são introduzidos às práticas de consumo desenfreado. A partir do compartilhamento das vivências do autor, o objetivo esperado é o de instigar os leitores a reconsiderar suas próprias experiências familiares sobre a aprendizagem do consumo como maneira de promover práticas sustentáveis e responsáveis na perspectiva socioambiental.

O **Capitulo 14**, escrito por Sophia, Jeong, Sun Young Jeong, Mutlu Sen e Deborah J. Tippins, aborda uma atividade pedagógica desenvolvida sobre a epidemia do Zika vírus em 2016. Essa doença despertou a atenção da imprensa, da comunidade científica e do público em geral e, portanto, foi escolhida como material pedagógico para a formação de futuros professores em discussões referentes à sua transmissão. Assim, os autores apresentam o debate que promoveram com alu-

nos da licenciatura sobre o uso de fortes pesticidas para o controle populacional de mosquitos, o que possibilitou a reflexão sobre possíveis mensagens ligadas à mercantilização da saúde, da doença e do corpo por meio da utilização educacional do tema.

Por fim, o **capítulo 15**, escrito por Wolff-Michael Roth, trata da polissemia do termo consumismo, das características da abordagem histórico-cultural sobre o tema e de suas diferenças com a abordagem construtivista. Trata ainda do papel político da escola, frequentemente conivente com as práticas do consumo inconsequente.

Em suma, as contribuições deste volume apontam para possíveis respostas aos seguintes questionamentos: Em um contexto onde a individualidade se confunde com poder de consumo de produtos massificados, como os jovens constroem sua identidade? Isto é, como e por que eles consomem? Quais ações tomam em contraposição ao *status quo*? É possível de se falar em solidariedade numa sociedade consumista? Quais metodologias estão sendo empregadas nas pesquisas sobre consumismo juvenil? Quais outros papeis podem ser assumidos pela educação científica e ambiental na escola em relação às práticas de consumo de professores e alunos? Como a mídia e a tecnologia se encaixam nesta discussão? O que ainda não foi discutido sobre o tema e quais os direcionamentos passíveis de serem considerados?

Mais especificamente, os diversos capítulos – que contam com a participação de uma rica diversidade de pesquisadores de instituições renomadas – exploram a questão do consumismo ético juvenil sob a ótica da teoria sociocultural inserida no contexto da educação científica e ambiental. Ao mesmo tempo, os autores não se restringiram à crítica, mas também avançam ideias que visam auxiliar educadores e jovens a adotar filosofias e hábitos de consumo eticamente orientados. Dessa forma, buscou-se resgatar também a esperança de que é possível consumir de forma sustentável, tanto no âmbito social quanto no ecológico, isto é, justa e responsável para com o outro, seja ele humano ou não.

Finalmente, é importante considerar que o estudo do impacto do consumo entre os jovens é relevante para a compreensão das práticas de consumo na totalidade da sociedade e vice-versa. Afinal, os diversos grupos sociais que compõem nossa sociedade globalizada se inter-relacionam constantemente no tempo e no espaço, além de implicarem uns sobre os outros em diversos aspectos. Assim, pode-se afirmar que todos nós compartilhamos (mesmo que de forma desproporcional) a responsabilidade para o desenrolar histórico e social da humanidade e do planeta.

Catholic University of Brasilia
Brasilia, Distrito Federal, Brazil

Luiz Síveres
Renato Brito
Idalberto Neves Júnior

University of Caxias do Sul
Caxias do Sul, Rio Grande do Sul, Brazil

Paulo César Nodari

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**Luiz Síveres** é doutor em Desenvolvimento Sustentável (Universidade de Brasilia) é diretor do Programa de Pós-Graduação em Educação da Universidade Católica de Brasilia (UCB). Sua pesquisa se concetra nas áreas de ensino-aprendizagem e formação de novos professores (licenciaturas).

**Renato Brito** é Doutor em Educação pela Universidade Católica de Brasília. Atualmente é Pesquisador do Grupo de Pesquisa "Políticas Federais de Educação" UCB/CNPq. Atuou na Assistência em Projetos do Programa das Nações Unidas para o Desenvolvimento – PNUD/ONU e foi Consultor/Avaliador em Programas do Ministério da Educação (MEC). Autor do Livro: "Gestão e comunidade escolar: Ferramentas para a construção de uma escola diferente do comum" (Liberlivro/Unesco 2013).

**Idalberto Neves Júnior** é doutorando em educação na Universidade Católica de Brasília (UCB). Sua pesquisa se concetra nas áreas de ensino-aprendizagem e formação de novos professores (licenciaturas).

**Paulo César Nodari** é doutor em Filosofia pela Potinfícia Universidade Católica do Rio Grande do Sul (PUC-RS) e University of Tübingen (Alemanha). É atualmente professor na Universidade de Caxias do Sul (UCS). Sua pesquisa se concetra nas áreas de ética, liberdade, direitos humanos, paz, antropologia e educação.

# Chapter 1
# Sociocultural Perspectives on Youth Ethical Consumerism: An Introduction

**Giuliano Reis, Michael Mueller, and Rachel Gisewhite**

*You know that we are living in a material world.*
*And I am a material girl.*
*("Material Girl" by Madonna)*
*What did we bring into the world? Nothing!*
*What can we take out of the world? Nothing*

(1Timothy 6:7)

## 1.1 *Homo Imperium*

Humans are a bizarre species. According to the online Merriam-Webster dictionary, the word bizarre means: "strikingly out of the ordinary: such as (a) odd, extravagant, or eccentric in style or mode; (b) involving sensational contrasts or incongruities." Although there are different characteristics that set us apart from other animals – like the possession of higher brain functions that make us persons (DeGrazia 2004) – none is likely more distinguishing than consumerism. Isn't that some wacky feature to be known for?

Strictly speaking, consumption is life. Even the simplest beings – like the *Mycoplasma genitalium*, a human urogenital bacterium that has the smallest known genome of any free-living organism (Fraser et al. 1995) – need to consume some kind of matter to produce the energy necessary for their existence. At the same time, "at its most basic, the term 'consumption' has to designate any activity which involves or depends (however indirectly) on the destructive exploitation of natural resources" (Gilbert 2011, p.35). On the other hand:

G. Reis (✉)
University of Ottawa, 145 Jean-Jacques Lussier, K1N 6N5 Ottawa, ON, Canada
e-mail: greis@uottawa.ca

M. Mueller
University of Alaska Anchorage, Anchorage, AK, USA
e-mail: ak.mikem@gmail.com

R. Gisewhite
Trezevant High School, Memphis, TN, USA
e-mail: rachel.gisewhite@gmail.com



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> *Consumerism* is not about the fundamental, inescapable need to gather resources in order to survive. Rather, it refers to the action of consumption as a behavior in itself: consuming not to live but for other, less functional and indeed less rational ends. (Benett and O'Reilly 2010, p. 3)

Notably, nonfunctional consumption – or hyperconsumption (Mulligan 2015) – is not a recent phenomenon in human societies and references to its long existence can be found in unexpected places, like the bible. For instance, the book of Exodus tells how the Israelites left slavery in Egypt through a 40-year journey in the wilderness. In archeological terms, it is possible that the Exodus – or "departure – would have occurred in the 13th century B.C. (Millard 2000). As the story goes, after about 6 weeks of their leaving, people were hungry and started regretting their decision to follow Moses. In response, God said: "I will cause to rain bread from heaven for you; and the people shall go out and gather a day's portion every day" (Exodus 16:4). Here, God is very clear that people should only collect the amount of food necessary for a single day, so that there would be no leftovers. Nevertheless, some of them attempted to store extra portions of the edible substance, known as "manna": "Notwithstanding, they hearkened not unto Moses; but some of them left of it until the morning, and it bred worms, and rotted; and Moses was wroth with them" (Exodus 16:20). Regardless of the underlying religious message or the exactness of the narrative, it serves well to illustrate humans' ancient predisposition to overconsumption. More importantly: it suggests that, given the right conditions, people are more likely than not to consume what they want and in excess to their genuine survival needs.

Fast-forward 3000 years. In 2012, UNICEF conducted a First World Problems Survey in New Zealand about the most irritating things people had to deal with in their country (Harper 2012). The results include trivialities, like slow Internet access (ranked the top problem) to uncomfortable couches, and being unable to win a game on one's phone. That is, in certain parts of the planet, people continue to live well beyond their basic living necessities to the point where acquiring food and clothing is irrelevant to their daily life. Likewise, in similar developed countries, like Canada and the United States, the TV is often populated with paper towel commercials where the lavish wasting of food is associated with good parenting and a natural step in a child's learning development (Reis and Oliveira 2014). In real life there is also the usual sighting at restaurants of untouched food being thrown away for no apparent reason (Fig. 1.1) or the discarding of a portion of one's coffee to add milk at the coffee shop's condiment station (Why not drink it? Why not ask the barista to leave room for milk or cream?).

As bizarre as it may sound, at the same time, there are people dying of malnutrition in these same countries. (Yes, we mean developed countries like Canada and the US!). This fact was sadly attested during a visit of Giuliano Reis to a food bank as part of a social justice-based project for one of his university classes. There, participants learned of the then-recent passing of one of the neighbours – the food bank staff refuses to call them clients. Albeit a remarkable attention to the notion that language can both represent and shape the way people structure and understand the world (Reis and Ng-A-Fook 2010), it was the cause of death of that fifty-odd indi-


**Fig. 1.1** Food trays at a restaurant in Canada sitting atop a trash station. In the picture, two dinner rolls and one cheese sandwich have been discarded despite their apparent suitability for consumption. Why not take them home? Why not give them away to someone in need? ©Reis (2017)

vidual that caused perplexity. How does one die of malnutrition in a country with the 9th highest global Human Development Index (United Nations Development Programme 2015)?

Remarkably, the stark contrast between the haves and have-nots is fueled by assumptions of either abundance or scarcity. For example, the "towel-gate" incident – a story involving the misleading product display of the mega-chain Bed Bath & Beyond – illustrates well how a sense of plenty can induce consumption through triggering optimism and positive emotions in shoppers (Kingston 2013). Conversely, research has shown that creating an artificial product shortage is a common strategy adopted by retailers to create a feel of uncertainty in consumers' minds (Gupta 2013). It is meant to lead to in-store hoarding and hiding as means to satisfy shoppers' urgency to buy. In the end, it seems that no matter if the shelves and racks are full or half-empty, the temptation to reach for our wallets and spend more than we need to is ever present at all ages.

In a way, people's general disposition to overconsume can be thought to be an expression of their urge for an orderly world. Unpredictability is not a desirable trait in our times: we check the weather forecast before leaving the house, use the navigation systems in our cars to find the fastest route to work in the morning, are hooked on statistics to decide which type of mortgage to get, and classify everything about their worlds – from socks in drawers to living beings. (As Wolff-Michael Roth (2005) put it: "to classify is human" [p.581]). Even at the awakening of the 9/11 attacks, the mayor of New York urged people to return to the security of the life they knew before the tragedy mostly by going shopping and spending money (Adler and Adler 2002).

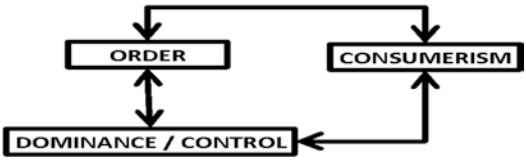


**Fig. 1.2** Our desire for order is intimately related to an urge to acquire things, which in turn can be seen as an expression of our supremacy – and vice-versa

In circumstances where stability is a prized sought-after commodity, people attempt to create order by exercising dominance and control over their immediate environment. Otherwise, they cannot predict the functioning of life. So much so that humans have displayed their supremacy in different opportunities, like when they learned how to domesticate plants and animals for agricultural (Ucko and Dimbleby 1969) as well as seemingly educational purposes (Desmond 1999). Whatever the case may be, the possibility of an orderly world creates a sense that people can choose to make their lives the kind of fulfilling experience they want it to be (Glasser 1998). It also allows for consumerism to present itself as a means to satisfy contemporary ideals of success and wellbeing. After all, the craving that people have for the acquisition of things – be it in the category of technology, food, automotive, or retail – is nothing less than another emblem of their thirst for dominance and control over their surroundings (Inesi et al. 2011). It is a power display: they get what they want when they want it. It is also part of our biological and cultural heritage (Saad 2007): those who possess more stuff are considered part of a privileged group that is able to provide in abundance for suitable partners and eventual offspring – the so-called "fittest." In addition, there are the rewarding feelings of belonging, identity and self-worth that go with being part of such a group (Page 2015), including the eternal "pursuit of cool" (Wooten and Mourey 2013, p.169). That is how consumerism and power come full circle with one another (Reis 2017) (Fig. 1.2).

Oddly, people can take extreme measures to find the financial resources they need to satisfy their consumerist itch. Take the case of an unemployed 41-year-old Brazilian who has decided to sell his own skin as a billboard (Lavezo 2014). He has about 50 tattooed advertisements spread around his chest, back, and arms. The sponsors vary from garages to supermarkets and restaurants (Fig. 1.3). Bizarre?

What about yourself? Do you have only what you need? Could you live with less of what you have? How do you discern between what you want and what you need? How many times have you gone out of your way to get what you wanted (but did not really need)? Then, again: what's new?


**Fig. 1.3** The back of this unemployed Brazilian is tattooed with advertisements from local businesses. Note the two ads that are crossed over (*left*), possibly due to the termination of the contract. He has been doing this for over a decade (Source: Marcos Lavezo/G1. Copyright © 2000–2015 Globo Comunicação e Participações S.A.)

## 1.2 Youth and Consumption: Setting the Stage

It is 2011. Riley is seen in what looks like a girls' toy section of an average North America retailer. She is ranting about the unfairness of marketing strategies employed by "the companies who make these [toys and] try to trick the girls into buying the pink stuff instead of the stuff that boys want to buy." She believes that it is unreasonable "for all the girls to buy princesses and all the boys to buy superheroes because the girls want superheroes and the boys want superheroes." Riley was 3 years old that year, and her video has been seen over 5 million times (dbarry1917 2011). Although it is surprising that such a young child could be so articulate, she nevertheless evidences a clear grasp of basic marketing strategies (Graboviy 2011).

It is 2014. A Quebec porn star plans a sex marathon with 25 men. In exchange, she will receive a cheque from her employer, which is producing the event and plans to film the whole thing. The money will cover the costs of breast implants from a surgeon of her choice. She is 22. For the city Mayor, it is a shameful display: "We want an image of healthy women," he said. "We don't want young girls to have an obsession with a certain body shape that is not accessible in many cases, and the values driven by this event are contrary to all of that" (Smith 2014).

In this bizarre scenario of global consumerism, young people are "socialized for the role of consumers" (Pecora 1998, p.8), making childhood also an economic construct (Zelizer 1985). This, in turn, affects children in adverse ways:

> Elsewhere in the developing world (…) children remain marginalized and in poverty, irrelevant as consumers despite their overwhelming needs and forced to grow up prematurely, becoming little soldiers, little prostitutes, and little garment-factory workers giving some to the global market economy but gaining little from it. They are wholly disempowered even when they are used and abused. And they are always the first to pay the cost of global economic inequalities. Their needs are ignored by global capitalism since they have no disposable income to pay for them. (Barber 2007, p.10)

As consequence of such marginalization, a Brazilian news outlet reported on what is dubbed "ostentation theft" (Globo 2014). In this modality of crime, youth steal expensive cars, brand clothing and jewelry only to show off to their acquaintances. It has gotten to the point where these young offenders post pictures of the stolen goods on social media.

These examples illustrate the existing complex relationship between youth and consumerism, which originates in the creation of enthusiastic consumer desires particularly among those with few needs (Bencze 2014). As a result, teenagers in the US alone reportedly spent $200 billion in 2012 in products bought by and for them (Statistic Brain). Ultimately, we are all confronted with references to youth consumerism on a daily basis, even during festive days like Halloween, when some people might find it fun to pretend to be a panhandler (Fig. 1.4). (Bizarrely enough, poverty has not escaped commodification).


**Fig. 1.4** A young child is dressed up like a homeless person for Halloween. In the original image it is possible to see a fake beard painted on the child's face. Also, it is not uncommon to find pictures where some of the teeth have been painted in *black* to suggest inadequate oral hygiene practices. One can only wonder how mimicking (mocking?) poverty can impact one's perception of not only consumerism, but also social inequality (Source: Costume Works. Copyright © 2006–2017)

Our choice of the theme *Sociocultural Perspectives on Youth Ethical Consumerism* indicates the intimate connection between "consuming the planet to excess" (Urry 2010) and education. It also highlights our decision to focus on the sociocultural aspects of consumption, which embodies rich and diverse perspectives from the ancient past, present, and future that can be catalyzed to mediate nihilism and despair associated with the extinction of cultural languages and species. Hence, the sociocultural is both a crisis and an opportunity for educators interested in revitalizing the human relationship with itself and the nonhuman: "as environmental educators and ethicists, we often recognize inconsistencies between students' professed values and the actions they prescribe on behalf of the natural world" (Goralnik and Nelson 2011, p. 181). And youth ethical consumerism, or youth as social actors making decisions through their consumption of not only industrial goods and services, but also ideas, ideals, and utopias, fits the bill perfectly.

## 1.3 Youth & Consumption: Looking Closer

Youth are intimately connected to one another and their families through their actions at school, in neighborhoods, and other local places nearby, like shopping malls, restaurants, and home. Not surprisingly, their decisions are influenced by a deeply embedded residual of sociocultural or ecosociocultural memories that are comprised of a resonance of the cultural milieu, but may not provide the whole picture of taken-for-granted relations. Consider for example how in the western world youth are generally raised to value the high status associated with possessing buying power as opposed to understanding the relationship of their consumption habits with the larger picture of poverty or natural resource extraction and depletion. Do these children realize the ways that the western priority of consumerism create a culture of poverty? Even within those homes where children are raised to not prioritize wealth and accumulation of material items, it is hard to ignore the mindless zombie sleepwalking of Black Thursday, Christmas, Boxing Day, birthdays, anniversaries, and other cultural events.

Youth consumption, or phrased differently, the entry of young people into the consumer market, is noted to have started around the 1930s with an accelerated consumerist participation after the Second World War (Lury 2011). With more disposable income, youth illustrated their spending power by purchasing leisure items such as records, magazines, entertainment, and clothing – even among the working class families. This spending power morphed into a new ecosociocultural resonance for many, although this new lifestyle was experienced differently by middle class youth, as their disposable income was not as autonomous as their working class counterparts, largely due to their parents' values. Therefore, young people became an extremely important focal point for the market as they increasingly consumed non-essential goods and services – in opposition to adults' consumer habits (Miles 2000).

According to Douglas Goodman and Mirelle Cohen (2004), youth serve three roles in the popular consumer culture: profitable current market, potential future

market, and group that influences other markets. The influence of youth on the worldwide consumer stage cannot be overstated, as they reflect the changing nature of society and thereby act as human barometers of what sociohistorical changes are occurring (McNeal 1992). Young people also act as a bridge between older and preadolescent generations of consumers by indirectly influencing parental and familial choices and consumption. Indeed, all consumption is communicative and interactive (Benn 2004).

As youth continue to experience consumerism from a very young age, their identity is inseparable from the consumption culture in which they exist and also helped to create. In a general sense, identity refers to "some way of describing or conceptualizing the self" (Devine-Wright and Clayton 2010, p. 267). The globalizing of a consumerist ideology associated with the rise in sophisticated media has inundated young people with signs and symbols of a culture packaged with values, group membership, and tastes for brands that are difficult to navigate through (Best 2006).

Contradictorily as it may seem, this context has also created the conditions for the same youth to develop into pro-active consumers by way of utilizing "objects of the consumer market toward their own ends: to construct identities, to express in-group solidarity, to define themselves apart from their parents and others" (Best 2006, p. 259). Clothing style, music, Google, and other brand names are some of the hallmarks of the current generation and cultural icons that young people absorb and adjust to their particular tastes. These acts of consuming "mark and mask difference in relation to their identity" (Deutsch and Theodorou 2010, p. 231). Subsequently, consumption allows for the emergence of consumerism as well as group membership through the crafting of consumed individualities – as deceptive as the latter may be. If consumption is understood as an act of expression directed towards image formation, then we may devise that the existing consumer culture is an "image culture" (Paterson 2006).

Another part of this culture has to do with the natural world, which for some individuals provides an important focus for their sense of self. According to Susan Clayton and Susan Opotow (2003), "environmental identity" develops when people organize elements of their sense of self around some part of the natural or nonhuman environment. Like other domains of identity, the environment may guide patterns of thinking and behavior within the context of personal, social and political choices – including one's personal engagement in environmental activities and actions (Kerckhoff and Reis 2014).

## 1.4 Youth Ethical Consumerism: More Questions Than Answers?

Human life is dependent on the consumption of food, energy, light, building supplies, oil, gas, metals, plastics, and electronics (Figs. 1.5 and 1.6). At the same time, tons of hazardous chemicals, fertilizers, herbicides, and pesticides are used continuously worldwide in an effort to get what we want when we want it. To make matters worse, the 2011 Ecological Footprint Index states:

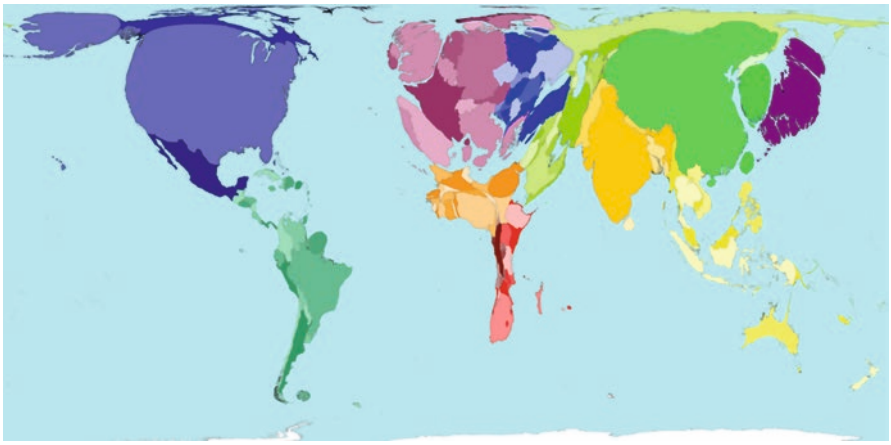

**Fig. 1.5** Ecological Footprint shows the measure of the area needed to support a population's lifestyle (i.e. consumption of food, fuel, wood, and fibers). Pollution (e.g. carbon dioxide emissions) is also included. This map shows the gross disparity of consumption and pollution for the United States in particular. Unfortunately China and India are also large consumers (Source: worldmapper.com 2006)

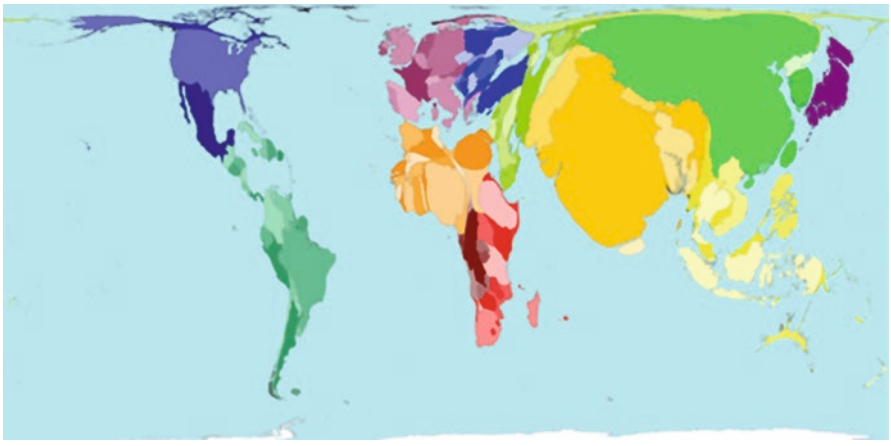

**Fig. 1.6** World Population shows the distribution of persons worldwide. Comparatively there is a gross disparity of the per capita use of agricultural and natural resources for countries such as the United States, whereas China and India have much larger national populations (Source: worldmapper.com 2000)

> At present, human demands on the planet's resources mean that we are living outside our means. Globally, the human population is utilizing the resources of 1.5 planets, while European lifestyles imply a use of three times the planet's capacity to sustain. (Frid and Paramor 2012, p. 149)

Notably, it has been suggested that the current level of global economic activity has already exceeded sustainable limits (Sutton et al. 2012). With population increase

and the ever-expanding economy, the world's poor and future generations are likely to suffer the most in the race to deplete and exploit the Earth's finite resources. Despite that, today's youth face a Titanic mindset of hyperconsumerism, and yet there is an extreme sense of nihilism about what can be done to reduce the North American footprint (Zeyer and Roth 2009).

In light of this timely interest on youth ethical consumerism, we find it worth asking the question: what consumption of any "color," perception, or modern movement holds for youth? If the ecosociocultural patterns of hyperconsumerism are embodied or valued by youth, then what are the ramifications for future people? In face of the green trends, organic foods, hybrid cars, wind power, reduced emissions, and the global consciousness raising around green issues, one could easily dismiss the cultural language, traditions, skills, ceremonies, and narratives that are being rapidly enclosed, threatened or vulnerable with consumerism (e.g. how the digital shopping experience encloses face-to-face).

There is doubt about what the reemergence of green values can do to protect other-than-human-species from being threatened or lost forever. This conservation effort is most exemplified through charismatic animals like polar bears and dolphins, although there are many countries around the world that have already extended legal rights and agreements to protect local animals, habitats, and even plants (Mueller et al. 2011). Also noteworthy is the explosion of so-called "green products" on the market worldwide. Ironically the process of greenwashing reminds us that people have not decreased their spending just because the market is flooded by products that lighten the load (Jakubiak and Mueller 2014).

So, when these uncertainties and contradictions around youth consumerism become more visible, we may begin to see that addressing what youth ethical consumerism means for education has much more to do with the ways that youth are learning to engage in patterns of thinking and action that impact the Earth's habitats and people in far more conspicuous ways. Only then, we may begin to see how revitalizing particular elements of the sociocultural is imperative to an education that desires to prepare youth to engage more ethically with their world. If "green" also equates with one's lack of experience with hyperconsumerism, then youth – especially in their adolescence – may be appropriate and significant participants in any movement to resist a lifestyle that is associated with increasing social status through consumption.

We may need to ask how we know that consumerism or the sociocultural characteristics associated with consumerism are harmful for people and the Earth. Consider for example the elderly woman who goes for a walk with her husband in the mall to lose weight – a "mall walker" – while also exercising the habits of mind and patterns of action deeply interwoven with consumerism. Youth may see these actions while accompanying some of those elders on their brand-name strollers. Is the mere participation in the habits of mind and the actions associated with consumerism necessarily harmful for modern society? If youth learned how to engage in the consumerist way of life but did not purchase goods or exhaust resources, would consumerism still be deemed harmful in the sense that it did little to degrade Earth?

What does it mean to engage youth in ethical consumerism or "sustainable consumption" (Cohen and Murphy 2001)? What role would the revitalization of cultural languages, traditions, skills, ceremonies, and narratives have on reducing

future peoples' ecological footprint? To what extent would heightening the social or ethical characteristics associated with caring, trust, respect, and relationships with youth correspond with their ecological impact? Is there more to youth ethical consumerism in education than teaching children to reduce their spending, downsize, and live more sustainable lives financially? Is it possible or even ethical to promote the intergenerational knowledge, traditions and narratives of people who have no other choice than to live with less money? Would it be considered ageist or elitist to hold youth to different standards of living not consistent with the live-and-let-live mantra and freedoms of people who acquired wealth and status? Is it a performance contradiction to focus on youth while many adults are stuck with monster-sized loans, debt, homes, cars, and so forth? If it could be shown that consumerist oriented ways of living have been presented exclusively to some children with the effect that the power associated with this knowledge has remained with these few, would it not be appropriate to make this knowledge more widely accessible? Then, it seems almost paradoxical that youth worldwide would not want to adopt the higher-status, market oriented patterns of thinking and action. Where might we begin? Can schools become a privileged space for youth ethical consumerism to develop?

## 1.5 Youth Ethical Consumerism: An Ecojustice Perspective

Despite that schooling may have been considered as off-limits for industry in the early days of affluent white boy education, corporations now set their targets on youth and set up "mini-malls" in the halls, promote spending through vending, and proselytize fundraisers that literally turn children into walking billboards – much like the Brazilian male who tattooed his body with ads for local businesses. Today's youth either "keep up with the Joneses" or get sidelined by the neoliberal bullies of classroom bling and technological turnover. There certainly is no free lunch even in schools with reduced lunch, where most of the corporate kitchen contracts profit from one-size-fits-all-meal-trays.

Schools are also complicit in exposing youth to consumerist attitudes through their privatization (where their activities and responsibilities are controlled by private providers of educational services) and marketization (whereby they function on market principles of performance and efficiency) (Molnar 2005). Hence, youth are constantly bombarded with consumerist messages through the presence of commercial advertising, corporate created curriculum, sports equipment covered with company logos, etc. In other words, while schools certainly provide a space for selling and consuming learning, they are also the sites where youth potentially unlearn to rethink current consumerist practices which may happen through some existing incongruities with environmental education (Gruenewald 2004). The world's mounting environmental challenges are dire for youth, especially if considered that they are often facing many social, physical, sexual, and intellectual challenges proper to this stage of life (Lee et al. 2014).

Robert Stevenson (2007) has identified four areas of contradiction (or tension) within schools that want to pursue a more environmentally-driven agenda: (a) philosophical intent – schools are primarily agents of social reproduction, whereas envi-

ronmental education demands a revolutionary approach; (b) classroom pedagogy – schools are biased toward individualistic, content based approaches whereas environmental education requires cooperative strategies with an emphasis on creative and critical thinking; (c) school organization – schools are biased towards assembly line efficiency which is antithetical to deep thinking, contradictory stances and ambiguity inherent in environmental education; and (d) curriculum ideologies – schools tend to be biased towards providing superior knowledge that ranks highly but is largely incongruent with the aesthetic, spiritual and emotional intellectual diversity that affirms environmental literacy.

At the same time it might be argued that some approaches to education hold the potential for overcoming this contradictory situation. For instance, Chet Bowers (2001) puts forth an educative framework based on the concept of "ecojustice." This framework aims to assist students in understanding the cultural assumptions that underpin the industrial and consumer dependent lifestyle that reside in the analogies and root metaphors within language and that are often taken-for-granted. These language patterns (e.g. the environment is "out there" or "wild") uphold an "individual psychology that accepts consumer dependency and environmental degradation as a necessary trade-off for achieving personal conveniences and material successes" (Bowers 2002, p. 30). The ecojustice movement reinvigorates education to incorporate critical and deep reflection to foster awareness of these patterns of thinking and acting, but also to push students to see the relational resonance within education as well.

The relational side of ecojustice theory and multiple associated pedagogies are about considering more fully how our daily interactions with technology and the physical buildings of our lived spaces, for example, should be understood, re-witnessed and re-envisaged from ecological influences rather than through an exclusive industrial and consumerist lens. Focusing on non-commoditized activities of a community in which students live act as a way to reeducate youth with intergenerational sharing of knowledge and skills and face-to-face conversations, rather than solely basing learning from TVs, computers or other technological enchantments of the modern industrial culture. Ecojustice has morphed over the last decade and now includes the pluralism associated with community-centered education globally, which may take the form of place-based education, citizen science, and youth ethical consumerism (Mueller 2009).

## 1.6 This Book

More than a decade ago, Gordon Wells and Guy Claxton (2002) asked: "What should be the goals of education and by what means can those goals best be achieved?" (p.1). Yet, according to the same authors, in times of rapid social, economic, scientific, technological and political changes like ours, any eventual answer ought to consider the great urge for ecological responsibility. Hence, this question resonates well with the education community in regards to the theme of youth

ethical consumerism, especially science education (Mueller and Bentley 2009). Nevertheless, a socio-ecologically just perspective on education requires educators and researchers to consider a range of aspects – social, cultural, economic, political, psychological, and ethical – other than exclusive scientific ones to attend to the environmental issues of our communities. More so: in this multifaceted situation, "the complexity of interactions which determine behavior (action) illustrates that environmental citizens are not produced merely by programmes of education, but by a whole range of factors which education may interact" (Hawthorne and Alabaster 1999, p. 40). Otherwise, any education for the environment is trivialized if it does not entail a challenge to the ideology which has made such education necessary" (Cross 1998, p. 1350).

In addition, schools are suspected to facilitate the creation of transient consumerism habits – particularly among those with fewer needs – that works to alienate individuals into compromising the wellbeing of societies and environments worldwide (Bencze 2014). The education research community is required to constantly theorize and assess the capacity of schools to undertake the essential and demanding task of educating young people as scientifically and environmentally literate global citizens. Otherwise, teachers and students will continue to struggle to promote and advance those literacies – like science and environmental – that generate the much needed "large-scale social change in how humans live on the planet" (Manitoba Education 2011, p. 3).

Therefore, the purpose of this book is to share, examine, and discuss practice-based and theoretical knowledges that can provoke those in the field of education to critically re-think consumerism in more ethical ways. More specifically, the authors aspire to examine how education has favored – as well as disfavored – youth hyper-consumerism, from food and technology to shelter and transportation. The guiding question of each contribution is: What are current and potential contributions of education to the empowerment of youth to adopt more ethically-oriented consumerism habits? Other guiding sub-questions include (but are not limited to) the following: What is known about youth's consumerist habits? How and why do they consume? What is the role of school, media, and technology in youth's consumerism habits? How do youth build their identity as consumers? What are alternative and current methodologies being employed in the field of youth consumerism? What is not yet known about youth's consumerism habits? What are possible directions for future research? What does youth ethical consumerism look like?

More importantly: we believe that the study of youth engagement with education needs to be understood both as a process and performance by youth from an eco-socio-cultural perspective. In this context, "giving voice to children is not simply or only about letting children speak; it is about exploring their unique contribution to our understanding of and theorizing about the social world that children's perspective can provide… it is about the intellectual promise of positioning children as social actors" in relation to Earth (James 2007, p. 262).

Our post-modern world is characterized by a symbolism in consumption and a global crisis of meanings. In other words, "we live today in a global society of consumers, and the patterns of consumer behavior cannot but affect all other aspects of our life, including work and family life. We are all now pressed to consume more,

and on the way, we become ourselves commodities on the consumer and labor markets" (Bauman 2007, p.58). In this context, "we cannot know what crisis await humanity because of the way we have treated our earth, because of our greed and our lack of respect for life or for others, because of the immense inequalities in living standards and opportunities between people" (Vanier 2008, p. 3–4). Still, we need to continue to strive for finding ways to improve the contributions of education to the development of more sustainable lifestyles that are based on consumer choices that are grounded on the ideal of meeting the basic needs of all.

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**Giuliano Reis** is an Associate Professor of Science Education at the Faculty of Education at the University of Ottawa (Canada). His main research interest is in the study of language in/for science and environmental education in various learning contexts. He is married to Juliana Reis and together they have two daughters: Ana-Julia and Maria-Luiza Reis.

**Michael Mueller** is a professor of secondary education with expertise in environmental and science education in the College of Education at the University of Alaska Anchorage. His philosophy focuses on how privileged cultural thinking frames our relationships with others, including nonhuman species and physical environments. He works with teachers to understand the significance of cultural diversity, biodiversity, and nature's harmony. He is the co-Editor-in-Chief of ***Cultural Studies of Science Education.***

**Rachel Gisewhite** is a chemistry and environmental science high school teacher in Memphis, Tennessee. She uses philosophical methodologies to study youth phenomenological experiences with and activism for the natural world. She is most passionate about the world's oceans and how students interact with their local aquatic environments to stimulate intellectual engagement for a deeper understanding of science content as well as the power of their decisions and actions to promote an active citizenry.

# Chapter 2
# Finding Ways to Fill the Void: A Study of Science Preservice Teachers' Self–Positioning as Consumers

**Jenny Martin and Lyn Carter**

> *I need to reduce my own material purchases. My main goal was to find ways to fill the void left by not purchasing new clothes or shoes or books.*
>
> (Elly, 1st year preservice teacher)

The excerpt above is from an open–ended, reflective journal written by a student (preservice teacher) at an Australian university during a compulsory 12–week science course whose focus was on environmental sustainability as an applied dimension of scientific literacy (Crowell and Schunn 2014). Elly and her peers (approximately 400 preservice teachers in total) were required to conduct an evidence–based appraisal of their current consumption practices. The students then selected aspects of their lives to reduce their ecological footprints, evaluating their actions during implementation. Known locally as the Eco Challenge, the preservice teachers used the Ecological Footprint Calculator (World Wildlife Fund n.d.) at the beginning and end of their course as a measure of their success or otherwise. The journals provided a space for them to record their thoughts and ideas as they audited the current practices in their everyday lives, investigated and implemented ways to reduce their consumption, collected evidence and applied scientific knowledge to critically evaluate their progress towards sustainable practices. The Ecological Footprint Calculator is a well regarded resource in Education for Sustainability (EfS) (Shields and Hoggard 2013) that can provide insight into the consumptive practices of its users. Whilst application of the Ecological Footprint Calculator has been reported elsewhere for stimulating discussion on consumption issues (O'Gorman and Davis 2013), the Eco Challenge task undertaken by Elly and her peers is innovative in its requirement of learners to selectively undertake and evaluate action to reduce consumption in their daily lives. At the same time as they completed the Eco

J. Martin (✉) • L. Carter
Faculty of Education and Arts, Australian Catholic University,
Level 1, Room 1–49, 250 Victoria Parade, East Melbourne, VIC, Australia
e-mail: jenny.martin@acu.edu.au; lyn.carter@acu.edu.au



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Challenge, the preservice teachers were exposed to content in eco–criticism (e.g. Merchant 1996), systems thinking (e.g. Ehrenfeld 2008), environmental science, and discourses of ecological and social justice (e.g. Stibbe 2009).

In this short excerpt, we can see that Elly stories her participation in the Eco Challenge as an obligation (I need), which in turn creates a space for change where her habitual consumption practices are brought to the attention of the reader as contradictory to her very involvement in the activity. Indeed, she describes lack of consumption as a "void." How then can preservice teachers like Elly, and whose consumption habits clearly provide a source of meaning in their everyday lives, develop as scientifically literate citizens to the extent that ecologically sustainable action becomes important to them and also part of their own EfS teaching repertoire?

In this chapter, we explore this question through our study of preservice teachers' self–positioning as consumers and in relation to ecological sustainability. The discussion here is drawn from a larger study of critical discursive psychological methodologies as a unique approach to environmental education research and practice (Martin and Carter 2015). In overview, the work aims to expand sociocultural approaches to research around consumerism and ecological awareness by investigating the agency of young adults on the path to becoming educators in their own right. Amongst other things, the study promotes scientifically literate consumption as a political activity, and facilitates the preparation of positive curricula and teaching experiences. Key foci of the study include the positioning of self and others in relation to consumerism and education for sustainability, enacted dimensions of scientific literacy, and resistance to hegemonic discourses such as consumption for identity. Our focus in this chapter is on our analysis of open–ended, reflective writing of preservice teachers where we are concerned with the social meaning achieved in the act of writing. In particular, we consider how the preservice teachers position themselves in their own stories in relation to consumerism and education for sustainability or otherwise and in relation to intended reader(s). Our findings identify contradictions and challenges faced by Elly and her peers as they grapple with understanding their everyday practices through the lens of ethical consumerism and education for sustainability. Our study shows that discursive psychological methodologies including the use of researching young adults' self–positioning have much to add to the understanding of actors (science preservice teachers in our case) in contemporary times.

## 2.1 Preservice Teachers' Positioning

As we have reported elsewhere (Martin and Carter 2015), our research is developed from discursive psychology (Davies and Harré 1990) as an approach to psychology aiming to overcome Cartesian dualism that is a foundational assumption in cognitive psychology. In discursive psychology, an immanentist view of language requires the analysis of meaning making in social situations and no distinction is made between social and psychological phenomena. Instead, social psychological

phenomena are realized as social acts. A social act is defined in discursive psychology as the social meaning of action (Harré and van Langenhove 1999). Social meaning is understood to be relationally achieved in concrete moments between positioned social actors. The approach acknowledges the cultural and relational aspects of any action in the social world and requires an account of the actor(s) *positioning.* Positioning is a term introduced by Bronwyn Davies and Rom Harré (1990) to refer to the way in which responsibilities and duties are accorded to persons in a local moral order. Davies' (1990) view of agency as a kind of discursive practice is operationalized in terms of positioning:

> The person is a person by virtue of the fact that they use the discursive practices of the collectives of which they are a member… Each person can only speak from the positions made available within those collectives through the recognized discursive practices used by each collective…. Embedded within those discursive practices is an understanding that each person is one who has an obligation to take themselves up as a knowable, recognizable identity, who 'speaks for themselves', who accepts responsibility for their actions, that is as one who is recognizably separate from any particular collective, and thus one who can be said to have agency. (p. 343)

Hence, we understand the *self* as a process achieved through—and product of—social practices, and acknowledge the multiplicity of personhood where identities are plural, relational and agentic or not depending on the material and social conditions of daily life (Davies 1990). We operationalize agency as positioning as responsible for action in a social act and utilize a coding system known as the grammar of agency (Martin 2016). The coding system draws together the features of the English language, such as pronouns, modality and tense, that can be used to attribute responsibility to varying degrees (Muhlhaüsler and Harré 1990). We include detailed analysis of the preservice teachers self–positioning to illustrate our methodological approach and our coding system.

The students' reflective journal accounts are understood as social acts, constructed for a purpose within a local moral order and with an audience in mind. A person's psychological location in a social act is captured by the concept of positioning. In a social act, a person can be positioned by others or reposition themselves (self–positioning). One's sense of self develops as a process of appropriation from social acts as one begins to understand one's responsibilities within a local moral order and one's capabilities in relation to what is possible for the generation of relatively determinate social meaning (Vygotsky 1978). In other words, the students' self–positioning in their reflective journal accounts can be understood as representative of particular sociocultural–historical ways of constructing the self.

The self is viewed as a process achieved through, and product of, social practices. *Acts* in discursive psychology are supported by the work of anthropologist Daniel Miller, well known for his extensive scholarship on consumption. First developed in his 1987 book Material Culture and Mass Consumption, continued on in Stuff (2010), and most recently in his 2012 monograph entitled Consumption and its Consequences, Miller's ideas in overview are concerned with overcoming the usual dualism between subject and object and exploring how social relations are created through consumption as an activity (the social act). Miller (1987), despite de rigueur

denigration from the academy, rejects the subject/self as the structurally dominated and symbolically manipulated consumer or the dupe of consumerism and argues the need for consumption to be acknowledged for its pivotal role in moral self–constitution. Bregham Dalgleish (2014) summarizes Miller's views thus:

> Consumption structures and is structured by material culture, through which we 'delineate our values, cosmology, emotional repertoires, and sense of sameness and difference' (Miller 2012: 184)… If individuals 'play creatively… [in] processes of socialization' (Miller in Borgerson 2009:163), with commodities 'a non–verbal communication medium …to make sense of things' (Douglas 2001: 264), then consumption is a form of symbolic labour in which consumers mould themselves via objects into subjects. For this reason, Miller (1987: 192–3) rejects deterministic views of consumerism, … as they assume 'an essentialist natural self masked by the artificial nature of culture as commodity'. (p.109)

Dalgleish (2014, p. 110), drawing on Schor et al. (2010), goes on to argue that consumption is a realm of intensely practical morality and political activity such that people's everyday statements of need are a space of moral reasoning (I need this to live a proper life), of political critique (needs stake a normative claim to social resources and critique any system which denies them), and of ethical engagement (how can we properly negotiate conflicting needs and resource claims within relationships or communities) (Schor et al. 2010, pp. 282–3, italics in the original).

The theoretical space afforded by Miller's (2012) work along with that from Dalgleish (2014), Schor et al. (2010), and others (for example, Soper 2009) argue for the importance of exploring preservice teachers' self–positioning as consumers as a way of understanding their construction as moral agents. It provides insights into the young adults' grappling with seeing how their practices can be a political activity towards environmental and social justice. On a cautionary note however, it is acknowledged that this project is the preserve of the middle–class Western consumer endowed with critical reflexivity, the ability to enact choices, and the autonomy for their articulation.

## 2.2 How Elly, Charlie and Tara 'Self–Position' Regarding Consumption

In overview, our data is drawn from 50 of the open–ended, reflective journals randomly selected from the 426 participants from the first and second year cohorts of the 4–year undergraduate degree program who agreed to participate in the study. Our methodological approach, as with all studies in discursive psychology, required records and recordings of participants' discourse. The preservice teachers' journals provided their own accounts and reflection on independent action related to the Eco Challenge. Many of the students also included accounts of personal engagement with the course material. Instructions given to the students for this task were as follows:

> This individual task is to assist you to apply the principles of sustainability (in particular, ecological footprint, energy, waste and water) to redesign as many aspects of your own

> lifestyle as you can. You will need to start on this task immediately and work on it throughout the semester by keeping a weekly Journal of your thoughts and progress.

As indicated earlier, we coded the preservice teachers' reflective accounts using the grammar of agency (Martin 2016) to index the students' relative sense of responsibility for action. Explained here in principle first, specific examples of each aspect of the grammar of agency coding are highlighted in our analysis of the preservice teacher's reflective writing. The grammar of agency includes pronouns, sentence modality, and tense, as indexical features of English.

The first person pronoun can index personal responsibility for action to varying degrees (Muhlhaüsler and Harré 1990). Coupled with epistemic or modal verbs and the use of the present tense, the first person can index self–positioning as personally agentic, the self–as–process and agency as innovation, (as in the use of, I will…), or index reduced personal responsibility for action, deflecting responsibility to other agencies (as in the use of, I had to…). Sentence modality, as in the posing of questions, putting forth ideas, beliefs, and commands, with or without the first person pronoun, can index personal responsibility. The use of *me* can index responsibility to oneself as a product of the social context (self–as–product), or the way the actor (speaker or writer) sees themselves through the eyes of others. In this way, the *I* is aware of the social *me* and "the self is essentially a social process going on with these two distinguishable phases" (Mead 1934, pp. 177–8), the self–as–process and self–as–product. Collective first person pronoun use can index a shared sense of responsibility with members of a group (Muhlhaüsler and Harré 1990), or collective agency.

The use of the second person (you) can deflect personal responsibility and index it to a public persona (Muhlhaüsler and Harré 1990), indicating what the actor understands as a competent public performance. For example, the difference between the statements, I buy from local growers, and, You buy from local growers, index responsibility to the author or speaker for the action of buying to varying degrees.

Small stories (Bamberg 2004) can also be used to position oneself in a social act as a particular kind of person or consumer. However, the content of small stories cannot be reliably analysed as social acts as it is not possible for the relatively determinate meaning of reported action to be reliably gauged (Harré and van Langenhove 1999).

Verbatim excerpts from the three students' reflective accounts are reported as representative of our findings that the preservice teachers positioned themselves as young adult consumers with limited power to make real change but also as global citizens and as beginning teachers with an ethical imperative to take an active role in global and local transformation towards sustainability and social justice. The excerpts were chosen to illustrate variation in their self–positioning as consumers in each of the selected cases and the tensions that emerged from their accounts. In each case, the excerpts of the students' journal entries are in chronological order (indicated numerically) and are labeled using the letters E, C or T, according to the pseudonyms given to the author of an entry (Ellie, Charlie or Tara).

### *2.2.1 Elly's Self–Positioning*

The following excerpts (E1–E6) have been chosen to illustrate variability in Elly's self–positioning as a consumer that emerge from her reflective accounts of action directed towards reducing her ecological footprint. In these accounts, Elly's reported action is concerned with her consumption of goods and energy. She uses a moral logic related to personal benefit (saving time and money) to justify her action, which is somewhat tempered by a sense of responsibility for sustainable consumption.

| *Elly's Journal excerpts* | *Positioning analysis* |
|---|---|
| **Excerpt E1** | Elly uses a small story evoking community others to reposition herself unsubscribing to a discourse of inaction. The indicative mood indexes her as the responsible agent for the claims she makes that "every little bit counts" |
| ***I** often wonder, why should **I** do more than necessary to lower **my** personal impact on the environment, when **the people next door** could well be counteracting **my** good work by leaving lights on, using inefficient light globes and using however much packaging they want?! But the answer is simple, every little bit counts! Even a small act such as inserting eco–friendly light bulbs is contributing to ensuring a sustainable future* | |
| **Excerpt E2** | Elly's use of the first person and present tense below in "I am already …" and "I still believe…" index her statements to herself as agentic. She positions herself as acting with consciousness regarding her environmental impact, and for identifying the need for further reducing her consumption |
| *Although **my** [ecological footprint] figures are quite low in comparison to Victoria's average as **I** am already conscious of **my** environmental impact, **I** still believe there are many areas which can be improved* | |
| **Excerpt E3** | Elly recounts a small story and repositions herself as newly aware of household expenses. Benefit to her household (reducing expenses) is provided as a source of personal motivation for reducing energy and water consumption |
| *These figures [Energy and Water bills] come as a **shock to me** as **I** truly had no idea that these simple services cost so much! Looking at these figures provides **me** with **motivation** to try and reduce the costs* | |
| **Excerpt E4** | Elly positions herself in a small story as a habitual consumer of clothes and make–up in the past, using language associated with addiction ("detox"). In the story, she evokes material aspects of her life, for example, "unnecessary items", "my clothing" and "plastic bags." She repositions herself in the story as an agentic consumer with desires in alignment with eco–conservation, able to reduce consumption and choose products made locally. This self–positioning is achieved by stating her desires ("wanted…"), and her actions ("doing a search… which really got me thinking"). As in Excerpt E3, personal benefit (saving money) is provided as a source of personal motivation |
| *In **my** plan **I** mentioned that **I** would attempt a shopping detox. That is, go for two weeks without buying unnecessary items such as clothing and makeup. At first this seemed overwhelming as **I** rarely go a week without buying a new item of clothing to wear out on the weekend. **I** not only wanted to attempt this to reduce **my** waste, **I** also wanted to reduce **my** reliance on offshore providers. While doing a search through my clothing, **I** found that almost everything was made offshore! Mostly all clothing says 'Made in China' which really got **me** thinking. This not only reduced **my** accumulation of plastic bags, it also greatly benefited **my** bank account!* | |

| **Excerpt E5** | Elly positions herself in relation to "most people" as belonging to a vegetarian minority preferring fresh market produce. She evokes time as a constraint in her daily practice, to the extent that she does not exercise her preference for fresh market produce. In opposition to a small story of daily practice ("quickly duck out to the supermarket or local fruit shop"), she stories herself as agentic ("I have decided") in imposing an imperative upon herself to go to the market a few times during the semester |
|---|---|
| *__I__ would love to be able to buy all my produce from the market, being a vegetarian __I__ eat more fruit and veggies than most so there is nothing like a fresh batch of fruit and veg! The problem for __me__ when it comes to buying fresh Australian products from the market is the inconvenience it poses. It's much less time consuming for __me__ to quickly duck out to the Safeway or the local fruit shop as oppose to taking a half hour tram ride to the Vic Market! Nevertheless, __I__ have decided that __I__ will make an effort to go to the Vic Market three times throughout this 12– week semester* | |
| **Excerpt E6** | In this account of her plan to reduce her consumption of fossil fuels, Elly evokes saving time as a motivating personal benefit and a discourse of personal improvement ("that doesn't mean I can't improve") |
| *Due to __my__ reliance on public transport to get to work and university, __I__ don't go in the car all that often. __I'm__ hardly ever in the car for more than 10 min at a time, but that doesn't mean __I__ can't improve! __I__ usually go to the gym about 5 times per week, so __I__ am going to make sure that on three days per week __I__ choose to either walk or ride __my__ bike as oppose to taking the car or tram! It works well because by walking or riding a bike __I__ am doing a warm up for the gym, so __I__ save time!* | |

### *2.2.2 Charlie's Self–Positioning*

The following excerpts (C1–C5) have been chosen to illustrate variability in Charlie's self–positioning as a consumer that emerge from her reflective accounts of action directed towards reducing her ecological footprint. Charlie's reported action was concerned with her consumption of food and goods. In these accounts, Charlie evokes saving and making money and personal satisfaction as motivation for action. Like Elly, her personally located motivation is somewhat tempered by a sense of responsibility as a global citizen for ethical consumption.

| *Charlie's Journal excerpts* | *Positioning Analysis* |
|---|---|
| **Excerpt C1** | Charlie repositions herself using a small story in relation to a reader by describing her psychological state ("shocked"). She positions herself as agentic (using the first person and the modal verb, "to want") in her engagement with the ecological challenge ("I still want…"), despite it being a requirement of the course |
| *The results of __my__ ecological footprint were very surprising. __I__ honestly thought __my__ life would be far less sustainable than __my__ results suggest, however, that being said, __I__ am quite __shocked__ to see just how many resources __I__ require and the amount of land used in order to maintain my current lifestyle… __I__ was very happy to see that __my__ personal footprint is far less than the State average, however __I__ still want to aim to reduce __my__ personal impact on the global environment* | |

| **Excerpt C2** | |
|---|---|
| ***I*** *love buying coffee when* ***I'm*** *out, especially when it's a cold morning and* ***I'm*** *on my way to work and uni, however, not buying coffee everyday will save* ***me*** *lots of money, which is a great incentive to make sure* ***I*** *stick to my goal. Of course* ***I*** *can't cut out all coffee (must be realistic). But* ***I*** *will try to have a sit down coffee or restrict myself to one takeaway a week… I estimated that if* ***I*** *buy one coffee a day at about $4 each* ***I*** *would spend almost $1500 a year!!! And if* ***I*** *buy 4 meals out a week at about $15 each that's $60 a week and over $3000 a year!! As* ***a student****, this is a HUGE amount of money to be spending on something* ***I*** *could easily prepare* ***myself****. If* ***I*** *can limit myself to one coffee and one meal out a week* ***I*** *could save over $3500 a year! This is definitely a good incentive to reduce* ***my*** *wastage and save money* | The dual processes of self–development are evident in this excerpt. Charlie, as the agentic "I" acts upon a "me" who has a love of coffee and a habitual practice of buying coffee in take–away cups |
| | Charlie formulates her plan to limit her consumption of takeaway coffee cups to reduce her personal contribution to landfill. Note that when she refers to "a sit down coffee" she means drinking the coffee at the point of purchase in a non–disposable cup. Charlie evokes the idea of personal restriction and states personal financial benefit as her motivation for reducing the amount of takeaway cups she consumes |
| **Excerpt C3** | |
| *Although* ***I*** *haven't been buying too many new items of clothing this semester, this week* ***my*** *new goal was to "shop my wardrobe". Despite* ***mum*** *always telling* ***me*** ***I*** *have enough clothes,* ***I*** *always find a way to buy more and somehow fit them into* ***my overflowing wardrobe****.* ***I*** *decided it would be a good time to go through what clothes* ***I*** *have and see what* ***I*** *do and don't actually wear. To* ***my*** *surprise there were a lot of things that* ***I*** *had completely forgot* ***I*** *owned and didn't even like all that much! This called for a major clean out. All up* ***I*** *think* ***I*** *got rid of about 2 garbage bags worth of unused and unwanted clothes, majority of them* ***I*** *took to op–shops, and a few very good pieces* ***I*** *plan to sell on eBay. As well as donating my unused and unwanted clothes to charity,* ***I*** *am setting a new goal of only buying the clothes* ***I*** *actually need and not impulse buying things* ***I*** *don't actually like. To do this* ***I*** *am "shopping my wardrobe" by going through all my clothes and making new outfits with different pieces that* ***I*** *don't normally wear thus saving money and reducing* ***my*** *personal consumption* | Charlie positions herself in a small story (past tense) in relation to her mother as previously impulse buying, the result of which she describes as material realities in her life, such as her overflowing wardrobe and her unused and unwanted clothes. In the present tense, she repositions herself in relation to a reader as agentic ("I am setting a new goal"). The "I" in this excerpt, reflecting upon a "me" with habitual excessive consumption of clothing |
| | Charlie evokes personal benefit as explanatory of her action, including making money. She positions herself as personally agentic in relation to the reader in her use of the first person and the future tense ("I plan"), and, in this way, she justifies not donating the "good pieces" to charity |

| **Excerpt C4** | |
|---|---|
| *Food consumption is the largest contributor to **my** personal ecological footprint. This is due to **my** large consumption of meat and other animal products. This week **I** set out to reduce **my** food impact by trying to incorporate more vegetarian meals into **my** diet. **I** decided to adopt "meat free Mondays". This is a global initiative designed to cut out meat from meals every Monday. Just one meat free day a week can reduce greenhouse gases as the production of livestock is responsible for 14.5% of all greenhouse gas emissions. This week **my sister** and **I** decided to try a new vegan restaurant. All of their produce was sourced locally, thus reducing the impact of food miles and supporting local business. **I** have never been a fan of vegetarian or vegan food, but it was DELICIOUS! We had a vegan taco bowl and bean and nut dip! YUM! Sticking with the vegan theme, **my mum** and **I** found a recipe for vegan chocolate mousse, it was delicious!* | In a small story, Charlie positions herself as agentic ("I set out" and "I decided") regarding reducing her consumption of animal products. She draws upon statistics related to the production of greenhouse gases to explain her plans, aligning herself with a global initiative<br>She positions herself alongside her sister and mother in further small stories related to adopting more sustainable eating practices. Charlie uses the indicative mood, indexing her personal responsibility for evaluating the Vegan recipe ("it was delicious") and in this way evokes personal satisfaction persuasively in communication with a reader |
| **Excerpt C5** | Charlie reflects upon her success in reducing her consumption during the 12–week semester. Her personal success as storied here, is translated into a personal reward (an overseas holiday). Using the first person, she positions herself as responsible for deciding ("I feel") how to use resources available to her |
| *There was a fairly significant reduction in **my** consumption of goods. This semester **I** made a very conscious effort not to purchase too many new clothes, shoes or other "unnecessary" items. Instead **I** saved this money and was able to book an overseas holiday to Thailand in the June/July holidays. Although a holiday will involve more travel than normal, **I** feel that it is a much better use of money and resources than simply buying disposable items* | |

### *2.2.3 Tara's Self– Positioning*

The following excerpts (T1–T4) have been chosen to illustrate variability in Tara's self–positioning as a consumer that emerge from her reflective accounts of action directed towards reducing her ecological footprint. In these accounts, Tara is concerned with the ethical consumption of food and cleaning products. Tara evokes personal wellbeing and satisfaction as motivation for action. Like Elly and Charlie, she juxtaposes her motivation located in personal and familial benefit and wellbeing with a sense of responsibility as a global citizen for ethical consumption.

| *Tara's Journal Excerpts* | *Positioning Analysis* |
|---|---|
| **Excerpt T1** | |
| *In this journal, **I** will attempt to change **my** ways and became more sustainable, as a part of the Eco Challenge, as well as learn a lot about Sustainability. Before **I** start, **I** have decided to begin with **my** initials thoughts on Sustainability. **I** understand in this ever–changing world in which global warming and conservation are the big issues of the time and as global citizens **we** have the responsibility to do **our** part in being more sustainable. But as **I** live in the suburbs where transport by cars and the use of electricity is unavoidable, **I'm just doubtful** that **I'd** ever be able to change the way **I** currently live in exchange for adopting a more eco–friendly way of life. But **I am** always up for a challenge* | Tara positions herself as a student obligated to change her practices, as a global citizen ("we" and "our"), collectively responsible for living sustainably, and as a resident of a city (living in the suburbs), who has limited choice regarding the consumption of energy. Tension between her positioning as a global citizen (as responsible for "being sustainable") and her positioning as a resident unable to avoid the use of cars and electricity is shown in her description of her psychological state as "doubtful" |
| | In relation to the reader, she positions herself as a "up for a challenge", suggesting discourses of lifelong learning and individual improvement |
| **Excerpt T2** | Using the first person and present tense ("I am ashamed…"), Tara repositions herself in relation to the reader as a responsible agent (self–in–process) reflecting on a socially realized "me" (self–as–product). She evokes a sense of individual responsibility in her use of the psychological state, "ashamed". |
| *Upon completing the Ecological Footprint quiz, **I** am in complete disbelief. **I** knew **I** wasn't totally ecologically friendly but **I am ashamed** that if everyone was to be like **me**, **we** would need 3.6 planets and that 6.5 global hectares is required to support **my** lifestyle.* | |
| **Excerpt T3** | |
| ***I really like** making green smoothies as they are both healthy and delicious, and **I** decided this week to follow **my** plan to source more locally produced food items and challenge myself to make a green smoothie using only products Australian owned and grown… **I** went to Coles, whom **I** thought, as an Australian owned supermarket chain, would have a lot of Australian grown & owned produce, but **I** was wrong. It took **me** like 30 minutes to find 5 items. There are so many options and on many packaging and labels it's hard to find the information **I** needed to guarantee **I** was purchasing locally produced items. **I** managed to find 4 of the items that had been grown, packaged and distributed in Australia. Unfortunately however **I** could only find coconut water that had been packaged in Victoria but actually sourced from coconuts in Indonesia. **I** was really disappointed that **I** couldn't successfully complete the challenge **I** set out for myself but **I** now know that it isn't too difficult to purchase mainly Australian owned & grown items and **I** think next time **I** will try to go to farmers markets, organic stores etc. to find the products **I** need* | Tara uses the logic of personal wellbeing (health) and preference to justify her action as a consumer |
| | Tara positions herself in a small story in which she sought locally grown produce. The account evokes considerable effort on her part ("It's hard to find…"), yet despite the effort, she was unsuccessful |
| | She repositions herself in relation to a reader as a consumer with personal preferences ("I really like…", and "I need…"), personally knowledgeable ("I now know"), and agentic ("I think next time I will try…") |

| **Excerpt T4** | |
|---|---|
| *A part of **my** challenge **I** set for **myself** was to encourage **my** family to also update their practices to be more eco–friendly and **I** think **I** have got through to **my mother**. **I** came home from university today and **she** was all excited as **she** had purchased cleaning products that didn't include chemicals but purely Australian sourced eucalyptus oil. **I** was really proud of **her** for making such a drastic switch in cleaning products but as **she** pointed out to **me** these cleaning products not only benefit the environment but **the whole family's** health as **we** have sufferers of asthma and eczema both of which these eco–friendly products don't effect as they don't include harmful chemicals. Now that **my mother** and **I** are aware of the various benefits that eco–friendly cleaning products have **I** don't think **we** will be purchasing cleaning chemicals any time soon* | Tara positions herself as personally agentic in setting the ecological challenge for herself and in influencing her family. She recounts a small story to illustrate influencing her family (her mother in this instance). At the conclusion of the small story, she positions herself as collectively agentic using the collective pronoun, "we", indexed to herself and her mother or whole family, in consumer choices related to cleaning products |

## 2.3 Preservice Teachers as Consumers

In the early stages of their teacher education, these young adults have been confronted in a science education class to consider their responsibility and capacity for action related to ecological sustainability. As we have discussed elsewhere (Carter and Martin 2015), the preservice teachers positioned themselves as individually responsible in relation to the present ecological crisis and discrepancies in global consumption, often using psychological states (motivated, shocked and ashamed: E3, C1 and T1), as aligned with a cognitive psychological view of action. This result concurs with Preston's (2011) finding that young adults tend to subscribe to discourses of ecological crisis that position persons as individually responsible by utilizing descriptions of inner states such as lazy, complacent, etcetera. However in this chapter, we focus on the finding that the preservice teachers' self–positioning was tension–laden and contradictory. This is particularly evident in their self–positioning as moral and ethical agents.

In their own accounts of action, Elly, Charlie and Tara challenge their own consumerism in relation to global resources and issues of equity and they position themselves as local and global citizens with ethical responsibility (E1, E2, C1 and T1). However, these preservice teachers justified their adoption (or not) of revised consumption habits in terms of moral concerns such as saving time and money (E4, E5, E6 and C2), caring for their immediate household (T4), and personal preferences (C4 and T3). In accounting for their choices, they mostly recourse to how alternative courses of action will benefit self, consistent with neo–liberal rather than emancipatory discourses. In this way, despite acknowledgement of their ethical responsibility, their accounts of action to reduce their ecological footprint were absent of ethical reasoning, which would follow logically from their initially stated

concerns and realizations. Dalgleish (2014) quotes Miller again about the contradictions inherent in contemporary living and the difficult choices for subjects/consumers that need negotiating:

> Because of its pivotal role in moral self–constitution, consumption is often at odds with the subject's ethical responsibilities. Miller (2012: 88) argues that, insofar as thrift is the hallmark of a moral consumer – it displays a will to cherish resources through purchasing wisely for the household – there is often a 'contradiction between morality and ethics.' We often 'fail to be ethical' in respect of the environment or social justice, for instance, as they require the consumer to prioritize 'abstract goals' over the 'natural' moral concerns of the household (Miller 2012: 89). (p. 109)

Whilst it is clear that our preservice teachers face similar difficulties, our analytic focus on self–positioning reveals development as a continuous process (E5, C2, C3 and T2) and provides insight into the ways in which science education can stimulate self–reflection related to previously unexamined identities as consumers. Our action–oriented approach to scientific literacy favors the salience of researching and reflecting upon current and future practices as consumers. The reflective journal promotes self–positioning for a particular social purpose. In Elly, Charlie and Tara's journals, their consumer practices, such as the purchase of un–needed clothes and disposable items, meat consumption, purchase from distant places or unethical sources become revealed for scrutiny by the preservice teachers themselves and others (the readers of their journal including their tutor and lecturer) and in relation to others in their lives and communities. The researching and naming of their practices could be seen as a first step towards transformation (Freire 2000). The process of development in which the agentic *I* reflects upon the social *me* is highlighted in our analysis. For us, the findings highlight further work to be done to support consumer identity transformation beyond our students' naming of their practices. However, it is clear that the interrogation of self and context, rather than just an interrogation of action, needs to be a strong focus in the enactment of critical approaches to ethical consumerism and Education for Sustainability.

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**Jenny Martin** is an experienced educator in science teacher education, and secondary and primary school science education. Her current scholarship includes discursive psychological approaches in the social sciences, and researching human agency in science education including education for sustainability. Her work in published in prominent research journals.

**Lyn Carter** is a very experience science educator in the tertiary sector. Her current research focuses on the broader influences of globalisation and policy development on science education, and the use of cultural theory and environmental sustainability as ways of expanding science education reform. She has published extensively in prominent international science education journals. Lyn is on the editorial board of JRST and CSSE and is an immediate past Assistant Editor of Research in Science Education, Australia's major science education journal.

# Chapter 3
# Redefining What It Means to Be Technologically Literate

**Christina M. Nash**

The first personal computer became available to the American public in 1981 and 10 years later, in 1991, the Internet was introduced. Twenty–five years after we arrived on the World Wide Web we now have handheld smartphones that allow instant access to the Internet from virtually anywhere in the world. This technological growth has been coupled with the exponential growth of our suburban landscapes, observable through the continued development of big–box stores that can be found in most U.S. cities. Our media outlets and government officials regularly remind us that the level of consumer spending is a clear sign of our economic well–being, as evidenced by Jeffrey Sparshott (2016) of the *Wall Street Journal,* who reported that "consumer spending advanced at the fastest pace in nearly seven years in April, the latest sign of stronger economic growth following a sluggish start to the year" (n.p.). Linking our economy with consumer spending is a dangerous path, though one that no one really seems to question. As a populace with most of our basic needs met—food, shelter, water, etc.—"we can focus our attention on more frivolous expenditures…often promoted through advertising and branding aimed at engendering desires" (Bencze and Carter 2011, p. 651). The height of our "prosperity," then, is personal technology and its never–ending tide of "newer," "faster," and "better" and this is evident in the fact that Americans tend to upgrade their phones every 2 years, often regardless of whether or not the phones are still functional (McCarthy 2015). Personal technologies such as smartphones, tablets and laptops promote the ideas of individuality and power that are then reinforced by the way the Internet is structured to "tailor" our search results and social media, what Eli Pariser (2011) calls the "filter bubble." While we still have control over the television programs we watch and the music we listen to, our use of the Internet is filtered through algorithms that control the advertisements, news feeds, and information we have access to, based on the personal data collected about us with every single keystroke, mouse click, and finger

C.M. Nash (✉)
Green Mountain College, 2494 Vermont Route 140, Poultney, VT 05764, USA
e-mail: Christina.nash@greenmtn.edu



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swipe (Pariser 2011). The danger, Pariser (2011) asserts, is that we are drowning in our subjectivity and unable to fully participate in a critical democracy. "For a time, it seemed that the Internet was going to entirely redemocraticize society…. And yet the era of civic connection I dreamed about hasn't come. Democracy requires citizens to see things from one another's point of view, but instead we're more and more enclosed in our own bubbles" (Pariser 2011, p. 5). Personal technologies possess both sociocultural and political dimensions and these filters have also permeated their way into schools through the use of computers and tablets.

Computers entered the classroom in the mid–1990s, quickly saturating the educational environment. By 1997, a report by the Educational Testing Service revealed that "98% of all schools own computers and the current student–to–computer ratio of 10 to 1 represent an all–time low" (p. 3). As we approached the new millennium, Anne Travers and Elaine Decker (1999) stated that "we must re–tool our educational institutions to produce a highly skilled workforce" and this proclamation is still true today as education advisers and policymakers expound on the widening gaps of the United States against the rest of the technologically literate world (para. 5). The reactionary promises that technology will save us from ourselves as well as our place in the global economic community has been the driving force of many educational policies including the continued reauthorization of the Elementary and Secondary Education Act to include emphasis on the STEM fields (Petrina 2000). Though educational idealists may scoff at the idea that schools are part–and–parcel of the economic engine, "such consumerism, with its emphasis on cycles of acceptance of chameleon–like Trojan horses, seems to be partly facilitated by school science" (Bencze et al. 2014, p. 40). The federal government continues to push states to adopt technology through initiatives such as the Enhancing Education through Technology State Program and now, more than "$10 billion is spent on technology every year" in U.S. schools (O'Connell 2015, para. 5). All signs lead to the conclusion that technology in the classroom is likely to stay.

When the Internet entered the classroom, curriculum developers re–inaugurated the term "media literacy" to include more than just evaluating television, but also the wealth of information on the Internet, resulting in the creation of the term "information literacy". Information literacy sought to help students become savvy consumers of the digital age through the examination of such questions as –Is that source reliable? How credible is Wikipedia? How do I cite Internet sources? In 2001, the No Child Left Behind Act "recommended that by the eighth grade all students should be technologically literate" (Culp et al. 2003, p. 1). Yet, how this was to be accomplished was left up to the states, and by 2008, all states were required to show their technological literacy standards to the U.S. Department of Education. This flexibility led a number of definitions of technological literacy.

Colorado created the Technology Literacy Assessment Project (2008), which lists among its goals to "determine a common definition, standards, and proficiency criteria for technology literacy that connects to twenty-first century learning" (p. 1). In their standards, California included topics such as "demonstrate proficiency in the use of computers and applications" (p. 1); "demonstrate the responsible use of technology and an understanding of ethics and safety issues in using electronic media at

home, in school, and in society" (p. 2); and "demonstrate the ability to use technology for research, critical thinking, problem solving, decision making, communication, collaboration, creativity and innovation" (p.3) (Fresno County 2012). The Partnership for twenty-first Century Skills (2009), a national nonprofit institution that promotes twenty-first century college and career readiness defined it as a "tool for research, organizing, evaluating, and communicating information" (p. 5) and that a technologically literate person is one who can "successfully function in a knowledge economy" (p. 6.). The National Assessment of Educational Progress (2014) states that technological literacy is the "capacity to use, understand, and evaluate technology as well as to understand technological principles and strategies needed to develop solutions and achieve goals" (p. 3). Adopted by 41 states, the International Technology Education and Engineers Association (ITEEA), define it broadly as "the ability to use, manage, assess, and understand technology" (2007, p. 9). For the ITEEA (2007), technologies are the "various tools, machines, and systems, from growing food and providing shelter to communication, healthcare, and entertainment (p. 1). Though this lack of consensus about how to define technological literacy and what implications technology use can have on the environment appears troubling, it does offer the opportunity to propose a definition that takes into account not only the affordances of technology, but also a critical ecojustice stance on the social and environmental implications of consuming and using technology. As Travers and Decker (1999) stated "it is not until we are enslaved to [technology]…that we start to identify the wide range of implications, intended and unintended, of its use" (para. 4). Slowly, but surely, people are beginning to question the values that technology brings into society and specifically the classroom, and its influence on our current and future generations.

Divided into two parts, this chapter first examines the ITEEA Standards for Technological Literacy for their specific stances on technological literacy in relation to the environment and then suggestions will be made for redefining what *technological literacy* means and how teachers can help students to become both critically thoughtful and reflective of American culture, build their ecological intelligence, and hopefully make better consumerist choices.

## 3.1 Cultural Values Resulting from the Use of Technology

Walking into the high school at which I had taught seven years ago, I was not surprised to see the same laptop computers being used. I observed in both amusement and horror as the students in an environmental science class attempted to use them to complete an assignment. Many of the computers would not load, connect to the Internet or in some cases, even allow students to log on. Compounding students' frustrations was the already limited time they had to complete the work, which by the time the lecture was over, consisted of only 20 min. Several students gave up altogether and tried to use their phones. This was also a lesson in futility: the school not only prohibits student use of the school's Wi–Fi, but it has installed cell signal dampers in the newest wing of the building to prevent the utilization of cell phones.

When there was only 5 min left of class, many of the students had closed their computers and sat there, waiting for the class to end. Speaking with the teacher afterward, she was clearly disappointed, but not surprised; most of the lessons in which she attempts to use the computers have this same result, though she is pushed by her department chair to use the laptops on a regular basis. The urban high school in which she teaches does not have the funds to replace all the laptops. Technology such as laptops offers the potential for new horizons, but they tend to have a short shelf life. For the students in this class, who have similar experiences in other classrooms in their school, the value of their education is undermined for the sake of using obsolete and broken technology.

Though educators attempt to cultivate collaboration and cooperation through technology, a computer still only has one keyboard. Technology and the Internet promote the development of an independent, individualized, competitive, and solitary person: "The widely held perception that computer technology is either neutral or brings more benefits than losses ignores a fundamental aspect of the cultural baggage that accompanies their use" (Bowers 2000, p. 77). The cultural baggage to which Chet Bowers refers is the constant demand for faster and smarter technologies that inherently promote a consumerist ethic. Bowers (2001) stated that "education practices" are designed to "accelerate the spread of the industrial model of development, the expansion of consumer markets, and the adaptation of agricultural practices to fit this model" (pp. 146–7). Compounding this dilemma is that most people only have contact with the consumer end–product of technology "with minimal comprehension of how it works, the implications of its use, or even where it comes from" (Young et al. 2002, p. 73). Not only are we distanced from production of technology, but we are also unaware of the influence that it has on our cultures and values.

As stated previously, personal technologies afford us the ability to personalize our lives to the point where we have access to information that conforms to our personal belief systems. Every "like" on Facebook, every search on Google powers an algorithm that creates a unique digital world for us. Pariser (2011) states that "most of us assume that when we Google a term, we all see the same results…but since December 2009, this is no longer true. Now you get the result that Google's algorithm suggests is best for you in particular" (p. 2). The filter bubble is driven by companies like Google, Amazon, Microsoft, Apple, and other corporations to manage our access to information on the Internet and present us with the ads, information and news that appeals to our individual shopping preferences, values, and beliefs. With highly personalized bubbles for and every one of us, "manipulating data, typing a message on a keyboard, and searching through web sites are essentially solitary activities, even when collaborating with colleagues over the Internet" (Bowers 2000, p. 37). This individualistic reality only reinforces the philosophy of relativism where an "individual–centered view of time that makes traditions and the future contingent on subjective mood and rational self–interest" (Bowers 2001, pp. 144–5). Another consequence is that this technologically–based solitary learning may decrease students' belief that they can contribute to the common good, which "can manifest as a disengagement in issues outside of students' own self–interests, an example of which would be students 'delinking' the relationships between

hyperconsumption and environmental degradation" (Bencze and Carter 2011, p. 653). Yet, within the bubble, students may not even be aware of these issues.

## 3.2 An Ecojustice Evaluation of the ITEEA Standards for Technological Literacy

For the last two decades, many federal American educational policies such as No Child Left Behind, Race to the Top, and the Every Student Succeeds Act, have been increasingly oriented toward promoting science, technology, mathematics, and engineering or STEM in schools and the use of technology in classrooms. Bencze et al. (2014) stated that STEM drives neoliberal capitalism, encouraging the production of "technoscientists…able to produce marketable commodities" and that the push toward STEM in public schools is just another means by which to create students who will "develop and/or market for–profit commodities on behalf of elite capitalists" and "may serve as consumers" (p. 46). In the middle school grades, students are taught that "corporations can often create demand for a product by…advertising" and that "in order for a technology to be profitable, there must be a market for it—either preexisting or created through an advertising campaign" (ITEEA 2007, p. 28). This is made as a statement of fact without encouraging the exploration of the socioeconomic and environmental implications of such actions. "The success of technology is often determined by whether or not it is affordable and whether or not it works" and that technology can often be used to "optimize efficiency and reliability, thus resulting in lower production costs" (ITEEA 2007, p. 31). First, most new commercial technologies are expensive and can take years to become more affordable to the average consumer. Second, making technologies more affordable often involves outsourcing production to countries where workers will work for mere dollars a day (or less) and where environmental laws are likely less stringent.

In the introduction to section four of the ITEEA Standards: Technology and Society, it states that: "the physical environment, too, can play a role by creating constraints or causing certain needs" (2007, p. 56). The example given is that of how the steam engine was designed "to pump water out of coal mines, and the coal mines were needed because most of the wood in British forests had already been burned for fuel (ITEEA 2007, p. 56). It is interesting that the limited amount of forest is considered a "restraint" to technological progress, instead of reframing it as a scenario from which we failed to adequately manage a natural resource. Standard four states that "students will develop an understanding of the cultural, social, economic, and political effects of technology," which clearly omits the environmental effects of technology (ITEEA 2007, p. 57).

Although the ITEEA Standards for Technological Literacy (2007) admit that there are often unconsidered consequences for our use of technology; they claim that it is up to the developer and society to decide whether or not it is "helpful" (p. 59). Further, "many of these new [environmental] problems…can be solved or

ameliorated by yet more technology, but this may in turn beget other problems" (ITEEA 2007, p. 4). This promotes falling down a "rabbit hole" in which we assume that the next technological innovation will solve the environmental problems caused by the last technological innovation.

This idea of weighing the benefits versus the costs of technology is prevalent throughout the standards. Examples of oil tankers running aground and hydroelectric dams that destroy ecosystems are given as examples of negative consequences of technology, but again "developers must decide whether the product or system will be helpful, and if so, what the best plan will be to put it into use" (ITEEA 2007, p. 59). It is hard to imagine a developer deciding to abandon his plan to build a dam because the cost to the ecosystem is too high compared to the development of jobs and energy that will fuel more development. Another example is that of the "development of a mass transit system through a wooded area can improve the environment by reducing the number of automobiles traveling through it" and its development "might cause the destruction of vegetation, present danger to native animals, and compromise natural aesthetics" (ITEEA 2007, p. 67). This example is absurd given that most mass transit systems are built in urban areas in order to serve the most number of people and an area already used by cars would already be endangered, unlike a wooded area devoid of human habitation. Students are told that "environmental disasters are reported regularly on the evening news and [they] should develop an understanding of how technological advances in landscaping and architecture are being used to mitigate such disasters" (ITEEA 2007, p. 71). This fails to acknowledge that such structures are sometimes the cause of environmental disasters, as in the case of the loss of riparian zones due to development along waterways, or make environmental disasters worse, such as the failure of the generators for the levies in New Orleans during Hurricane Katrina that resulted in devastating flooding.

In standard five, "students will develop an understanding of the effects of technology on the environment" (ITEEA 2007, p. 65). In the introduction, it is stated that technologies have been "engineered to produce less waste, as well as waste that is less toxic" implying that technological waste is always toxic to some extent (ITEEA 2007, p. 65). The environmental costs of technology is acknowledged as inevitable as "there is usually little economic incentive for a company or other entity to prevent such damage from its products because the cost of the destruction is spread among the millions of people affected by it, while the cost of avoiding that damage would be borne by the company alone" (ITEEA 2007, p. 65).

Technology, it is claimed, "is neither good nor bad" and that the use of fossil fuels, for example, "provides a good source of energy, [and] their use may damage the environment" (pp. 59–60). It is interesting to note the use of the word "may" in this standard. This implies that fossil fuels may not cause damage to the environment, which goes against prevailing scientific evidence that their use is a leading cause of global warming.

In standard six, "students will develop an understanding of the role of society in the development and use of technology" (ITEEA 2007, p. 73). Again, it is stated as in standard one that "corporations will create technological demand, over–shadowing needs and wants in favor of developing or increasing market value" (ITEEA

2007, p. 73). Introduced here is the concept of relativism in the statement the some may view genetic engineering as "a way to produce more and better agricultural products at lower price, while others see it as a possible environment hazard" (ITEEA 2007, p. 73). One tactic companies may use to get people to buy their products is to "deliberately create a shortage" (ITEEA 2007, p. 76). It is acknowledged that consumer preferences can change the development of technology. One example given is the slow elimination of the front porch in favor of the backyard deck because most people now have access to air conditioning. The social capital loss of the front porch is not mentioned as a consequence of this development. Examples of how "social and cultural priorities and values are reflected in technological devices," include avoiding genetically modified foods, and "the color and contour of household appliances" (ITEEA 2007, p. 77).

Finally, in standard thirteen, "students will develop the abilities to assess the impact of products and systems" (ITEEA 2007, p. 133). Students should be able to "design forecasting techniques to evaluate the results of altering natural systems" which includes examples such as "building homes around the shore, cutting down rainforests for wood, or strip mining coal" all practices that are inherently environmentally destructive and only serve to benefit humans (ITEEA 2007, p. 138).

In conclusion, the Standards for Technological Literacy manage to acknowledge the role that technology can play in environmental degradation, but they fail to take this one step further to address the socioeconomic and social costs of these practices as well. The standards openly admit that corporations use tactics such as creating shortages and advertisement campaigns to encourage us to purchase goods, without acknowledging the long–term implications for both our society and culture and the natural world. It is impossible to sustain both the environment and our economic development and it is time to admit to both limitations and learn to live within our social and environmental means. How we can find a balance between economic development and maintaining a sustainable environment starts with the following.

## 3.3 A New Definition and Pedagogical Practices for Technological Literacy

In terms of technological literacy the definitions presented in the introduction of this chapter should be revised to include the issues of power, privilege, and ecojustice. Though we assume power over our access to the Internet, the filter bubble created by corporate algorithms has denied us access to the unbiased, objective information we assumed we would have when the public Internet began in 1991. Stephen Petrina (2000) advocated for a critical technological literacy that seeks to make visible the power structures that keep traditional definitions of technological literacy in place. The three principals of critical technology literacy are:

> a critical orientation," "an intention to engage politically with technology practices such as those that sustain high rates of capital, consumption, inequities, and uneglatarian

> distributions of profit and waste," and activism "to mobilize and produce actions and 'texts' that work against…the discourses and works of culturally and ecologically destructive practices. (Petrina 2000, pp. 200–201)

Developing a critical orientation can start with asking the question: "How can this identity, representation, production, consumption, regulation, or waste be re/appropriated re/produced for collective justice" (Petrina 2000, p. 203)?

Bowers (2000) challenged the assumptions of student–centered constructivist learning, where students "construct their own knowledge and determine their own values and that data and information are the basis of thinking" by questioning how their use of such pedagogies maintains the status quo of power and culture (p. 127). In regards to the use of computers in schools, Bowers (2001) stated that "computers amplify a way of thinking that assumes that data is the basis of thought and that language (words, grammatical patterns) is a neutral technology that allows ideas, information, and data to be communicated to others" (p. 141). This statement was made prior to the creation of the filter bubble that limits the ideas, language, etc., that students are exposed to daily. Now, within the confines of their bubbles, students immersed in social constructivist learning are far more likely to construct ideas that maintain the status–quo, rather than challenge it. In *Let Them Eat Data* (2000), Bowers proposed that students caught up in the cultural of consumption cannot find their way out because they cannot understand the double–bind in which they are entangled, a double–bind that is reinforced by the educational system. Bowers describes the double–bind as the process by which students typically set the attainment of a college degree as their educational goal so that they can earn a reasonable income, thereby getting access to more expensive technologies. They become part of the problem rather than part of the solution because computers and other technologies "must be purchased and that there are other costs connected with their use means that computers commodify the most basic activities and relationships: thought and communication" (Bowers 2001, pp. 143–4). To communicate with others globally, we must purchase technologies and provide for their upkeep.

Bowers (2001) brought to light the issues of ecojustice—that is the tendency to push environmental degradation onto populations that are unable to defend themselves or prevent it, and the current model of development, that of consumption, perpetuates this problem. To change the outcome of education to that of ecojustice, and less consumption, Bowers (2001) proposed that we ask if "students are being given the understanding and skills necessary for living less consumer–dependent lives" (p. 152). There are several ways to accomplish this. One way is to encourage students to critically view the power structures inherent in the technology they use, from cars to laptops to smartphones. Students should be aware of the commodification of knowledge; we are dependent on consumerism as a way to meet our needs, which is a "source of poverty when it leads to the loss of skills necessary for self–reliance and networks of mutual aid" (Bowers 2001, p. 160). Making distinctions between commodified and non–commodified activities is one step in making these experiences and cultural norms noticeable.

Teachers can ask students "how has the language that organizes our thought patterns been influenced by technology?" (Bowers 2001, p. 169). Bowers (2001) reminds us that "earlier metaphorical thinking…is reproduced through the use of language systems in ways that influence present ways of understanding and problem solving" (p. 177). So, while our technology has changed, the way that we use language has not. For example, the concept of the environment as a natural resource is one that has not been questioned. Other questions to ask include "Does the technology allow for further development of the skill and insight of the user? How do different forms of technology influence the relationships between people and those between cultural groups? The relationships between people and those between cultural groups?" (Bowers 2001, pp. 169–170). We can present students with alternatives to their current ways of thinking about the world, where they see themselves as active players in the resolution of societal dilemmas. This can be done through the use of socioscientific issues in science (Bencze and Carter 2011). In these cases, students are presented with problems that require both scientific knowledge and ethical considerations. This situates their knowledge in authentic contexts and provides a more holistic framework of science and technology, society and environment (STSE) education. Another method of connecting students to the "greater good" is to have them engage in locally based, student–led research informed action projects (Bencze and Carter 2011). These action projects help to empower students about the choices they have in regards to their consumption, use of technology, and effects on the environment.

Teachers should be actively involved in the process of self–reflection of how they use and comprehend technology, as the learning process is "indirectly [filtered] through the teacher's interpretive framework, which includes both explicit knowledge…and taken–for–granted understandings" (Bowers 2001, p. 186). If the teacher is unaware of the cultural baggage contained within technology, including its filter bubble, it is highly unlikely that the students will become aware. "There is nothing inevitable about the changes influenced by technology; they are the result of human decisions and not impersonal historical forces" (Young et al. 2002, p. 75). Teachers have a choice then, as to how they present technology to their students; they have an opportunity to offer students the ability to think critically from an ecojustice perspective that may serve to encourage more ecologically conscious decision making and assure a healthier planet for future generations.

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**Christina M. Nash** is the Instructional Designer for Green Mountain College and a doctoral candidate in the department of Educational Theory and Practice at the University at Albany, SUNY. Areas of expertise include curriculum development and teacher education. Prior to beginning her Ph.D, Christina was a public school teacher and holds New York State Professional Teaching Certification in English (7–12).

# Chapter 4
# The Role of Curriculum Documents in Youth's Ideological Upbringing: Consuming or Loving the World?

**Snežana Ratković, Dragana Martinovic, and Trevor Norris**

> *It is urgent that we assume the duty of fighting for the fundamental ethical principles, like respect for the life of human beings, the life of other animals, the life of birds, the life of rivers and forests. I do not believe in love between men and women, between human beings, if we are not able to love the world.*
>
> (Freire 2004, pp. 66–67)

We start this chapter with the words of Paulo Freire (1921–1997), a Brazilian philosopher of education. In the era when educators emphasize importance of raising physically, emotionally, and intellectually developed persons; of teaching people rather than subjects; and of providing students with critical literacy skills, imagination, and care for the environment, his words seem appropriate. One of the desired outcomes of education is to have citizens who are loving and caring for the world, but realities (of the school or society) are never so declarative, binary, and obvious. Freire (2004) adds to the sustainability discourse by emphasizing the need for the transformative and liberatory ideas of ecopedagogy, because seeing the world through ethical and ecological lenses enables people to love the world. We use the example of *Canadian Geographic*—one of the oldest and best–known environmentally–oriented magazines in Canada, widely used in schools across the country in geography and science classes—to challenge consumerism in Canadian schools (see www.canadiangeographic.ca/educational_products/). The magazine has been traditionally focused on endangered species, fragile ecosystems, the challenges that scientific and technological progress presents, and the importance of environmental

S. Ratković (✉) • T. Norris
Brock University, 1812 SIr Isaac Brock Way, St. Catharines L2S 3A1, ON, Canada
e-mail: snezana.ratkovic@brocku.ca; tnorris@brocku.ca

D. Martinovic
University of Windsor, Windsor, ON, Canada
e-mail: dragana@uwindsor.ca



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stewardship (see http://www.canadiangeographic/magazine). However, the focus of the magazine has recently shifted. For example, the June 2014 issue is titled Energy Rich: Exploring the Top Resources Powering Our Nation and forefronts the importance of the oil and gas industry to the Canadian economy (The Royal Canadian Geographical Society 2014). This is not surprising given that the magazine has recently partnered with the Canadian Association of Petroleum Producers (CAPP) (Neil 2014), which is portrayed as a non–partisan non–profit organization, but is widely recognized as an advocate for the Canadian Oil and Natural Gas industry. One outcome of their partnership is the development of an Energy IQ program, An Energy Education Resource for All Canadians (see https://energyiq.canadiangeographic.ca/main/about).

As a consequence of this changed focus, whereas readers of *Canadian Geographic* (largely students of geography) once learned about the flows of rivers, patterns of species' migrations, and the character of mountain ranges, they will now learn about the natural world from the perspective of the oil and gas industry and through the framework of fossil fuel extraction and distribution. For example, students may learn geography through the lens of the system of pipelines set up across the country, learn about science through the lens of the system's benefits and necessity, portraying it as the instrument that can be used to solve the very problems that its application creates. The profit motive remains unquestioned unless addressed by teachers and parents, and corporations are portrayed as servants of the larger public good and benevolent patrons of the citizens' interests. Fossil fuel consumption is normalized and naturalized, portrayed as unavoidable and necessary for the country, and construed as benign and insignificant (The Royal Canadian Geographical Society 2014). While environmental issues are still presented, they are downplayed in relation to the benefits of scientific exploration (or exploitation) of the natural world. Alternative sources of energy, and alternative sources of transportation, are mentioned only in passing. The ultimate consequence of this shift is to change how nature and the fossil fuel industry are portrayed to youth and in the school system, to a great number of individuals who belong to new generation of consumers. It would be less problematic if the CAPP used their own *Context Magazine* to advance their political and pedagogical agendas. Instead, the appropriation of *Canadian Geographic*, a crucial voice in Canadian public education discourse and important resource for teachers, makes this appropriation doubly problematic.

We define consumerism as "a process that expands beyond the purchasing of a product to include the transformation of all things in the world into objects for human consumptions" (Norris, p. 9), and argue that schools should be places where consumerism is critically examined, rather than univocally promoted. To look for evidence of one or the other approach to consumerism in the Ontario curriculum documents, we conducted content analyses of The Ontario Curriculum Social Studies Grades 1 to 6, History and Geography Grades 7 to 8 (Ontario Ministry of Education [MOE] 2013); The Ontario Curriculum Grades 1 to 8: Mathematics (MOE 2005); and The Ontario Curriculum Grades 1 to 8: Science and Technology

(MOE 2007) curricula using sociocultural perspectives (e.g. Freire 2004). We analyzed the above listed curriculum documents to revisit the well–known claims that mathematics is culture and value free; that school science promotes energy conservation and sustainability; and that social studies, history, and geography lessons teach critical literacy. For example, Alan J. Bishop (1995) writes:

> Mathematics has somehow always been felt to be universal and, therefore, culture–free. It had in colonial times, and for most people it continues to have today, the status of a culturally neutral phenomenon in the otherwise turbulent waters of education and imperialism. Of course, it goes without saying that it was also conventional wisdom that mathematics was value free. (pp. 80–82)

However, the mathematics education community has moved from this view and we were curious to see if the curriculum also has moved away from a value–free mathematics education. Additionally, the Ontario Ministry of Education (2009) document Acting Today, Shaping Tomorrow: A Policy Framework for Environmental Education in Ontario Schools seeks to change student personal behaviour and institutional practices with the goal of minimizing ecological footprint. However, school science continues to play "significant roles in both production of for–profit goods and services and desires (and other conditions) to continually consume them" (Bencze 2011, p. 48). Finally, the 2013 curriculum document Social Studies Grades 1 to 6, History and Geography Grades 7 and 8 (Social Sciences) includes a section that demonstrates the complementary relationship between the critical thinking, media education, and social studies: "Social studies, history, and geography lessons can be used as a vehicle for instruction in critical literacy. Students learn to critique media messages, determining the intended audience, the authors' intentions, the missing voices, and the underlying values" (p. 37). To check the accuracy of this claim, we analyzed the Social Sciences curriculum in the first phase of data analysis and code book building. We searched for indications of consumerist approaches in the curriculum such as anthropocentric agendas and hidden advertisements while also taking into account the quantity of these messages throughout the grades.

In this chapter, we address the following research questions: What is the evidence of consumerist approach in Ontario Grades 1 to 8 mathematics; science; and social sciences curricula? What is the relationship of the Ontario Grades 1 to 8 curricula expectations to objectives of consumerism? What is the role of curriculum documents in developing youth's ethical consumerism practices? What does it mean to consume the world, or to love the world? In what ways would a sociocultural approach to youth consumerism benefit education? What are the possible directions for future research on youth consumerism in science, mathematics, and social science education? These research questions are answered here based on our analyses of curriculum materials and reviews of related literature. In conclusion, we return to our opening quotation, relating it to our findings and some consequences that we envision if we "are not able to love the world" (Freire 2004, p. 67).

## 4.1 A Renewed Vision for Education in Ontario

Education literature is populated with conflicting ideas about the purpose of education. On one side are government bodies, such as National Forum for Values in Education and the Community in the UK, which highlight four value domains in education: (a) the self, (b) relationships, (c) society, and (d) the environment. The last of these value statements reads: "We value the environment, both natural and shaped by humanity, as the basis of life and a source of wonder and enthusiasm" (Department for Education and Skills–DfES 1999, p. 149). Similarly, value statements are provided in the vision for the recent Achieving Excellence: A Renewed Vision for Education in Ontario (MOE 2014) document. The document promotes renewed goals for education by stating that children and students will be demonstrating "good citizenship…enhanced mental and physical health, a positive sense of self and belonging, and the skills to make positive choices…[and that a publicly funded education system will help develop] new generations of confident, capable and caring citizens" (p. 3). While it seems that the Education Ministries use the rhetoric of loving and caring for the self, others, and the world, these goals may be differently conceptualized by other Ministries or educational institutions nationally and internationally.

Richard Kahn (2008) writes: "Since the first Earth Day of 1970 we have witnessed a form of *endless growth political economy* that is literally overproducing and consuming the planet toward death" (p. 4, emphasis in original). Naomi Klein has also critiqued the ways in which the environmental movement has aligned itself with those interests it previously critiqued:

> The Big Green groups, with very few exceptions, lined up in favor of NAFTA, despite the fact that their memberships were revolting, and sold the deal very aggressively to the public. That's the model that has been globalized through the World Trade Organization, and that is responsible in many ways for the levels of soaring emissions. We've globalized an utterly untenable economic model of hyperconsumerism. It's now successfully spreading across the world, and it's killing us. (Klein as cited in Mark 2013, para. 11)

Similar to Green groups, *Canadian Geographic* has taken the initiative of developing this close relationship with the oil and gas industry and thereby being able to fund the distribution of educational resources to schools across the country. The magazine offers free floor maps that are about as big as a classroom—with the CAPP logo on the side (see www.canadiangeographic.ca/educational_products/energy_production_floor_map.asp). These maps engage students in exploring Canada's power generation stations, oil refineries, and wind farms that play a significant role in students' daily lives. This raises fundamental questions about who educates our students and according to what values, who should shape public discourse about environmental issues, and whether the current generation of students will adopt the same consumer values that have led to such a significant environmental crisis.

David Orr (1991) identified six myths of higher education, including the belief that "with enough knowledge and technology we can manage planet Earth" (p. 3).

The author noted that our fascination with technology is short–sighted and that Earth and its life systems are complex and hard to manage:

> What might be managed is us: human desires, economies, politics, and communities. But our attention is caught by those things that avoid the hard choices implied by politics, morality, ethics, and common sense. It makes far better sense to reshape ourselves to fit a finite planet than to attempt to reshape the planet to fit our infinite wants. (Orr 1991, para. 10)

Furthermore, he argues that education must be "measured against the agenda of human survival" (para. 19), and that all education is ecological education. Such an education promotes ethics and sustainability over "progress" and consumerism (i.e. our infinite wants). In the same vein, Trevor Norris claims that schools can help promote sustainability and hope:

> Instead of using the standard of the hyper–commercialized larger culture as the standard for what amount of commercialism should be permitted in schools, perhaps we should reverse that order: use the currently comparatively limited amount of commercialism in schools as a model for the larger culture…Why don't we say: "look how great schools are." They are one of the last institutions in our culture that is not completely overrun by commercialism. We need to protect them. (para. 18)

Orr (1991) and Norris critique consumerism and anthropocentrism in Western societies, while recognizing the pivotal role of education in sustaining and loving the world.

## 4.2 Researching for Consuming and Loving

We conducted qualitative interpretative research to identify explicit and implicit consumerism–driven messages underpinning the Social Sciences, Mathematics, and Science and Technology (Science) curriculum documents in Ontario. Following Gall et al. (2007) method, we first conducted a content analysis of these documents as carriers of ideas relevant to our research by:

1. specifying research questions and objectives;
2. selecting a sample of documents to analyze;
3. developing a coding procedure;
4. coding the text in the documents by making a frequency count of the codes; and
5. interpreting the findings.

Our goal was to find if the difference existed between the terms used in the social sciences and natural sciences curricula, which we also carried through the interpretation stage.

Our data pool was coming from public records and we assumed that their meanings are "invariant across readers and across time" (Gall et al. 2007, p. 292). Firstly, we approached the text analysis in a quantitative manner, focusing on the word frequencies. This approach gave us a base to make an argument that particular words are overused or are missing in some documents. Secondly, we used a qualitative inter-

pretative approach to deal with a complex topic (e.g. to explore why and how does consumerist approach come up in schools?). Therefore, our methodological approach was consistent with a summative qualitative content analysis, which is intended to use the frequencies as well as the interpretation of content (i.e. latent content analysis, Hsieh and Shannon 2005).

The documents were both quantitatively and qualitatively analysed using NVivo 10 data analysis software program. Initially, we ran NVivo word frequency queries within each curriculum document and then across the documents to conduct a preliminary exploration of data and familiarise ourselves with the used language and discourse. In the next stage, we coded the Social Sciences curriculum to develop a codebook, including preliminary (pre–set) and emerging codes. Preliminary codes are "keywords [that] are derived from interest of researchers or review of literature" (Hsieh and Shannon 2005, p. 1286). While looking for preliminary codes (e.g. consuming and loving), we identified a number of emerging codes, such as need (needs, needed), anthropocentrism, and impact, which were then added to the codebook. After two researchers separately coded the Social Sciences curriculum document, we negotiated our separate codes, the codebook development, and the coding process. We used two coders to assess the reliability and validity of the codes through intercoder agreement measures (Carey et al. 1996) and analyse a vast quantity of data. Our structured codebook provided guidelines for the dynamic analysis of textual data, facilitated intercoder agreement among two researchers, and enhanced team–based codebook development and coding (MacQueen et al. 2008). The codebook included four basic components: the code name, a code type (i.e. preliminary or emerging), a code definition, and an example (i.e. a curriculum document excerpt) for each code.

While coding, we were selecting whole sentences or paragraphs in the text to understand each code's meaning within its larger context. For example, the following paragraph was coded as stewardship:

> Stewardship involves understanding that we need to use and care for the natural environment in a responsible way and making the effort to pass on to future generations no less than what we have access to ourselves. Values that are central to responsible stewardship are: using non–renewable resources with care; reusing and recycling what we can; switching to renewable resources where possible. (Science 2007, p. 5)

Such an approach to coding enabled us to identify the multilayered meaning of the code stewardship; stewardship means caring for the natural environment, conserving energy, and being accountable to future generations.

After we collectively reached a 100% agreement on the list of codes, one of us, who is a mathematics educator, coded the Mathematics curriculum document, while the science educator analysed the Science curriculum document. We developed 153 codes (i.e. nodes) in NVivo 10 and identified 14 the most frequent ones. The 14 most frequent codes were then collapsed into nine subthemes and three themes. For example, the codes such as need, human needs, and basic human needs were collapsed into The Politics of Need subtheme and Anthropocentrism theme. We also kept a memo (i.e. the research journal feature available in NVivo 10) for each curriculum document to track emerging questions and dilemmas during the coding

process, as well as make our coding decisions and thinking processes systematic and transparent. For example, the science educator did not find the words consume or consumerism used in the curricula, and she noted in her Day 4 Memo that the word consume seems to be replaced with the word need. As a result, the team recognised the word need as a code, and focused on exploring the frequency and the meaning of this code. In the following section, we presented the word and code frequencies, as well as the emerging themes and subthemes.

## 4.3 Using, Needing, and Changing the World

Our preliminary analysis of data included an NVivo word frequency query (searching for 100 most frequent words across the curricula) and showed the prevalence of the words humans (also including words such as students, teacher, society, people, women, Canadian, Metis, Aboriginal, settlers, and immigrants), using (also including words such as use, uses, useful, and used), interrelations (also including words such as interactions, international, world, and global), and need (also including words such as needs, needed, food, water, air, oil, and industry) (see Fig. 4.1).

It is evident from the above figure that the curricula promote student–centred pedagogy (and anthropocentrism) because word students is the biggest word in the word cloud (i.e. the most frequently mentioned word across the curricula). The curricula also demonstrate their focus on grade levels by frequently mentioning the word grade and their focus on nurturing a citizen user, *Civis Usufructuarius*, and promoting appropriation of living beings, non–living things, ideas, and practices.


**Fig. 4.1** The word cloud generated through the NVivo word frequency query for 100 most frequent words across the curricula

The words related to the using the world terminology were mentioned 2091 times across the curricula while the words related to protecting the world (e.g. conservation, sustainability, sustainable, and balance) were identified 181 times across the documents. Although the terms interrelations, interactions, connections, care, respect, and relationships were noted 855 times, specific word examples that illustrate caring for the world, such as conservation or protection, remained scarce.

When comparing the frequency of the word use, in the Social Sciences and Science curricula, we found that both curricula contain similar percentages (27% and 29%, respectively) of this word. Interrelations terminology was more prevalent in the Social Sciences curriculum (17%) than in the Science curriculum (11%), implying that relationships among humans are more emphasized than relationships between humans and the natural environment. This finding was surprising to us because we were expecting that the current Science curriculum was designed to promote ecopedagogy and relational thinking, to "educate for global thinking, educate feelings; teach about the Earth's identity as essential to the human condition; shape the planetary conscience; educate for understanding; and educate for simplicity, care, and peacefulness" (Antunes and Gadotti 2005, p. 136).

What was also discovered during this comparison was a low percentage of the words related to sustainability; the sustainability discourse in the Social Sciences curriculum was only 3%, while the Science curriculum included only 7% of such discourse. In the case of the Mathematics curriculum, the most frequent words included: using, spending, consuming (e.g. eating, drinking, and collecting), students, grade, number, data, and problem. These findings suggest that the main focus of the Mathematics curriculum is student proficiency in using numbers, solving problems, and achieving high grades. After determining the word frequency, we reviewed the identified words in their larger context within the curriculum text and found that solving problems often means counting money and buying things, rather than solving ecological or social challenges. For example, the curriculum includes the following sample problem:

> A school is ordering pencils that come in boxes of 100. If there are 9 classes and each class needs about 110 pencils, estimate how many boxes the school should buy. (Mathematics, Grade 4 2013, p. 68)

Coding queries, our second step of data analysis, yielded three main themes: Anthropocentrism, Relational Literacy, and Change. Examples of the emerging themes, subthemes, and curriculum statements are given below.

### *4.3.1 Theme 1: Anthropocentrism*

We define anthropocentrism as an ontology and epistemology in which humans are assumed to be free agents separated from and superior to nature. Anthropocentrism works with the assumption that humans are:

> Free agents separate from and pitted against the rest of nature, our fulfillment predicated on overcoming material constraints. This assumption of human difference and superiority, cen-

> tral to Western thought since Aristotle (Abram 1996, p. 77), has long been used to justify the exploitation of nature by and for humankind (Evernden 1992, p. 96). (Bell and Russell 2000, p. 193)

With the above interpretation of anthropocentrism in mind, we coded the curricula and identified the theme anthropocentrism that included three main sub–themes: The Politics of Need, Using the World, and Safety.

### *4.3.2 Subtheme 1: The Politics of Need*

We identified frequent codes referring to human needs and desires and collapsed these codes into the subtheme entitled The Politics of Need. We define politics of need as a world view and pedagogy in which humans must use the world to survive, placing humanity and human interest at the centre of the universe.

According to the Social Sciences curriculum, students will:

> Identify basic human needs (e.g. for food, water, clothing, transportation, shelter), and describe some ways in which people in communities around the world meet these needs (e.g. food: hunting, fishing, farming, shopping at grocery stores; transportation: on foot, using animals, using motorized vehicles, by water). (Grade 2, p. 81)

Contributing to this politics of need discourse, the Mathematics curriculum emphasizes the need for earning and spending money: "A pack of 24 CDs costs $7.99. A pack of 50 CDs costs $10.45. What is the most economical way to purchase 130 CDs?" (Grade 8, p. 112). It is also evident from the Science curricula that students use technology to solve problems: "Students create models of new devices or new processes to help address human needs and desires, as well as new knowledge about those devices or processes" (p. 16).

### *4.3.3 Subtheme 2: Using the World*

Using the world means that humans use, utilize, or exploit the natural and social environments and resources**,** or find these environments and resources useful, helpful, or beneficial. Using land, using energy, using animals, using numbers, using everything and anything has been promoted and naturalized across the curricula:

> Because interacting with dogs can have a calming effect on humans (e.g. lowering blood pressure and relieving tension), dog visits are used in hospitals and retirement homes as therapy for the patients/residents. Dogs and monkeys can be trained to be the eyes and ears of visually and hearing impaired people. (Science, Grade 2, p. 59)

> They [students] will use primary sources such as journals, letters, maps, and paintings to investigate how people in early Canada responded to challenges in their lives. (Social Sciences, Grade 3, p. 83)

> Use data to make a convincing argument that the environment is becoming increasingly polluted. (Mathematics, Grade 8, p. 119)

The prompts about reciprocity are, however, scarce and often include giving back to Canada, individuals, groups, or communities, rather than giving back to Earth: "In Canadian history, reciprocity refers to free trade between Canada and the United States, including the Reciprocity Treaty, signed in the 1850s" (Social Sciences, History, Grades 7 and 8, p. 154). Moreover, sample issues presented in the Science curriculum discuss the possibilities of escaping a dying Earth and re–settling in space:

> Space exploration has brought many benefits to society. High–quality radio and television signals are now relayed around the globe by satellite. Biological experiments in space, such as the growing of insulin crystals, are contributing to our ability to fight disease…But space exploration is also very expensive, involves risks to the lives of astronauts and others, produces pollution, and creates space junk that may eventually fall back to Earth. Are the benefits worth the costs and risks? (Grade 6, p. 122)

The statement above promotes and challenges space exploration at the same time, giving an opportunity to teachers to start critical discussions in the classroom.

### *4.3.4 Subtheme 3: Safety*

Being safe means implementing safe practices, such as communicating safety requirements to students, preventing injuries, and minimizing risks to humans at all times. For example, "All students must be made aware of issues related to Internet privacy, safety, and responsible use, as well as of the potential for abuse of this technology, particularly when it is used to promote hatred" (Social Sciences, Considerations, p. 54). Additionally, out–of–school fieldwork can expose students to risks, and teachers must plan fieldwork activities carefully to protect students' health and safety.

Safety of plants, non–human animals, and Earth is rarely mentioned, and when mentioned it offers superficial statements rather than practical guides for protecting the natural environments: "Students will gain a basic understanding of Earth's water systems and come to a better understanding of their own role in caring for this precious resource" (Science, Grade 8, p. 149).

### *4.3.5 Theme 2: Relational Literacy*

Relational literacy assumes a human sense of connectedness to the natural environments, as well as to local, national, and global communities. In the curricula, human connectedness has been acknowledged through the discourses of impact, responsible citizenship, and stewardship.

### 4.3.6 Subtheme 1: Impact

Impact is the way in which humans shape the natural and social environments and vice versa. The curricula present multiple perspectives on this issue:

> What impact might ecotourism have on the Rockies or the Gulf Islands of British Columbia? How might such tourism be managed to limit its impact?" "How might the opening of a mine both help and hurt a community?" "Should wind turbines be developed in all regions of Canada? Why or why not?" "What is the best way to balance the demand for more housing with the responsibility to protect the environment? (Social Sciences, Grade 4, p. 103)

> Identify ways in which animals can be harmful to humans (e.g. some people have an allergic reaction to bee and wasp venom when they are stung; deer, moose, and bears on roads can pose a hazard to people driving at night). (Science, Grade 2, p. 60)

The term ecological footprint was rarely mentioned in the curricula. For example, in the Social Sciences curriculum the term was mentioned only four times: twice in the glossary and twice in the specific expectations below:

> [Grade 3 students will] communicate the results of their inquiries, using appropriate vocabulary …ecological footprint…and formats *(e.g. a plan of action to address a local land–use issue; a cooperatively produced book of photos showing the environmental impact of a mine; a report on the benefits of forestry in provincial parks; song lyrics, a rap, or a poem about the effects of industrial pollution on a local waterway; an informational poster on what individuals can do to reduce their ecological footprint).* (p. 92, emphases in original)

We expected a robust discourse of ecological footprint in the Science curriculum, but the term was never mentioned in the document. The document contains the following vocabulary, instead: conservation of energy and resources, alternative forms of energy, and reducing a long–term human impact on society. To reduce human impact on society, students should be aware of the following: "turning off the faucet while brushing teeth or washing and rinsing dishes conserves water; reusing or recycling products, or using fewer products, conserves natural resources and energy" (Grade 5, p. 108).

### 4.3.7 Subtheme 2: Responsible Citizenship

This subtheme embodies respect for diversity, ecological sustainability, fairness, healthy relationships, and activism. The curricula encourage students to "take part in activities that develop responsible citizenship (such as participating in an environmental clean–up)" (Science, Introduction, p. 7) and make a positive contribution to their communities by learning and applying the following four elements of citizenship: active participation (work for the common good in local, national, and global communities), identity (a sense of personal identity as a member of various communities), attributes (character traits, values, habits of mind), and structures (power and systems within societies) (Social Sciences). The Social Sciences

curriculum highlights the importance of preparing students for becoming "environmentally responsible citizens" (p. 43) by citing the Acting Today, Shaping Tomorrow: A Policy Framework for Environmental Education in Ontario Schools (2009) document: "Students will understand our fundamental connections to each other and to the world around us through our relationship to food, water, energy, air, and land, and our interaction with all living things" (Acting Today, Shaping Tomorrow: A Policy Framework for Environmental Education in Ontario Schools as cited in Social Sciences 2013, p. 43).

Moreover, the Social Sciences curriculum requires Ontario students to understand the social, environmental, and ethical implications of their choices as consumers and highlights the importance of financial literacy in Ontario education. Students are expected to become "responsible, active citizens who are informed and critically thoughtful" (p. 47).

In the Mathematics curriculum document, the term responsible citizenship was mentioned as follows:

> Connecting mathematical ideas to real–world situations through learning activities can enhance students' appreciation of the role of mathematics in human affairs, in areas including health, science, and the environment. Students can be made aware of the use of mathematics in contexts such as sampling and surveying and the use of statistics to analyse trends. Recognizing the importance of mathematics in such areas helps motivate students to learn and also provides a foundation for informed, responsible citizenship. (p. 29)

The document does not include any further references to enacting responsible citizenship or to the role of mathematics education in preparing environmentally responsible citizens.

### *4.3.8 Subtheme 3: Earth Stewardship*

This subtheme refers to responsible use and protection of the natural environment through conservation, sustainable practices, and human well–being. Similarly to the Ecological Society of America (2016), we believe that Earth stewardship requires "interdisciplinary collaboration among many natural and social sciences, including climate, earth, and ocean science, environmental sciences, ecology, psychology, sociology, political science, and anthropology" (para 4).

The Ontario curricula defines a Responsible Earth Steward as a person who has developed an appreciation and respect for natural and human environments (Science); who balances environmental stewardship with human needs and wants (Social Sciences); and who protects "endangered and/or sensitive species by minimizing pollution and protecting the places where they live" (Science, Grade 2, p.59).

### 4.3.9 Theme 3: Change

We define change as becoming different, making someone or something different, or becoming someone or something else. We understand that changes might be quantitative or qualitative, temporal or permanent, frequent or occasional, reversible or irreversible. The Ontario curricula illustrated the fundamental concept of change mostly through growth or daily and seasonal changes, and occasionally through environmental changes.

### 4.3.10 Subtheme 1: Growth

Growth is the development from a simpler to a more complex stage, from a seed or an embryo to a mature plant, human animal, or non–human animal. In most instances, this term contains a positive connotation, such as "healthy growth" (Social Sciences, Preface, p. 5) and growth and changes in plants and animals (Science). Students will:

> Identify key social and economic changes that occurred in and/or affected Canada during this period (e.g. developments in the fur trade, Loyalist settlement, growth in agriculture and in the timber industry), and explain the impact of some of these changes on various individuals, groups, and/or communities. (Social Sciences, History, Grade 7, p. 140)

> Germinate seeds and record similarities and differences as seedlings develop *(e.g. plant quick–growing seeds – nasturtium, morning glory, sunflower, tomato, beet, or radish seeds –in peat pellets to observe growth)* (Science, Grade 3, p. 71, emphases in original)

> Represent linear growing patterns (where the terms are whole numbers) using concrete materials, graphs, and algebraic expressions. (Mathematics, Grade 7, p. 105)

### 4.3.11 Subtheme 2: Daily and Seasonal Changes

We define daily and seasonal changes as natural processes influenced by natural laws, rather than by human footprint. We recognize, however, that human footprint is increasingly affecting seasonal changes due to hectic pollution and exploitation of the planet Earth. In the curricula, daily and seasonal changes are presented in light of human needs and desires. For example, students will:

> Assess the impact of daily and seasonal changes on human outdoor activities (e.g. farming, gardening, swimming, skating, soccer) and identify innovations that allow for some of these activities to take place indoors out of season (e.g. greenhouses allow farming and gardening to happen in cold weather; arenas can make ice in all seasons for skating and hockey; community centres can provide warm places in all seasons for swimming). (Science, Grade 1, p. 54)

> Describe how changes in temperature affect everyday experiences (e.g. the choice of clothing to wear). (Mathematics, Grade 2, p. 45)

The Social Sciences curriculum includes a single reference to seasonal changes in early societies as a natural process that affects these societies' sustainability and food production.

### *4.3.12 Subtheme 3: Environmental Change*

Environmental changes are the consequences of human activities on the natural environment, measured in terms of biologically productive land, water, and air that are used to harvest the goods people consume and to assimilate the pollution they generate locally, nationally, and globally. To explain the fundamental concepts of change and continuity (and sustainability and stewardship), the Science curriculum promotes the following big ideas:

> Air and water are a major part of the environment. *(Overall expectations 1, 2, and 3)*
> Living things need air and water to survive. *(Overall expectations 1 and 3)*
> Changes to air and water affect living things and the environment. *(Overall expectations 1 and 3)*
> Our actions affect the quality of air and water, and its ability to sustain life. *(Overall expectations 1, 2, and 3)* (The Curriculum Expectations, p. 66, emphases in original)

According to the Social Sciences curriculum, students will:

> Formulate questions to guide investigations into the impact of natural events and/or human activities that change the physical environment (e.g. the social, political, economic, and environmental impact of natural events such as earthquakes, volcanic eruptions, drought, floods, hurricanes, typhoons, or tsunamis; the economic and environmental impact of industrial pollution on a river system; the social, economic, and environmental impact of agricultural practices; the social, political, economic, and environmental impact of land–reclamation projects; the political, economic, and environmental impact of transportation system. (Geography, Grade 7, p. 167)

It is not evident in the document which activities will be undertaken by students, teachers, schools, and communities to address the above formulated questions.

The terminology of using the world, rather than consuming the world, is prevalent in the curricula. This terminology illustrates a wide range of applications, from using (and consuming) the land, animals, plants, and oil, to using images, graphs, technology, and media. As a result, the concept and the actions of using the world are presented as common, logical, and natural. The politics of need—rather than an examination and evaluation of human desires, choices, and preferences—justifies anthropocentrism and humans' ownership of the Earth. Such an educational approach implies that human needs are basic and non-negotiable.

The concept of change—including social, economic, historical, daily, seasonal, and environmental changes—is more promoted than the concept of conservation or sustainability, suggesting that changes are natural and inevitable. How far–reaching

might this understanding be in terms of polluting and depleting the Earth? The focus is on using and changing the Earth rather than on protecting it and giving back to it.

## 4.4 Naturalizing Human Needs and Desires

The Ontario curricula promote the concepts of needing and using the world, rather than loving it. While the word consumerism is not used, it is replaced with the politics of need (i.e. human desires and wants) and the inevitability of change. Change and need are naturalized and thus considered non–negotiable. Using the discourses of anthropocentrism and change, the curricula celebrate human stewardship and ownership of the Earth (i.e. control and consumption of the world). The documents focus on human needs and wants, justifying continuous change and depletion of Earth. This focus might also suggest that humans are capable of repairing what they have destroyed (Orr 1991), which is a problematic belief to hold. How much land, water, and air can humans repair in a consumerism–driven society? Who will teach humans to protect, repair, and love the world?

The potential of the curriculum documents in developing youth's ethical and responsible, rather than consuming, life practices is great and critical. Based on our research, however, we argue that the existing documents should be revisited, unpacked, and revised for sustainability rather than change, for choice rather than need, for loving the world rather than needing, using, and consuming the world. These problems are also evident in educational trends, such as the appropriation of *Canadian Geographic* to promote oil and gas interests and in curriculum documents examined in this chapter.

Our analysis and exemplary quotations present mathematics curriculum as culture–free, but also as free of almost any social impact and activism. Examples of applications of mathematics in the real life situations are reduced to consuming the world (eating, drinking), satisfying needs (spending), and mentioning environment and nature in superficial terms (e.g. using flowers to count the petals). The critics of mathematics education often claim that, in its individualistic approach, mathematics education neglects social structures, race, gender, and class relations that form individuals (Apple 1995). To these criticisms we add the issue of mathematics curriculum neglecting one's relation to environment from the critical literacy perspective.

## 4.5 Formulating Critical Questions for Ontario Education

The curriculum documents reinforce a consumerist approach to the world by accepting needs as a given, and not inquiring into how needs are constructed, how they are enacted, or how they impact the ecological world. Reading the examples of curricula expectations and statements presented in this chapter may make the reader

wonder if these curricula excerpts were taken and presented out of context, and they are; we summarized 515 curricula pages into approximately eight pages of our Using, Needing, and Changing the World section. However, we did not present random sample excerpters; we illustrated the most frequent themes and subthemes identified across curricula. Our goal was not to judge or justify curriculum focus, underpinnings, or vocabulary, but rather to start difficult and timely conversations about the Ontario twenty-first century education.

To address the concerns we have raised in this chapter, we suggest revisiting the curriculum documents in the near future because the Social Sciences curriculum was published in 2013, the Science curriculum in 2007, and the Mathematics curriculum in 2005. Although we recognize that the original documents are being revised, we wonder if developing new policy documents in 2017, and in light of ideas of ecological education and ecopedagogy, would provide new possibilities for coexistence, sustainability, and Earth stewardship. We encourage the individuals, groups, and organizations engaged in the development and refinement of these policy documents to consider the following questions: What is the purpose of Ontario education? Are we nurturing a responsible citizen or a citizen user, *Civis Usufructuarius?* Are we educating for consuming or for loving the world? What does it mean to love the world? What do we need to unlearn to be able to love the world again?

We urge scholars, educators, and researchers to take up the issue of consumerism in schools and communities. For example, researchers could analyse textbooks or conduct surveys, individual interviews, and focus group interviews with students, teachers, school administrators, curriculum developers, and parents. These concerns could also be addressed by investigating the perspectives of newcomers to Canada such as internationally educated teachers who bring to Canada transnational values, beliefs, and pedagogies (Ratković 2015). Finally, we recognise students' voices as critical voices in the discourse of ethical life on planet Earth. We encourage researchers and educators to invite students to propose their solutions for overpowering the culture of consumerism and describe the world they would love to grow up and live in.

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**Snežana Ratković** is a Science Teacher from the Former Yugoslavia and a passionate scholar of transnational pedagogy. She is a Research Officer, a Research Fellow, and an Instructor in the Faculty of Education at Brock University, where she teaches academic writing and publishing.

**Dragana Martinovic** is a Full Professor of Mathematics Education at University of Windsor, where she leads the Human Development Technologies Research Group.

**Trevor Norris** is an Associate Professor of Philosophy of Education at Brock University, where he teaches in the area of the impact of neoliberalism on education. He is the author of "Consuming Schools: Commercialism and the End of Politics."

# Chapter 5
# Youth: Between the Price of Consumption and the Value of Commitment

**Luiz Siveres, Paulo César Nodari, and Idalberto Neves Júnior**

## 5.1 An Ethical Approach to Youth Consumerism

The dynamics of the contemporary world can be perceived in the existing diversity of cultural interconnected tendencies, like the current economic and technological movements. These are forces that participate in the development of personal and social projects at the regional, national, or international levels. In this context, we welcome the energizing capacity of youth to change society's social structure by their commitment of solidarity, humanitarian causes, community projects, and socio-environmental movements.

These youth are also involved in the consumption dynamics of society, being both subject and object in it. That is to say that these young people are part of a generation that is not foreign to the logic of the globalized market. In this sense, if they a voracious consumers of everything on the one hand, they are also manipulated by corporatist interests on the other, thus becoming hostages of the consumer machine, mere objects of consumption. This phenomenon is characteristic of our time.

Our reality requires, therefore, more critical and creative thinking to perceive the foundations of this phenomenon and support the search for other forms of experiences that would let young people construct their life based on responsibility and ethics. In addition to values like equality, fraternity, and freedom, other ideals, such as authenticity and solidarity are equally relevant to the renewal of our ethics – after all, we are all citizens of the world (Cortina 2005). Therefore, humankind must

L. Siveres (✉) • I. Neves Júnior
Catholic University of Brasilia, Brasilia, Distrito Federal, Brazil
e-mail: luiz.siveres@catolica.edu.br; jneves@ucb.b

P.C. Nodari
University of Caxias do Sul, Caxias do Sul, Rio Grande do Sul, Brazil
e-mail: paulocesarnodari@hotmail.com



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assume its responsibility in the continuity of the future of the planet. For this reason, the concept of ethics goes beyond individual ethics in order to support an ethics of responsibility (Jonas 2006). To this end, it is necessary to bear in mind, amongst other aspects, that no one can risk anything without taking into account the interests of others, no one is allowed to jeopardize the interests of others, humanity does not have the right to murder other species or promote its own extinction (suicide).

According to Hans Jonas (2006): "from the perspective of responsibility, prudence becomes the core of our moral action" (pp. 87–88). For this reason, the proposition of a more ethical project for the experience of youth should take into account that they have specific characteristics, such as a natural inclination for defiance of the conventional, which is more or less common to all other young people in similar socio-cultural contexts. The present chapter invites the reader to reflect on the mechanisms of the consumerist culture in which youth are its target audience in order to advance ethical propositions for the life of young consumers. Maybe that way we can facilitate the transition from an existence absorbed by the price of consumption to one that is based on the value of the commitment.

## 5.2 Youth Profile

When dealing with the theme of youth, it is important to emphasize that there is no uniform concept to define this existential and relational experience. According to Candido Alberto Gomes (2011), youth are extremely diverse manifestations that extrapolate any attempt of conceptual framing. Therefore, rather than creating a definition of youth, it is more appropriate to indicate the main potentialities and challenges that characterize it in the contemporary world.

One of the ways in which today's young people express their vitality is mainly by the care of their body, either by its performance or aesthetic, which explains the flourishing of gyms. Other elements that characterize youth are their ability to create and cultivate connections and be attuned to historical, cultural, and social movements. Yet another feature is their ability to dream utopias, or to anticipate the "never-before-seen viable" (Freire 2008, p. 234). Youth are characterized, therefore, by life projects that are unfinished and that seek some form of complementarity, by participating in non-governmental or social organizations.

Among the various challenges of youth, however, there is the experience of the existential emptiness, which in the understanding of Gilles Lipovetsky and Jean Serroy (2011) increases daily, thus multiplying "intoxicating behaviours to escape the night of a world without value, the abyss of lack of purpose and meaning" (p. 31). For those authors, this tendency of existential emptiness was strengthened mainly by the rejection of higher values such as volunteerism, spirituality, or compassion, as well as by the ease of immediate and instantaneous life projects.

According to Lipovetsky (2005), the tendency of existential emptiness strongly demarcates the current reality, where there is no possibility of change in the future, but only opportunities for realizations in the present moment (hence the willingness of all to preserve youth). The great existential emptiness that is created ends up

being filled by the agility of communication technologies, which floods the young with information. Therefore, there is a controversial relationship between the existential emptiness and the material fulfillment that, in general, materializes virtually through social networks. Although this experience of emptiness is directly linked to the individual, this phenomenon is the result of a social model: "men [sic] can only exist in society and for society" (Castoriadis 2006, p. 63). In any case, society is dominated by the preponderance of the capitalist imaginary, either by the primacy of the economic dimension, the preference of a productive rationality, or the privilege of mechanisms that seek to promote consumption. It is the logic of the market economy that excludes those who do not fold to the prevailing convention of capital (Castoriadis 2006).

If, on the one hand, this model brings some material benefits to some (richer) groups, on the other hand, it proves to be a prototype for the destruction of the cultural existence and social experience of the young. In that regard, Cornelius Castoriadis (2009) suggests the development of the imaginary dimension, which would be "the capacity to form a world and to give sense, meaning to it and to oneself, to what we do" (p. 51). Despite the contradictions of daily life, especially during youth years, we must counteract all movements that promote the loss of the meaning of our stories. In addition, we must consider the role of technologies, which according to Zigmunt Bauman (1997) are a contribution to humanity, but which require an ever-greater fragmentation of the human being in the postmodern world. Consequently, according to Jonas (2006), ethics tends to be diluted among contemporary technological procedures: "the delimitations of proximity and simultaneity disappear, broken by spatial growth and the temporal extension of the consequences of cause and effect, and set in motion by technical praxis even when undertaken for close purposes" (p. 40).

For that reason, the great challenge experienced by young people is the perception that they are the important agents of consumption, while at the same time the main victims of this economic-social dynamic. In other words, "we are pressured to consume more, and in this way we ourselves become products in the consumer and labour markets" (Bauman 2011, p. 65). This scenario reveals a contradiction: people are both voracious consumers and fragile patients who can be consumed at all times and in all forms by the current consumer market.

Such a view goes beyond interpersonal relationships and finds support in a system that expresses value judgment – bourgeois economic theory – without being challenged. This fact is perceived by Franz Hinkelammert (2014), who affirms that "bourgeois economic theory does not take into account needs, it takes into account preferences; thus, the integral perspective of reality has disintegrated" (p. 115). Considering, therefore, that all human needs were not taken into account, but only the individual or group preferences, a civilization fractionation process was triggered, mainly between cultures and economic groups.

The potentialities and challenges presented here are but a summary of the multiplicity of manifestations that characterize contemporary youth. However, it is noted that issues related to the richness and impoverishment of the dynamics of the contemporary world of youth are inexorably linked to consumerism.

## 5.3 Consumer Price

The potentialities and challenges of the youth, according to previous reflection, mark the great imbalances inherent to their experience. For example, the growing race and gender intolerance, structural and conjunctural unemployment, access and permanence in school, the neglect of public policies, and disenchantment with life and history. Therefore, the energy that gives a certain identity to young people is losing its strength in the face of the violent interruption of lives and/or the atrophy of social relations caused by individualism.

The multiplicity of connections that youth establish on a daily basis also reveals how media technologies are becoming the theoretical and practical reference of youth behaviour. Such a framework motivates youth to participate in occasional relationships, thus forging a growing chain of contacts, contributing to the superficiality of family, religious, professional or affective relationships. In addition, they are not committed to building a project of life that has meaning for their human existence.

The energy that fuels youth to desire and dream loses its power insofar as it is numbed by suicidal trips promoted by drugs and vices as well as frustrated affective relationships. In this way, the energies that should propel human achievement are interrupted by immediate satisfaction or by the unbridled pursuit of occasional experiences.

Lipovetsky and Serroy (2011) has described our world as hypermodern and characterized by four structuring poles: hypercapitalism (considered the great force of financial globalization), hypertechnization (understood by the influence of diversity and universality of technologies), hyperindividualism (characterized by the supremacy of the ego), and hyperconsumption (understood as the exponential energy of mercantile hedonism). According to the authors, these features provide support to the strengthening of a disoriented society.

The dynamics of this context could also be the categories of deregulation, privatization, and individualization, aspects considered by Bauman (2011) as the basis for personal fulfillment, made to the extent of consumer happiness and, therefore, "turned, like all joys of consumption, to individual, solitary pleasures, even when appreciated together" (p. 34). Thus, consumption became, within the context of a liquid and disposable society, the destabilizing energy of values of solidarity and responsibility, once again strengthening a selfish and individualistic life style.

To make this desire burn, it is indispensable to have certain resources, especially economic resources. This provision is being met, mainly, by the economic globalization that emerged in the last century (Badiou 2007). In this context, profit was the central element and this dynamic continues to reflect on the current reality, which is understood by Ulrich Beck (2011) through the articulation between the social production of wealth and the social production of risks. According to the author, "problems and conflicts arising from the production, definition and distribution of scientifically-technologically produced risks are added to distribution and conflict problems of the society of scarcity" (p. 23). Thus, the characteristic for the production of wealth is strongly linked to economic, social, and technological risks. As inheritors

of this model, we are marked by the collapse of values and traditional institutions as well as by social barbarism. While current society has no more humanitarian projects, the pursuit of profit at any price prevails to meet the preference and anxiety for consumption. Faced with this mercantile hedonism, it is opportune to recommend some changes in this logic and to seek ways to reconstruct human dignity.

Therefore, with the desire to promote change, Bauman (2011) proposes to "confront difficult challenges like goals well beyond our reach and standards of excellence that seem far from our ability to achieve them" (p. 24). It is necessary to point to horizons of meaning, to create meaningful projects, and to reaffirm the value of ethics in a world of consumers. And this task is not a luxury reserved for some but for all because, according to Leonardo Boff (2012), "the current crisis, with the severe threats that globally weigh on everyone, poses as urgent the matter of the collective responsibility of human beings" (p. 21). In order to respond to this call, we next look to the value of the commitment based on the principle of ethics.

## 5.4 The Value of Commitment

After reflecting on some features of the youth's physiognomy and indicating some challenges of young people in the contemporary world, here we suggest that ethics is necessary to create and cultivate the value of commitment. In this sense, according to Yves La Taille (2006), "to speak of morals is to speak of duties, and to speak of ethics is to speak of the search of a 'good life' or, if you like, a life worth living" (p. 30). The purpose of this proposal is to enable young people to experience authenticity, or the desire to experience a process of social transformation and cultural development. In the core of this proposition there is the recommendation for one to be aware that the simultaneous communication of all the events on the planet pose for men the challenge of assuming the responsibility of their actions before all. In any case, it is urgent to propose an ethics of joint liability, capable of addressing emerging challenges, such as the environment, the economy and cultural diversity, and to ensure that men have the ability to govern the powers they actually possess.

Given these circumstances, which are unfavourable to proposing values, especially for youth, it becomes an even greater challenge to suggest ethics as a necessary and recommended value for living life with dignity. On the basis of this provision, it is advisable to return to a proposal by Anthony Giddens (1996): "far from seeing the disappearance of universal values, perhaps this is the first time in the history of mankind that these values present a true point of support" (p. 286). These points of support can be found in the concept of authenticity proposed by Charles Taylor (2009), in the notion of reconnection suggested by of Edgard Morin (2005), and in the idea of sociability as defended by Manfredo de Oliveira (1993).

Taylor (2009) talks about the relationship between identity and diversity or between the singularity and the community, which seeks an integral formation of the being through knowing how to be more authentic through individuality, solidarity, and freedom. This proposition presupposes an analysis of modernity, contextu-

alized from the seventeenth century, a period considered as the beginning of a moral decay that resulted in three maladies: primacy of instrumental reason, loss of senses and values, and fragilization of political freedom. These deficiencies reveal a model of individualism marked by the self-centered dimension expressed in the mythological figure of Narcissus, by the technicality that seeks to use technology as a means to achieve all ends as well as by disinterest in the common cause or the renunciation of socio-political commitment. These realities form a vicious circle manifested by atomism, instrumentalism, and conformity. In order to overcome this situation, it is recommended to strengthen a virtuous process through the ethics of authenticity inspired by self-determination and reflective consciousness.

According to Taylor (2009): "Authenticity implies creation and construction, originality and creativity as well as criticality and opposition to established social rules, but also requires openness to horizons of meaning and a definition of self made through dialogue" (p. 75). The relationship between meaning and signification, dialogue and dialogic, and the individual and social could enhance an ethics of authenticity. Such a suggestion seems to be well directed to the youth because "authenticity implies originality, demands revolt against convention" (Taylor 2009, p. 74). These dispositions of originality and diversity, or being-in-itself and being-to-the-other constitute values that express young people's commitment to personal life and social life.

Morin (2005), who articulates the subjective and objective, the poetry and wisdom, the community and civic amongst the instances of the triad individual-society-species. The author's understanding of the world is bound, on the one hand, to the fragmentation of the human being, of the social systems, and the formation of the species, and on the other a requirement of the regeneration of these dynamics in the context of a complex reality. He asserts that human beings consider themselves to be the creator of the sciences, but are creatures of inventions instead, subject to techniques. That is, they have been transformed into the object of their technologies. Humanity is, according to the same author, hostage to an amoral science and immoral politics, leading humanity to a planetary tragedy. This reality is part of the human condition, manifested by egocentrism and altruism, by separation and reconnection. Still according to Morin (2005), altruistic ethics "is an ethic of reconnection that requires maintaining openness to the other, safeguarding the common sense of identity, consolidating, and toning the understanding of the other" (p. 103). Therefore, despite the current civilization's strengthening of the dynamics of separation, it is desirable to propose the ethics of religation, which would be an imperative to experience integration with the other, with nature, and with the transcendent.

For Marco Zingano (2013) there must be a decentering of the self: "agents take into consideration the interests of others as such, so that 'you' and 'him' are incorporated into the moral scene once occupied entirely by 'I'" (pp. 15–16). Altruism is revealing of a moral act because it manages to recognize people as constituted subjects with the same human dignity. Before this scenario, a "reconnection with the other, reconnection with a community, reconnection with a society and, in the limit, reconnection with the human species" (Morin 2005, p. 21). This procedure is

strengthened when society starts to demand that individuals adopt an ethics of solidarity and responsibility as a possibility to experience the value of commitment.

From a religions ethical standpoint, all beings, all systems, and all processes are involved, agreeing with Morin (2005) that "ethics are religions and religions are ethical" (p. 39). This claim could lead young people to strive to confirm the innumerable connections they establish daily, but to affirm new links with people, natural phenomena, and the planet as a whole.

The value of compromise, finally, considers the ethics of sociability. It articulates thinking and doing good and to establish this relationship between reflecting and acting, there is love. In order to inaugurate this ethical possibility, young people have to choose to return to wisdom and poetry in connection with themselves, with others, and with nature, avoiding possessive love and promoting the love of hospitality, forgiveness, recognition, passion, and care. Leonardo Boff (2012) states: "care makes us truly ethical beings who take responsibility for human and environmental well-being, solidarity" (p. 264). This ethics of sociability requires the existence of a being who cooperates with a transformative praxis, inserted in a process of nonconformity with the current socio-environmental problems.

For this reason, since the original experience of the Greeks, sociability is seen "as something constitutive of human essence, so that man, as essentially political, only in the 'political community' (polis) can find its self-actualization" (Oliveira 1993, p. 21). This proposition leads one to consider any human being as more than a being of necessity, but a being of community, and a being of sociability.

Thus, sociability-oriented ethics would be a procedure that seeks to satisfy human needs through the enjoyment of goods, a transparent process that would contribute to the construction of a good and just life. Therefore, the value of the commitment, based on the proposal of an ethics of authenticity, reconnection and sociability, could contribute to an innovative project for youth. This proposal breaks with an alienating dynamic of the consumerist movement that homogenizes and instead promotes the development of conscious subjects capable of building their own history and that of humanitybased on principles of solidarity, responsibility, and justice.

## 5.5 The Field of Possibilities of the Application of Ethical Principles

Even with the suggested ethical guidelines, some questions remain open. How can techno-scientific achievements account for what mankind should adopt as an ethical procedure (Nodari 2010)? How can certain social, economic, political, religious, and cultural conditions contribute to youth participation in a movement geared to happiness? In face of the diverse forms to cultivate life, would an ethical commitment that contemplates respect for the other be possible? Given the diversity of connectivities experienced by youth, what ethical commitments could be cultivated to nourish friendships that would contribute to personal, professional, and spiritual

growth? To trigger a process of cultural change in relation to utopias would be suggestive of participation in social projects, community actions, and political programs. However, how to motivate young people to initiate social transformation?

To answer some of these questions, one would have to link science to consciousness and technique to ethics. Or to link singularity to coexistence, information to understanding, and well-being to good life (Síveres 2013). It is important that young people be able to guide themselves according to ethical principles in order to contribute to the development of projects of life that favour more solidary relations and that strengthen the possibilities of a life worthy living for all. This was precisely the purpose of this reflection: to indicate the value of religion ethics and ethics of sociability as possible ways for a healthier world, both of which are based on the authenticity of people and their potential for social transformation.

In the possibility of experiencing the principles presented here, it would be possible to move away from a tendency to value the price of consumption, towards prizing the value of commitment. Then, youth could be the protagonist of a humanitarian project that shed light on all the relations and correlations of the path of humanity in its historical pilgrimage on this planet.

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**Luiz Síveres** (Ph.D. in Sustainable Development, University of Brasilia) is currently the director of the Graduate Program in Education at the Brasilia Catholic University (Universidade Católica de Brasília – UCB). His main research interests are in the areas of teaching and learning and teacher education.

**Paulo César Nodari** (PhD in Philosophy, Pontificial Catholic University of Rio Grande do Sul/ University of Tübingen) is currently a professor at the University of Caxias do Sul (Universidade de Caxias do Sul – UCS). His main research interests are in the areas of ethics, freedom, human rights, peace, anthropology and education.

**Idalberto Neves Júnior** (Doctoral student in education at the Brasilia Catholic University) is currently a professor at the Brasilia Catholic University (Universidade Católica de Brasília - UCB) and a manager at Controllership Department at the Bank of Brasil (Banco do Brasil S.A.). His main research interests are in the areas of teaching and learning and teacher education.

# Chapter 6
# Youth Uses of Actor-Network Theory for Undermining Societal Consumerism

**Larry Bencze, Lyn Carter, and Mirjan Krstovic**

## 6.1 Enlightening/Activating Students About Consumerism

Of course, living things need to consume. It seems, however, that we humans have extended this need to points at which wellbeing of many living and non-living things on Earth are under immense threat. Although not everyone seems to agree, it appears, for example, that humans' burning of fossil fuels is changing global climates in ways that are predicted to have devastating effects. People also are concerned, however, about such potential consumerism-related challenges as health problems linked to manufactured foods, habitat destruction resulting from ever-expanding resource extraction and, ultimately, species losses relating to various environmental changes.

There are, undoubtedly, many and complex reasons for humans' apparent orientations towards excessive and problematic consumerism. However, as argued below, a significant factor appears to relate to capitalist economic systems. Although capitalism enjoys wide acceptance and seems to be a key part of societies' zeitgeist, there is considerable scholarly literature claiming it needs to be radically changed, if not replaced by another economic (and social) system. In its current form, it appears to be serving relatively narrow segments of societies and, as it does so, perhaps is contributing to many personal, social and environmental harms. In light of

L. Bencze (✉)
University of Toronto, 252 Bloor Street West, Toronto M5S 1V6, ON, Canada
e-mail: larry.bencze@utoronto.ca

L. Carter
Faculty of Education and Arts, Australian Catholic University, Level 1, Room 1–49, 250 Victoria Parade, East Melbourne, VIC, Australia
e-mail: Lyn.Carter@acu.edu.au

M. Krstovic
Peel District School Board, Mississauga, ON, Canada
e-mail: mirjan.krstovic@peelsb.com



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capitalism's nearly ubiquitous infusion into living and nonliving entities, it can be overwhelming to think about points of entry for addressing its problematic aspects. One avenue for attention that can, perhaps, influence capitalism is through science education systems – given that fields of science and technology (and engineering and mathematics) play key roles in supporting capitalist production and consumption.

In this chapter, after a review of scholarship pertaining to capitalist socio-economic systems and their current emphases on consumerism, suggestions for school science reform that may contribute to a better world are discussed. Particular attention is given to work of a teacher (third author) who has – over at least three school years – been encouraging and enabling students to self-direct research-informed and negotiated actions to address potential and realized personal, social and environmental harms associated with fields of science and technology.

## 6.2 Capitalist Networks Promoting Consumerism

Capitalism has been part of the fabric of many societies, worldwide, for centuries. Although it has waxed and waned in its dominance and, perhaps related to that, its negative influences on various entities, it appears to be on an intense path of destruction in recent decades. According to Thomas Piketty (2014), for instance, in his book detailing capitalist activities for the last three centuries, *Capitalism in the Twenty-first Century*, wealth concentration by relatively few people and companies, etc. – to a great extent, at the expense of wellbeing for many individuals, societies and environments – is increasing at an unprecedented and problematic pace. A dramatic illustration of this is contained within a recent report by the international aid agency, Oxfam (2017), which suggested that, while 388 people controlled wealth equivalent to that of the poorest 50% of the world's population in 2010, such wealth became concentrated into hands of 62 people by 2015 and only about eight people shared that wealth by 2017 (goo.gl/eFhydo). That is a dramatic and alarming trend in global inequality. However, social inequalities are not the sole kinds of harms linked to capitalism. In her book, *This Changes Everything*, Naomi Klein (2014) suggests that the richest members of societies and their supporters have, for decades, been aware of devastating effects associated with increasing human generation of so-called greenhouse gases, but have relatively systematically avoided attention to this now very serious threat to wellbeing of individuals, societies and environments.

Although the timing of its emergence and its meaning are contentious, it is apparent that many harms linked to capitalism seem associated with development of its *neoliberal* form (Springer et al. 2016). Particularly after the recovery period following the Great Depression and second world war, by which time the richest members of societies began to experience some loss of shares of wealth, various changes were enacted that seemed to intensify capitalists' abilities to concentrate wealth (Harvey 2010). In contrast to earlier forms of economic liberalism, which prioritized freedom from (state) intervention in private economic affairs, *neo*(new)-liberalism

has, generally, promoted cooperation among governments, private sector individuals and groups and many other local and global entities. Moreover, to further strengthen their global influence, an especially important innovation has been formation of various transnational entities – such as the World Trade Organization – that may enact agreements containing clauses that can overrule state/provincial and national government laws that would inhibit capitalists' abilities to generate profit. Together, neoliberalism appears to operate not so much through single entities but, rather, as complex global networks of cooperating agents. Stephen Ball (2012), studying educational governance, for instance, has constructed complex network maps like that in Fig. 6.1 to illustrate such collaborations. His research suggests that think tanks, like the Atlas Economic Research Foundation, are tied to such diverse entities as: John Blundell, Koch Family Foundations, Education for All Brazil and Families that Can, and supra-national organizations like the World Trade Organization, World Bank, Organisation for Economic Co-operation and Development and the International Monetary Fund. Like transnational corporations, while having offices and factories, etc. in individual countries, their operations are not tied to any one nation state. Rather, they seem to function extra-nationally to serve global capitalists (McMurtry 2013).

To achieve their ends, supporters of neoliberalism have, at times, exerted considerable military force on populations – as famously enacted in the Chilean dictatorship of Augusto Pinochet (in office from 1974–1990). However, it appears that a more

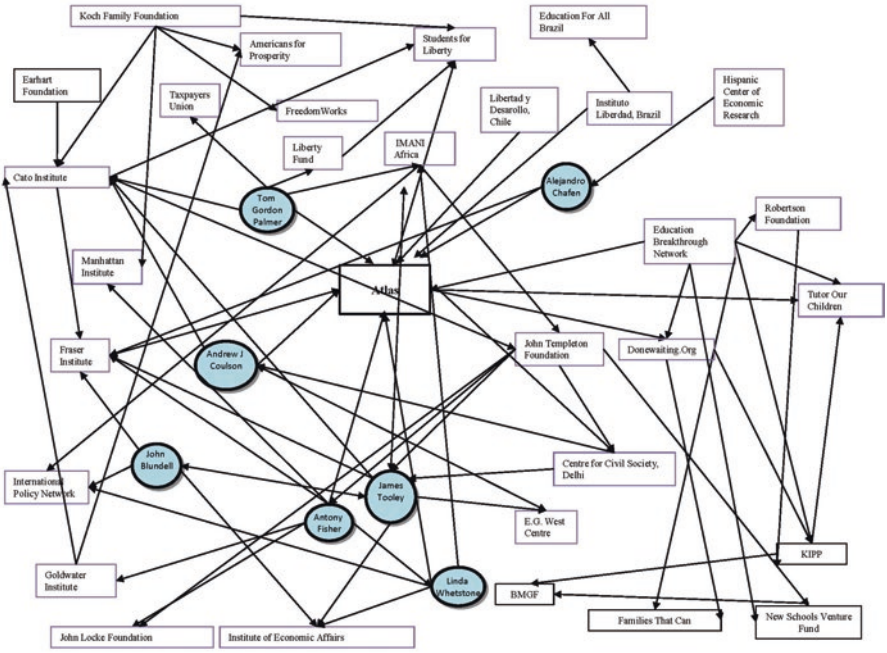


**Fig. 6.1** A portion of the GCN, an atlas network

common tack is to use various methods of *persuasion*. Key to such approaches seem to be fields of science and technology, which are major instruments of production and distribution of various marketable products and services. Their roles can be understood in terms of the schematic in Fig. 6.2, adapted from a similar representation in a paper by Wolff-Michael Roth (2001) that depicts reciprocal relationships between processes of science and technology. Translations from World (e.g. tree) to Sign (e.g. drawing of tree) is said to be the main focus of science, while fields of technology/engineering are said to emphasize translations from Sign (e.g. blueprints) to World (e.g. building). However, because opposite translations here are thought to co-affect each other, there would be some "science" in "technology" and vice versa – which, in turn, suggests that the two processes have much in common or, indeed, may be one entity, perhaps called *technoscience* (Sismondo 2008). On the one hand, particularly in the post-war period of infrastructure re-building and social spending, capitalists placed considerable emphasis on Sign → World translations; that is, on encouraging development and distribution of many goods and services. This project was assisted, to a great extent, by government laws that legalized intellectual property agreements between business and academic scientists (Krimsky 2003). A biologist might, for instance, not just determine structure and function of various living systems, but also may produce practical applications for development of commercially viable products – such as genetically-modified organisms. On the other hand, as technological, production and worker efficiencies increased, significant infrastructure was re(established) and energy became more available, production capabilities seemed to outstrip needs. Consequently, to maintain growth in profits, capitalists turned to emphases on creating *desires* for repeating cycles of consumption and disposal of products and services by the relatively few people in the world with few needs – and who could afford to pay for them at levels conducive to profit generation (McMurtry 2013).

Regarding the schematic in Fig. 6.2, promotion of consumer desires seems to relate significantly to the nature of World ← → Sign translations. Firstly, it is apparent that translating from one entity (e.g. a tree) to another (e.g. a drawing of tree) can never be perfect; something may be lost (or added) in translations. These are

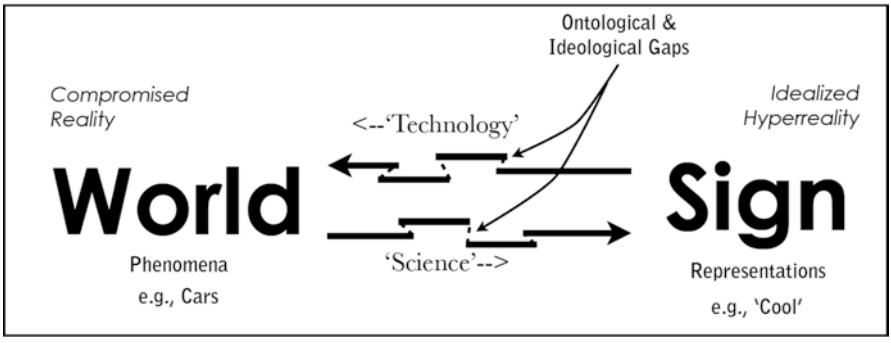


**Fig. 6.2** Neoliberalism-influenced technoscience

called ontological gaps, since they are differences in what can be represented in specific kinds of ontological entities. There may, however, also be *planned* differences in such translations – which may be called ideological gaps. For example, according to Jean Baudrillard (1998), manufacturers and advertisers appear to cooperate to invent/innovate designs in products and/or services (e.g. cell phones) and/or advertisements about them that may lead consumers to draw idealized conclusions about the products/services. Moreover, as indicated in Fig. 6.2, manufacturers and advertisers may idealize representations (Signs) to such a degree that there may be very little connection between them and the phenomenon/commodity (World) they are to represent. He suggested that such misrepresentations create a *hyperreal* experience for people; that is, consumers may perceive the symbolic world more real than the material one. Freed from bonds of connections to phenomena, signs are relatively easy to manipulate (Latour 1987) – allowing companies/marketers to create innovative new images that may be associated with commodities. This may encourage consumers to discard older (often somewhat new) products in favour of ones with the latest brand identities (Barber 2007), perhaps because consumers perceive older commodities to be obsolete (Leonard 2010). Overall, Baudrillard (1998) suggested that many of us are operating as consumers in a manufactured virtual world (which he called a *simulacrum*) that essentially serves those controlling such imagery (e.g. financiers).

Apparently, conditioning consumers to focus on frequently-renewed abstract idealizations (Signs in Fig. 6.2) not only encourages repetitive urges to consume; but, as well, may distract them from noticing companies' cost-saving measures relating to manufacturing and distribution of commodities. A key element of neoliberal policy pertains to companies' legal rights in many jurisdictions to minimize their costs for the sake of maximizing shareholder gains (profits) (McMurtry 2013). Many such cost savings relate to the concept of *externalization*; that is, arrangements enabling many costs to be borne by those outside company ownership. Cost avoidance strategies may include, for instance, reduction in labour salaries and benefits, uses of less expensive equipment, materials and energy and evasion of costs associated with harms linked to products and services (Bakan 2004). Associated with such cost reductions are, indeed, many potential and realized harms for the wellbeing of individuals, societies and environments. Arguably of most concern are capitalists', politicians' and others' continued promotion of uses of fossil fuels, rather than more sustainable energy sources, which are linked to vast and complex devastation associated with climate change (Klein 2014). Perhaps more visibly, however, health problems, such as diabetes, cancer and cardiovascular illnesses, are linked to substances like sugars, fats (including trans-fats), salts, food colourings and preservatives in various manufactured foods and beverages (Kincheloe 2010). People also have expressed health concerns surrounding genetically engineered foods (Kleinman 2003), tobacco products (Hileman 1998), pharmaceuticals (Angell 2004) and common household cleaning and hygiene products (Leonard 2010). Moreover, some companies seem to have purposely engineered products and services, such as various kinds of electronic devices, to fail at strategic times – in a process known as *planned obsolescence*, which is linked to various forms of

pollution (Leonard 2010). There also are those who advise against a range of social harms linked to commodities. Shirley Steinberg (2010), for instance, noted how the Barbie™ doll may misrepresent life as a girl – often stereotyping race, for example, and modelling life in the middle-to-upper classes and, indeed, being actualized through consumerism.

Overall, with assistance from governments, transnational entities, various technologies and forms of infrastructure, neoliberal capitalists appear to be enriching themselves largely through promotion of consumption and relatively rapid disposal of commodities that seem to function as virtual Trojan horses; that is, forms of subterfuge in which – referring to Fig. 6.2 – idealized Signs distract consumers from recognizing various harms associated with compromised Worlds. Looking at a shiny new cell phone, for example, consumers may not be conscious – through distractions provided by its design, colour, etc. and related advertising – of such potential problems as the toxicity of metals inside (e.g. cadmium) or poor working conditions of miners and production labourers. These appear to be accomplished, in other words, through – at least in part – innovative translations between World and Sign involving various fields of technoscience.

## 6.3 School Science Contributions to Consumerism

Given that a significant mode of influence for capitalists appears to be persuasion, rather than force, it follows that one of its major instruments in this regard may be education. Indeed, Peter McLaren (2000), for example, claimed that "*the* major purpose of education is to make the world safe for global capitalism" (p. 196; emphasis added). More specifically, Sam Sellar and Bob Lingard (2013) discuss a Global Education Reform Movement (GERM) that appears to be placing pressure on school systems to emphasize such neoliberal perspectives and practices as: standardization; international and local competitiveness; and, testing/reporting and emphases on core literacies (e.g. language(s), mathematics, science and information technology) aligned with economic activities. In this regard, Clayton Pierce (2013) has suggested that such pressure seems tied to concerns about global economic competition among, for example, companies associated with the USA, the European Union and Asia-Pacific countries. In light of arguments above about possible roles played by fields of technoscience (and, perhaps, others) in neoliberal capitalists' emphases on consumerism, we might then assume that science and technology education systems are essential agents in GERM. There does, indeed, appear to be considerable evidence that school science serves capitalists by supplying them with citizens capable of fulfilling roles associated with the schematic in Fig. 6.2.

Broadly, as discussed in greater detail elsewhere by Larry Bencze and Lyn Carter (2015), it is apparent that – in terms of consumerism as discussed in relation to Fig. 6.2 – science education seems to function to provide capitalists with a relatively small number of knowledge producers and a much larger group of citizens who may serve as knowledge consumers. This seems to align well with claims that capitalists'

emphases on knowledge economies, which focus on innovation and entrepreneurship, require small numbers of professionals to develop and manage mechanisms of production and consumption, while most citizens may function best as various kinds of consumers (Gabbard 2008). Such a stratified vision for societies with respect to fields of science and technology can, indeed, be seen in recent curricula, such as that for the USA:

> The primary driver of the future economy and concomitant creation of jobs will be innovation, largely derived from advances in science and engineering…4 percent of the nation's workforce is composed of scientists and engineers; this group disproportionately creates jobs for the other 96 percent. (Achieve 2013, p. 2)

In terms of the schematic in Fig. 6.2, it appears that science education focuses on identifying and educating the relatively few professionals (e.g. scientists, engineers, business managers, accountants, etc.) who can create both designs for innovative commodities (World) and abstract representations (Signs) for marketing them. Students filling such societal niches tend to have abilities enabling them to analyze and manipulate symbols, including words, concepts, numbers and graphics, to develop and manage formulations (e.g. for manufacturing and marketing) regarding commodities (Reich 2007). In school science, they are able to quickly understand and use abstract, decontextualized, knowledge – such as equations for laws of physics, chemical processes (e.g. cellular respiration) in cells and formula for calculating genotypes from particular parental pairs. Because such capabilities are more likely to be exhibited by students rich in cultural capital (Bourdieu 1986), science education often may be considered a survival of the richest experience (Bencze and Alsop 2009). Such competitive environments may be contributing to widening of gaps between rich and poor now apparent worldwide (refer above).

Although there seems to be little evidence of conscious efforts to train most students to serve as knowledge consumers, common perspectives and practices in science education may be contributing – perhaps in tacit ways – to such outcomes for many students. Henry Giroux and Susan Giroux (2006) suggest that this appears to be an implicit goal for schooling in general; and, more specifically, they claim that schools generate consumers in at least two senses; that is, as compliant workers and as enthusiastic and naïve purchasers of idealized commodities. It is, undoubtedly, difficult to discuss all ways this may occur; but, the three general mechanisms below appear to be at work:

- **Ongoing re-branding**. Not unlike what seems to occur in marketplaces, in which consumers are convinced to continually identify with new (purportedly improved) commodities, school science students apparently have, for many years, been expected to continuously change their identities (discarding old for new ones) as they are led from subject (e.g. cells) to often-unrelated other subjects (e.g. electrical circuits) (Claxton 1991).
- **Science idealizations**. Although there are exceptions, it is apparent that school science systems tend to focus "almost exclusively on teaching/learning of well-established products of science [e.g. laws & theories] and cookbook approaches to laboratory exercises, using authoritarian teaching modes" (Bell 2006, p. 430).

Such approaches can portray professional fields of science in perhaps overly idealized ways, depicting scientists as strictly-logical and unbiased (e.g. politically or economically), fully adhering to empirical findings and able to achieve truths (Hodson 2011). At the same time, omitting reference to possibly-problematic aspects of products and practices of fields of professional science linked to private sector funding, such as compromises in drug testing (Angell 2004), can contribute to such idealization. As a consequence, students/citizens may not be as critical about consumer products/services as they might otherwise be.

- **Dissociated agency**. Ironically, perhaps unlike Arts education, for example, students often do not get to do science in school science. Instead, it is all too common for teachers to direct, guide or scaffold inquiry activities – often to the extent that limit students' development of expertise, confidence and motivation to self-direct knowledge building in context having meaning for them (Bencze and Alsop 2009). Without such agency, students may be limited to consuming/purchasing capitalists' potentially problematic commodities and labour instructions.

The nature and extent of citizen sorting and subjectification presented above seems highly undemocratic and, indeed, dehumanizing in a Freirean (Freire 1970) sense – colonizing us with neoliberal perspectives and practices limiting the extent to which we may be self-actualized (Santos 2009). With emphases on consumerism, moreover, it is likely contributing to significant environmental degradation. There is, therefore, considerable need for more liberatory pedagogical perspectives and practices that also improve environmental wellbeing.

## 6.4 Towards Students' Conscientization and Praxis Regarding Consumerism

Although much of science education seems to – as discussed above – overemphasize valorization of products and processes of fields of science and technology, a branch of science education research (and some curricular sanctioning) that may help to provide students with a more liberatory education is STSE education. For at least the last 45 years, educational researchers, teachers and others have been promoting education about relationships among fields of science and technology and societies and environments (STSE) (Pedretti and Nazir 2011). Among STSE education approaches, it has been particularly popular for educators to ask students to consider controversies regarding possible adverse effects on individuals, societies and/or environments associated with fields of science and technology. Frequently referred to as socio-scientific issues (SSIs) , students often are presented with conflicting evidence, claims, theories, etc. about science-related phenomena – like benefits/harms linked to e-cigarettes – and asked to form reasoned positions about them (Sadler 2011). Such approaches have been heralded as helping students to achieve such worthy outcomes as improved conceptions of the nature of science (Khishfe and Lederman 2006).

In his review of SSI education approaches, Ralph Levinson (2010) concluded that there was a significant tendency towards limiting students to Deficit and/or Deliberative models of citizenship which, as summarized in Table 6.1, seems to prioritize experts' and leaders' knowledge and values above those of most citizens. Such hierarchical relationships between experts (e.g. scientists and engineers) and leaders (e.g. government and company officials) may be appropriate in a complex world requiring considerable specialization. However, in light of problems with neoliberal capitalists' influences over fields of science and technology in ways, as described above, that seem to prioritize consumerism to such a degree that many believe is compromising wellbeing of individuals, societies and environments, it seems that citizens need to be prepared to monitor and critique those with power and influence and, where problems are discerned, possibly take corrective actions (Hodson 2011). In Levinson's (2010) terms, individuals, societies and environments may benefit from science education approaches that give more priority to Praxis (reflective practice) and Dissent and Conflict (critique and actions) models of citizenship. Promotion of such critical and activist citizenship seems particularly necessary, moreover, in light of suggestions that members of the private sector have actively campaigned to cast doubt on science outcomes indicating problems – such as human causes of acid precipitation and carcinogenic effects of chemicals in cigarettes (Oreskes and Conway 2010).

Since 2006, the first author of this chapter has been working with school teachers, student-teachers and educators in after-school contexts to promote critical and activist science and technology education using the STEPWISE curricular and pedagogical framework (www.stepwiser.ca). This is a schema that arranges teaching and learning categories (e.g. skills, STSE and knowledge) in a tetrahedron, in which each category co-affects each other but also in which socio-political action is placed at its centre. A priority of this framework is to encourage and enable students/citizens to spend at least some of their cultural and social capital (e.g. as skills, STSE, knowledge, etc.) on student-led research-informed and negotiated actions (RiNA) to address potential or realized harms to wellbeing of individuals, societies and environments (WISE) associated with fields of science and technology. Ceding control to students for representing the world (e.g. as graphs) and changing the world (e.g. through actions, like petitions) is said to increase their attachments to such activities (Wenger 1998). In terms of Levinson's (2010) conceptions of citizenship (see Table 6.1), students' research would represent Praxis, while critical investigations into and actions to address problematic STSE relationships would represent his Dissent and Conflict. These, in turn, may represent promotion of more participatory forms of democracy (Wood 1998).

In working with teachers, it soon became apparent that they preferred a more linear version of STEPWISE, like that in Fig. 6.3, over the original tetrahedral version – largely because they believed students often needed apprenticeship lessons and activities before they would have expertise, confidence and motivation for self-directing RiNA projects (Bencze and Carter 2011). Indeed, using this approach, students have been able to develop and implement numerous RiNA projects to address STSE issues of their concern (Bencze 2017).

**Table 6.1** Levels of citizen engagement in stse issues

| Summary of four frameworks for democratic participation in a school context | | | | | |
|---|---|---|---|---|---|
| Framework | Socio-epistemic relations | Epistemology | Controversy and participation | Pedagogy | Implications for democratic participation |
| **Deficit** | Knowledge flow is from scientist-teacher-student | Science is the corpus of knowledge | Ability to engage is constrained by access to technical knowledge | Knowledge for addressing an issue can be brought to the attention of the student. | There is a socio-epistemic inequality between the scientist/teacher and students which limits ability to bring about political change from below but does not preclude influential specialists making a political impact. |
| **Deliberative** | Knowledge flow is predominantly from scientist to the teacher and students, the latter two might be working in concert. | Science is understood to be uncertain and fallible. | Dialogue is open. Lay participants are informed but often lack the political means to bring about change. In schools, students might have opportunities for deliberation through group work and school councils but action might be constrained depending on the democratic nature of the school. | Emphasis on critical thinking and understanding of scientific methods and procedures. | Participation is real but often ineffectual in generating democratic change because participants do not have the 'cloud' to make crucial decisions. |

| | | | | | |
|---|---|---|---|---|---|
| **Science education as praxis** | Knowledge is distributed and emergent. | Knowledge is situated. Students become inducted into communal ways of knowing through legitimate peripheral participation in particular but changing contexts. | All participants work with a shared sense of social purpose. | Knowledge is provided on a need to know basis. The teacher is not epistemologically privileged. | Active and egalitarian participation to enhance change which might assume political literacy. |
| **Dissent and conflict** | This can be variable but is likely to have similar characteristics to science education as praxis. | What is known is contextualised by socio-political concerns. | Political action. | Knowledge provided on a need to know basis with an emphasis on political literacy. | Political understanding and action for change are foregrounded |

Levinson, R. (2010) ; Table 1, pp. 83–84

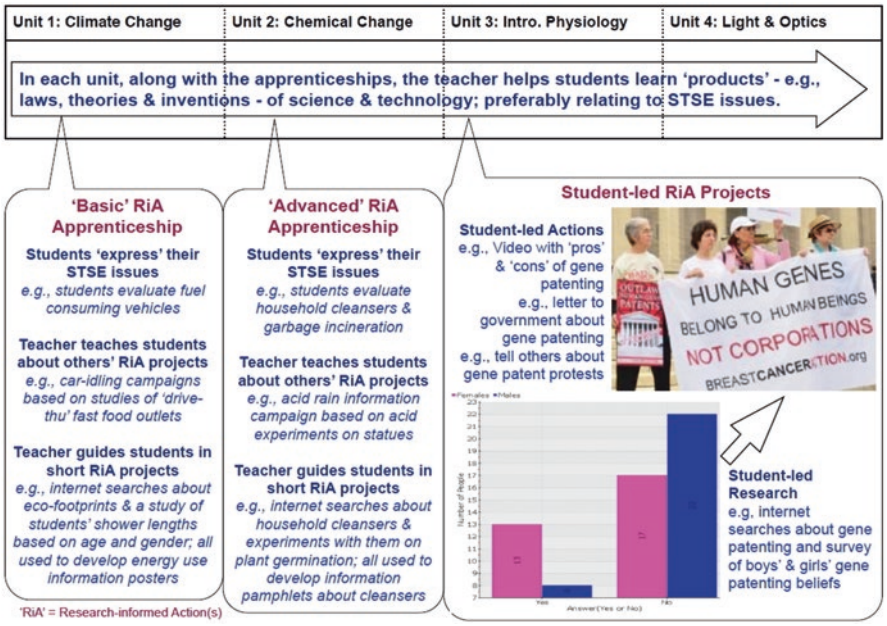


**Fig. 6.3** Apprenticeships towards student-led RiNA projects

Among the more successful STEPWISE-informed pedagogical approaches have been those encouraging students in relatively economically-advantaged parts of the world (e.g. Toronto, Canada) to critically interrogate consumer products and services and develop actions to address harms they associate with them. Students in economically-advantaged parts of the world tend to have considerable familiarity with a great range of for-profit commodities, such as cosmetics, cell phones, hygiene products and services, automobiles and various forms of entertainment. Youth (e.g. Barber 2007) and, apparently, progressively younger and younger children (e.g. Bakan 2011) are subjected to many advertisements for such commodities in various contexts of their lives. At the same time, however, it seems that many citizens/consumers, including young people, have relatively *reductionist* conceptions of commodities they consume. They tend to be not so aware of various entities associated with them regarding many aspects of production – consumption – disposal cycles (Leonard 2010). In light of actor-network theory (Latour 2005), a conception of being that posits reciprocal interactions among living, non-living and semiotic entities (actants), commodities often are *punctualized* – a process by which a network of actants is hidden, largely discerned as a single actant (Callon 1991). For example, people purchasing genetically-modified salmon may only be conscious of the relatively large size of fish compared to wild salmon and may have heard how engineered salmon could feed many more people than wild salmon. They may not, however, be conscious of some perhaps hidden actants associated with them, such as government (de)regulations allowing fish farming in ways that threaten wild salmon

populations and concentrate profit generation (Pierce 2013). As described above, in other words, many commodities are sold on the basis of limited and highly idealized conceptions of them, a Trojan horse effect that may occlude consciousness of many associated personal, social and/or environmental harms that may be considered by-products of capitalist accumulation.

In light of concerns about consumerism, and about central roles likely played by youth in its perpetuation, Mirjan Krstovic (third author) decided to focus on enlightening students in his tenth-grade *academic* (university-bound) science class (January–April, 2013, semester) about perhaps hidden actants in consumer products and services as part of his ongoing promotion of RiNA projects to address students' concerns about STSE relationships. As he had in the past 3 semesters, he used the pedagogical version of STEPWISE shown in Fig. 6.3 to help students to develop expertise, confidence and motivation for eventually self-directing RiNA projects. After one apprenticeship cycle for the Climate Change unit, which he felt would help familiarize students with some basic ideas, skills, etc. about STSE relationships and RiNA projects, he then used the unit on Chemical Change to introduce students to actor-network theory (ANT) and, more particularly, the concepts of punctualization and de-punctualization as they pertain to consumerism. His detailed lesson sequence for this, which generally followed the apprenticeship framework in Fig. 6.3, is given in Appendix A. Highlights of it are provided below:

- **Student expression of prior notions about commodities**. Students began the unit being asked to suggest some positive and negative effects of common commodities relating to chemistry (e.g. toothpaste, shampoos, soft drinks [sodas], etc.) on wellbeing of individuals, societies and environments and what they suggest doing to address problems they identified;
- **Socratic teaching about ANT**. Mirjan began teaching students about problematic STSE relationships and possibilities for research-informed actions by asking them to view and analyze the activist video, *The Story of Stuff* (SoS) (storyofstuff.org). This video illustrates concepts and facts associated with the materials economy, tracking commodities from Extraction through Production, Distribution, Consumption and Disposal – and highlighting problems with *perceived* (e.g. changing the commodity's desirability) and *planned* (e.g. engineering it to fail) obsolescence (Leonard 2010). To enlighten students about commodities in terms of the concept of (de-)punctualization (refer above), Mirjan taught them about the Trojan horse metaphor, which is implied in the SoS, by discussing this in terms of a Socratic lesson, in which he worked with students to construct an actor-network map – similar to the map shown in Fig. 6.4 (which he drew prior to the lesson) – depicting network relations regarding smartphones. Students also had the option of viewing *The Story of Cosmetics*, another video from the SoS series that depicts the Trojan horse metaphor and, tacitly, (de-)punctualization. In teaching about ANT in these ways, he emphasized the following main claims: i) Individual actants are *heterogeneous*; thus, they are composed of influences from other actants; ii) Types of actants include: *materials* (e.g. living and nonliving things, inventions, inscriptions) and *semiotic*

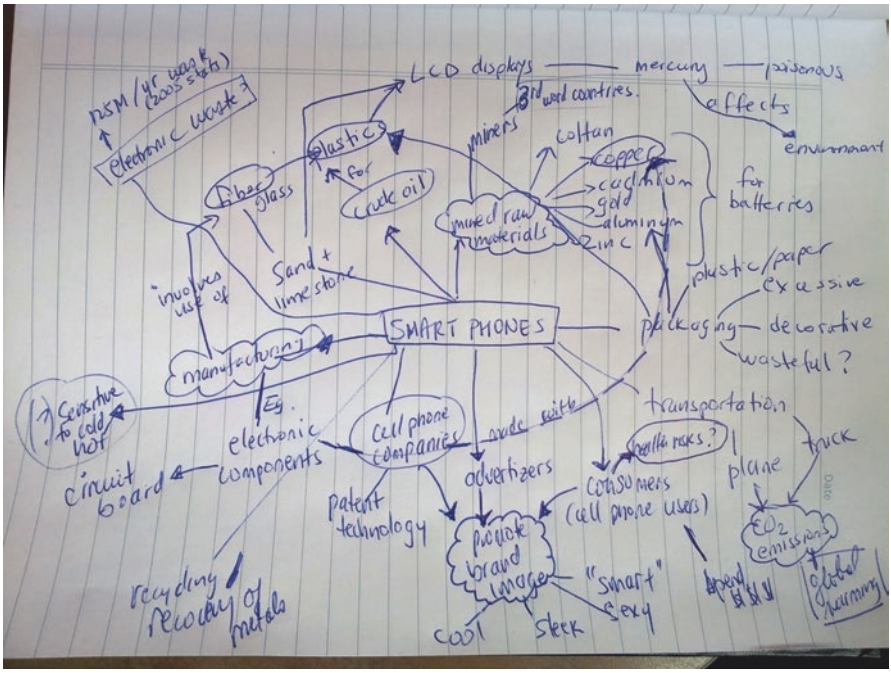


**Fig. 6.4** Mirjan's model actor-network about cell phones

*messages*; iii) Actants may co-affect each other, with effects that constantly change; iv) Actants can align, particularly under influences from powerful actants, so that a common semiotic message is supported by all; and, v) Activism may involve introducing new actants and re-orienting existing ones so that dominant semiotic messages change.

- **Student practise uses of ANT in RiNA projects**. Soon after learning about ANT, students were asked to choose a personal hygiene product relating to chemistry and, based on secondary research, develop an actor-network map about the commodity and, in doing so, identify different groups of actants that appeared to cooperate to support common semiotic messages (e.g. cool, sleek, powerful, etc.). After such analyses, students were then asked to conduct primary research (e.g. correlational studies and experiments) and use findings from their secondary and primary research to inform their development of actions to address problems they identified about the hygiene products. Although this would have been students' second RiNA project in this course, some were given assistance in their project designs, as requested.

Using approaches like those above, students in Mirjan's tenth-grade academic science class were able to successfully develop a range of personal and social actions based on their secondary research, network analyses and primary research regarding hygiene products. Of the 24 projects (individually or in teams of 2–4),

most students chose to conduct studies of teenagers' product choices, reasons for choosing them and knowledge of harmful effects of said products. Their actions, meanwhile, were somewhat more diverse, with many producing educational posters, display boards and brochures, a few producing more elaborate activist videos (refer to example below) and a few producing alternative, generally more sustainable, products (e.g. an organic hair spray). Although the quality and degree of effort by students varied, a student's project dealing with problems surrounding liquid foundation makeup seems to be a good example of benefits of the ANT-informed approaches used by Mirjan. After her secondary research, Connie (pseudonym) produced the actor-network map (which Mirjan told the students to call mind maps) reproduced in Fig. 6.5. Although some actant types, such as think tanks and transnational advocacy organizations (Ball 2012) were absent, her network included a wide range of actant forms, including: living things (e.g. [human] teens, cheap labour, rabbits); human organizations (e.g. companies [e.g. Maybelline™], factories); technologies (e.g. editing [software]); nonliving things (e.g. aluminium, inscriptions (e.g. fake pictures); and, semiotic messages (e.g. feel prettier, feel grown up). In illustrating relationships among them, moreover, she makes relatively-explicit reference to the Trojan horse metaphor – indicating prominent pro-capitalist actants (e.g. happy companies, advertising, planned obsolescence) perhaps distracting consumers from such negative effects as: [human] depression; fake results [of animal testing]; non-renewable energy use; etc. Supplementing – and, to a great extent, reinforcing – such findings, she then surveyed 50 teenaged girls at her school to learn about their uses of foundation makeup, including when they started using it,


**Fig. 6.5** Student's actor-network about liquid foundation makeup

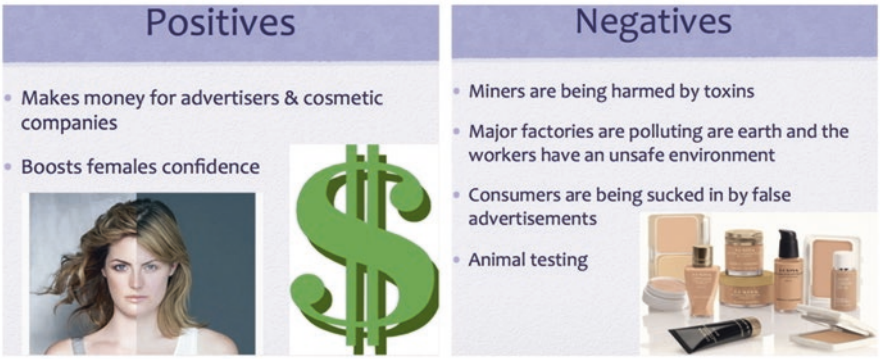


**Fig. 6.6** A student action: pros & cons of makeup

and factors that appeared to influence their choices about such products. Based on her study, she gave the following conclusion:

> [T]he media does have a generally large impact on teenage girls makeup usage. Out of the 86% of girls who started wearing makeup at a pre-teen age, 81% of them said that the media was the influence that got them interested in it. Also, 93% of the girls who started wearing makeup at a young age say they wear makeup for more than half of the week. Only 30% of girls are not influenced from the media about their makeup choices. (June 3, 2013)

Based on her research, Connie then developed and posted to YouTube™ (goo.gl/jeAihg) an excellent educational video advising viewers (now viewed nearly 500 times) of positive and negative aspects of liquid foundation consumption – such as those depicted in Fig. 6.6 (screenshots from her in-class PowerPoint™ presentation). The video, which is structured around the stages of the materials economy from *The Story of Stuff* (refer above), again (like her actor-network) emphasizes the Trojan horse metaphor, with the following beginning and ending:

> Beginning: [Foundation is about] hiding what we don't want others to see because we are scared to get judged. … This is what advertizers do [showing a woman's picture being edited with Photoshop™], hiding what they don't want their audiences to see so they can promote their businesses as best as possible; Ending: So, this is foundation's life. Just like a human, it goes through many experiences that people would never know about. Just like a book, never judge it by its cover. (April 25, 2013)

Overall, cases like the above suggest that ANT-informed RiNA pedagogies may provide students with more realistic insights into STSE issues than is apparently being encouraged by global capitalist systems (Pierce 2013). In this and most other cases of network maps in Mirjan's class, students appeared to effectively de-punctualize hygiene products they investigated – enlightenment that often informed their personal and social actions.

## 6.5 Towards Mobilization of Critical and Activist Science Education

Although wellbeing of individuals, societies and environments often appears to be under enormous threats from global capitalist networks (GCN) and, intimately connected to that, although science education systems frequently seem inescapably ensnared as instruments for generation of relatively few professional knowledge producers and large masses of citizens mainly prepared to serve as knowledge consumers for powerful elite, viable alternatives to this problematic dominant paradigm may exist. In this chapter, we provided examples of school science practices – based on the STEPWISE pedagogical framework – that may contribute to improvements in social and environmental justice. Given capitalists' apparent emphases on encouraging consumerism in relatively advantaged contexts in the world, often to the detriment of wellbeing of many individuals, societies and environments, the approaches highlighted here asked school science students to critically evaluate common consumer products and services and, where problems were identified by them, to take research-informed and negotiated personal and social actions to address them.

An apparent key to students' successes in developing and often implementing personal and social actions to address problems they perceived about common commodities was application of actor-network theory. As recommended by Pierce (2013), students can gain more realistic conceptions of products of fields of science and technology (e.g. genetically-modified salmon) by being taught and encouraged to develop actor-network maps to depict relationships among various kinds of actants – many of which often are problematic (e.g. transnational trade agreements) but, perhaps purposely, not apparent to them. Of course, exposing students to the nature and uses of actor-network theory alone is insufficient. Like any approach, students may not discover all kinds of actants through their research and sharing. Accordingly, they can benefit from direct instruction that aims to expose them to specific kinds of actants and, in this case, actants – such as transnational trade agreements and corporate rights to externalization – particularly related to consumerism. In the case provided above, particular success in this regard seems attributable to uses of videos from *The Story of Stuff* project in concert with instruction about (de-)punctualization (Callon 1991) (without mentioning that term) using the Trojan horse metaphor regarding common commodities (e.g. smartphones). On the one hand, teaching about possibly-problematic actants, such as transnational trade agreements, may be considered undemocratic – perhaps unfairly biasing students against capitalist perspectives and practices. On the other hand, it also could be argued that, given the extent to which the GCN appears to be overtly and covertly attempting to instil capitalism-friendly perspectives and practices into the minds of increasingly younger children through, for example, advertising (Bakan 2011), perhaps offering alternatives to neoliberal capitalism to youth may be justified. Indeed, such a tack seems appropriate in light of Paulo Freire's (1970) call for promotion of *conscientization* in education; that is, critical consciousness of phenomena result-

ing, for example, from exposure to contradictions in power regarding social relations (Santos 2009). This also aligns with Levinson's (2010) call for significant Dissent and Conflict (Table 6.1) in science education to help democratize citizen engagement. Heeding this call, moreover, seems particularly necessary in light of relatively recent, but rapidly-spreading, STEM (Science, Technology, Engineering & Mathematics) education initiatives. Many such projects seem to present idealized (e.g. overly logical) and isolationist (e.g. suggesting that technoscientists operate entirely for the public good, without undue influences from powerful citizens/groups) perspectives of STEM fields and their relationships with societies and environments (Gough 2015).

While exposing students to potentially problematic actants (and their networks) and encouraging and enabling them to engage in dissent and conflict – to a large degree, criticizing capitalism – are urged here, efforts are made to leave decisions about beliefs and practices to students. The STEPWISE framework places considerable emphasis on *student-led* decision-making. Indeed, a central goal of apprenticeship lessons and activities presented here is to help students to reach a stage of intellectual independence, enabling them to make judgements about most translations in World ← → Sign relationships – including regarding ideological gaps in research-informed and negotiated action (RiNA) projects (Fig. 6.7). Such a tack appears to align with science education as Praxis (Table 6.1) (Levinson 2010), which has its roots in Freirean liberatory pedagogy (Santos 2009) – allowing students, often in social situations, to self-determine their thoughts and actions, rather than having them imposed on them, often in subliminal ways (e.g. Foucault 1991), by powerful others (e.g. through consumerism).

Approaches highlighted here for addressing apparent problems with societal emphases on consumerism, while apparently somewhat successful, seem to be limited to a relatively small number of contexts. This is perhaps unsurprising in light of apparent tendencies of school science systems to prioritize consumption-oriented instruction about widely-supported products of science and technology (Bell 2006) in ways that tend to idealize practices and products of such fields (Hodson 2008). It seems to take a special teacher, like Mirjan, motivated to address such situations. He said, for instance, this:


**Fig. 6.7** Research-informed actions framework

> We need a more active citizenry that is intrinsically motivated versus passive citizens who will do as they are told, because they will do something because there is an extrinsic motivator – which is money – at the end. (Mirjan, Interview, Jan. 14, 2013)

Beyond such principles, however, his support for promotion of critical views of STSE relationships and RiNA projects also has had some practical reinforcement. Students have been relatively successful with such projects; but, also, he has been able to defend his approaches against opposition from fellow teachers, administrators, parents and others who continue to support emphases on products of science and technology because of his frequent finding that his STEPWISE-informed practices seemed to increase *overall* student achievement:

> I have had a lot of success with the STEPWISE framework. Students are more engaged on average. My weaker students (i.e. those who generally do poorly on knowledge-based tests) have done a lot better in class with the STEPWISE [framework]. Students like discussing socio-scientific issues and being empowered to act and make a difference in our society. Students' inquiry projects (experiments and correlational studies) have more meaning since they are contextualized. (Blog entry, Nov. 23, 2011)

It seems to make sense that, contrary to what many educators and others fear, students engaged in more self-directed decision-making surrounding World ← → Sign translations may develop deeper, more committed, understandings of subject matter. According to Wenger (1998), the greater learners are personally-engaged in decision-making regarding reciprocal relationships between phenomena and representations of them, the deeper and more committed may be their learning.

Despite encouraging results of approaches used by Mirjan and other teachers, evidence suggests that very few school districts, schools and teachers are willing to emphasize core principles of STEPWISE such as: student reflections on existing conceptions; teaching of critical views (especially surrounding capitalism) of STSE relationships; self-led research (including correlational studies and experiments); and, socio-political actions to address perceived problems associated with fields of science and technology. Where it has been relatively successful, it seems to require a network of cooperating actants, including, for example, an energetic teacher who has concerns about inappropriate influences of the private sector on fields of science and technology, teaching colleagues willing to allow a fellow teacher to explore alternative approaches, and – as in Mirjan's case – curriculum mandates sanctioning and prioritizing STSE education, research and actions to address social and environmental problems (Bencze 2017). In this light, perhaps those wanting to mobilize educational practices such as those inherent to the STEPWISE framework need to, not unlike the private sector's global capitalist network, focus on forming networks of actants that cooperate in efforts to increase societal social justice and global environmental sustainability.

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# APPENDIX AGrade 10 Academic Science: Chemistry Research-Informed STSE Action Project

**Each lesson presented here is intended for a 75 minute period**

## *Lesson 1: Expressing your Ideas*

### Introduction

Most of our everyday products that we, in developed and industrialized countries, use and/or consume involve the use of chemicals and chemical reactions. From the moment that you get up from your bed in the morning you start to interact with everyday substances such as soaps, toothpaste, shampoos, body sprays, etc. You may be taking multivitamin supplements, wearing wrinkle resistant shirts or drinking carbonated (or non-carbonated) beverages. All of these products contain chemicals.

### Group Activity

1. In a group of three to four students, do a 2–3 min brainstorm to outline a list of everyday products containing chemicals that you use at home.
2. Create a chart to show at least one **positive** and one **negative** consequences of each product on the well-being of societies and/or environments.
3. In another column of the same chart list any information you would need to research in order to state the positive and negative consequences of the product.
4. Consider the image of a Trojan horse. The Trojan horse was a great example where warriors were hidden inside a giant horse statue and delivered into the heart of the city. The town's people saw how great a gift the horse was but didn't realize what was lurking inside. Discuss with your group how the Trojan horse metaphor is relates to the products you listed in your table.
5. Consider the following statement: *Be it resolved that companies should reduce the use of harmful chemicals in their products even if it compromises the product effectiveness.* Decide if you strongly agree, somewhat agree, strongly disagree or somewhat disagree with this statement. Move to the corner of the classroom that best represents your view. Discuss your position with a partner or in a group of three when you get to your appropriate corner of the room.

## *Lesson 2: Lifecycle of a Product*

The whole **life cycle of a product** (from its creation through to its disposal) needs to be taken into account when considering its impact on the well-being of individuals, societies and environments. This is where we begin with a deeper exploration of various chemical products, which on the surface may appear to be a simple product, but in reality there are many components that link together in the life cycle of a product.

**Activity**

1. Watch "The Story of Stuff" with Annie Leonard.
2. Fill in the table below stating at least one negative consequence on the well-being of individuals, societies and environments during each stage in the lifecycle of a product.
3. Discuss the consequences with your group, then with the whole class (*teacher guided discussion*). Ensure that your table is complete as you will need this information for the next stage of your research-informed action project.


| Stage of the lifecycle of a product | Negative consequence on individuals | Negative consequence on societies | Negative consequence on environments |
|---|---|---|---|
| Extraction | | | |
| Production | | | |
| Distribution | | | |
| Consumption | | | |
| Disposal | | | |

## *Lesson 3: Creating a Mind Map*

Many products come with negative features which are often masked to make the product appear a certain way. This is analogous to the Trojan horse we explored earlier. The negative aspects of many personal hygiene products are usually kept

away from the general public. We only see what the companies want us to see so they attract the consumers and generate as much profit.

***Goals of the lesson and your task:***

1. Your teacher will create a mind map for a 'smart phone' showing some of the most important components (living and non- living) during the lifecycle of this product. We will begin to uncover some of the hidden social and environmental costs that are often hidden from the general public.
2. You will pick **one personal hygiene product** (e.g., shampoo) and start developing a similar mind map. You can start by expressing what you know already based on what you learned from "The Story of Stuff" and the table that you completed in class. You are required to do some additional secondary research for your first mind map.
3. It's important that you show the many links to various components (living/non-living and hidden messages) for your product as well some of the social and environmental costs associated with your product.
4. Another great video to watch is 'The Story of Cosmetics' by Annie Leonard.


## *Lesson 4: Revising the Mind Map*

Since the goal of this project is to address an STSE issue (or a few related STSE issues) in connection to the personal hygiene product you selected, you will first need to identify an issue, or issues, you feel is/are most relevant and most important to address through research-informed activism. You will need to revise your original mind map according to the instructions below.

**Your Goal is to:**

1. Revise your first mind map so that you group different components according to overall goals they have. For example, one might represent: advertisers, cell phone companies, people who often are seen using cell phones, stores that sell cell phones, etc. All of these may be aligned to support such common *hidden messages* like, cell phones are 'cool,' 'sleek,' 'powerful,' etc. You may put circles around groups of components that operate as a unit, or color code these components.
2. With another circle, or another colour, show living and non-living components that might tell a different story, **which is often less prominent in society**. For example, if we consider cell phones again, this might include: miners in developing countries, living things adversely affected by mining, people with cancer from cell phone energy waves, landfills with heaps of cell phones in them, etc. The components in this circle/ or with this colour code – if it were more prominent - might send messages like, 'cell phones are harmful/toxic,' 'they separate people from each other,' etc.
3. **Identify less prominent messages that may be important in society about your selected chemical product.** For example, many personal hygiene products, like shampoos, contain some possible carcinogenic substances or neurotoxins which can affect our health. One or more of these less prominent messages will become the STSE issue(s) that you will address with your group through your choice of actions.

## *Lesson 5: Conducting Primary Research into Your Chemical Product*

**Purpose** To plan and conduct an original investigation (e.g., a correlational study) about a personal hygiene product of your choice. It would be best if your investigation relates to one or more of the less prominent messages/STSE issues you identified.

**Getting Started:**

List of possible investigations that your group can do:

Design an investigation to determine what smells/fragrances of soaps/shampoos are preferred by teenage boys and girls and how fragrance seems to be used as a marketing tool.

Evaluate various labeling claims used on several brand name products as acceptable or unacceptable (according to Heath Canada Guidelines for Labeling Claims: http://www.hc-sc.gc.ca/cps-spc/pubs/indust/cosmet/index-eng.php#s2).

"If you can hook teens when they're young, you have a customer for a lifetime," said Matt Britton, chief of brand development at Mr. Youth, a marketing firm. Design an investigation to study various methods that markers/advertisers use to entice teenage boys and girls to buy a particular product. For example, you may look at particular ads and determine if there is a difference in the way that boys vs. girls perceive these ads.

Design a controlled experiment to test stability of personal hygiene products (see http://www.intertek.com/beauty-products/testing/cosmetic-stability/). For example, for your product you may look at pH, viscosity, appearance/colour and odour at various conditions such as different temperatures, different amounts of light and/or free-thaw conditions.

Design and carry out a correlational study to determine how hypgeine products for girls and boys differ in hidden messages; e.g., how they make the user feel (referto:http://www.beautypackaging.com/articles/2003/11/semiotics-research-deciphering-packaging-codes-rev)

Your idea…discuss it with the teacher and get it approved before beginning the investigation.

**Developing a method and preparing for your investigation:**

1. After you decide which investigation you'd like to perform with your group, you need to first come up with method to conduct your investigation. Plan it so that its results may be 'trustworthy'; e.g., valid and reliable.
2. Make sure that you show your method to your teacher before beginning the investigation.
3. As part of your preparation to conduct an investigation, you need to have all your materials ready. For example, if you conduct a study, you need to have your

survey questions developed. If you are studying particular ads for your product, you need to have these ready as well.

**Collecting and Analyzing Data:**

1. Remember that your data can be both qualitative (descriptive, no numbers used) and quantitative (usually numerical data). The type of investigation you chose will determine whether your data is qualitative and/or quantitative.
2. All data needs to be summarized in a properly labeled Table.
3. Quantitative data should be shown graphically – as a bar, line or pie graph.
4. Graphs should have titles with properly labeled axis.

**Interpreting Data and Drawing Conclusions:**

1. You should make sense of what your results show by interpreting your results. Can your original focus question be answered using the data you collected? What does your data suggest? What conclusions can you make from your primary research?
2. What are some possible weaknesses in your investigation and how can they be addressed?

## *Lesson 6: Preparing for and Taking Action: Consumer Activism!*


The last stage of your research-informed action project is to prepare for and take action to address an STSE issue related to the personal hygiene product you selected. You will be given one class period in which you will work with your group to propose and prepare for your actions. Your actions should be informed by both your secondary and primary research.

**Your Goal is to:**

1. Propose an action that your group can take to address the issue you identified.
2. Develop ready-to-use action materials. You will need to spend additional time outside of the designated class time to work on your ready-to-use action materials.
3. Present and defend your actions during a 10-muinute class presentation.

**Ideas for actions:**

- A public service announcement about the health and environmental effects of chemicals in shampoos, or lead additives in cosmetics
- An exposition/narrative about the lives of miners/factory workers affected during the extraction or production stages of development of your selected product
- A letter to powerful groups (e.g., Health Canada) asking for better regulations of chemicals in everyday products
- Students may propose safer/healthier and greener alternatives to some personal care products and develop a campaign to promote their use over other products
- Other actions of your choice – get them approved by your teacher

### *What's Assessed and Evaluated at the End of This Project*

At the end of this research-informed action project, you will be assessed and evaluated on the following components:

(i) Initial and revised mind maps
(ii) Results and conclusions of your primary investigation
(iii) Ready-to-use action materials/actions you propose and take
(iv) 10 min presentation defending your actions

Mirjan Krstovic, 2013

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**John Lawrence (Larry) Bencze** is an Associate Professor in Science Education at the Ontario Institute for Studies in Education, University of Toronto, where he teaches in the graduate studies and teacher education programmes. In addition to his PhD (U. Toronto, 1995) and BEd (Queen's U., 1977) in education, he holds BSc (Queen's U., 1974) and MSc (Queen's U., 1977) degrees in biology. Prior to his work as a professor, he worked as a teacher of science in elementary and secondary schools and as a science education consultant in Ontario, Canada. His teaching and research emphasize history, philosophy and sociology of science and technology, along with student-led research-informed and negotiated socio-political actions to address personal, social and environmental issues associated with fields of science and technology.

**Lyn Carter** is a science educator at the Australian Catholic University in Melbourne where she also teaches in the higher degrees programmes. The overall aim of her research seeks new articulations of science education valuing cultural diversity, ecological sustainability and social justice in a globalised world. More specifically, she specialises in science educational policy and curriculum studies, with a particular emphasis on the effects and consequences of globalisation and neoliberalism as it reshapes science education for the twenty-first Century. All of these areas are reflected in the titles of her manuscripts published extensively in prominent international science education journals including JRST, RISE, Science Education and CSSE as well as many book chapters.

**Mirjan Krstovic** currently works as an Instructional Coach in the Peel District School Board (near Toronto, Canada). He supports individual teachers and teams of teachers in their professional learning. Prior to his current role, Mirjan taught Science for ten years in the same district. His interests include issues-based and action-oriented science curriculum, assessment and evaluation, global pedagogies, and teacher leadership. He has presented at various education conferences, and has published a number articles in science education journals and books.

# Chapter 7
# Exploring Ethical Relations to Self and New Ontologies

**Jesse Bazzul and Shakhnoza Kayumova**

> *There are times in life when the question of knowing, if one can think differently than one thinks, and perceive differently than one sees, is absolutely necessary if one is to go on looking and reflecting at all*
>
> (Foucault 1985, p. 8).

There are at least two major reasons why science educators need to be interested in the subject of ethics in the twenty–first century. First, there are the problems of social inequality and environmental catastrophe–the rise of urban poverty, exclusions from global citizenship, and persistent inaction on climate change–which parasitically draw from the social and natural commons. These massive and fundamental challenges require an ethical response in the way educational communities approach our shared world. Second, the overwhelming constraints to ethical ways of being in the world caused by consumerism require a renewed focus on ethics and collective, environmentally, and socially just ways of being. The domination of social relations and the natural commons by globalized capital is what Lyn Carter (2011) would call a "wicked problem"–one that cannot be allowed to stand unchecked in science education (Bencze and Carter 2011). The problem of rule by capital, as can be seen by the erosion of public educational resources by private interests (Lipman 2011), can be read as a political test for science education in much the same way as the challenging of the white, European, and heteronormative subject often positioned as the "universal" scientist. How do science learning communities contend with social, political, and ethical realities in late–capitalism? What ethical and political forms of

J. Bazzul (✉)
University of Regina, 3737 Wascana Parkway, S4S 0A2 Regina, SK, Canada
e-mail: Jesse.Bazzul@uregina.ca

S. Kayumova
University of Massachusetts Dartmouth,
398E Liberal Arts Building, 285 Old Westport Road, Dartmouth 02747, MA, USA
e-mail: skayumova@umassd.edu



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engagement in science education can significantly challenge consumerism, individualism and oppressive social relations? If science is going to remain a site for sociopolitical engagement, it is clear that different modes of engagement are necessary. As Matthew Weinstein (2008) cautions, critical pedagogies that have students doing "citizen–science–as–usual" may not be sufficient to challenge science education's political and sociocultural assumptions. This chapter attempts to outline some frontiers related to ethical engagement made possible by contemporary social, poststructural feminist theory. This theoretical approach allows us to break down some of the social and symbolic boundaries constructed by modernity's reliance on dualisms, rule of private property, and the separation between subjects, objects, and the contexts that constitute them.

This chapter's focus on subjectivities and their relation to/with material entities, as a key consideration in the development of ethical and political possibilities, follows a line of thinking that arguably begins with Marxist philosopher Louis Althusser (1971), and culminates in the work of Judith Butler (Bazzul 2014a). Simply put, a focus on the constituted nature of subjectivity, and the concomitant instability of subject positions, can provide the grounds for different politico–ethical forms of action and thought in science education. Rather than re–introduce the importance of viewing subjectivities as constituted, we would like to present a way of thinking about ethics in science education in which understanding the constituted nature of the subject is essential. This involves understanding that subjectivity is partially constituted in affordances and limitations of educational discourse and practices. The final sections depart from this approach in their attempt to view subjectivities and the possibilities for ethical action beyond the contexts of human social structures and discourses – that is, the subjects' intra–active nature within affective, material assemblages. Using these concepts, we present a somewhat divergent approach to ethics that attempts to escape the modern trappings of dualistic thinking (e.g. human/animal; human/non–human), and the pursuit of private property (Hardt and Negri 2009). We present these approaches to ethics as compatible and yet divergent, each offering different perspectives to educators.

## 7.1 Constituting Ethical Subjects: Ethics and Relations of Self

Educational practices and discourses do not shape pure rational subjects, or blank slates, but actually work to constitute the very subject positions students and educators recognize as natural or free (Butler 1997). This is also the case when it comes to constituting students as ethical subjects through school science–which involves producing scientifically literate and engaged citizens (Hodson 2008). Discourses and practices of science education not only outline which ethical problems are important, but also limit the mode of ethical engagement, usually some change in lifestyle or an effort to replace one government policy with another (Bazzul 2014b).

Discourse opens certain possibilities for ethical engagement and closes others, thereby working to produce a specific kind of "ethical subjectivity" in relation to science. Students come to find some ethical issues and modes of engagement legitimate, thereby shaping their identity as ethical actors. Engaging issues of consumerism in science education in relation to ethics requires a hard look at how ethical subjectivities are constituted in educational discourses. As science education is one of the sites where crucial ethical actors are formed, it is important to look critically at how these actors are constituted.

Foucault's later volumes of the history of sexuality, which were concerned with relations/care of self in antiquity, demonstrate that being ethical cannot be reduced to ethical codes, actions toward others, or self–mastery (Foucault 1985, 1986); rather, ethical choices and actions are based on an intricate confluence of relations to self, others, and the world.

Foucault's historical work examined the practices of the Greco–Roman antiquity into the Christian era; and while this may seem irrelevant to twenty–first century science education, it was arguably precisely to get a better view of our present political moment that Foucault engaged in this research. Before modern/Christian technologies of power, how did one come to see themselves in relation to ethics? We believe these analyses shed light on what it means to be a subject of ethics today. Foucault's work can guide how educational communities can think about engaging as ethical actors – and this goes for how we engage ethically in science education. Educators can examine how curriculum and pedagogy constitute students as ethical subjects along the three interrelated axes: self's relation to self; self's relation to others; self's relation to the world. Figure 7.1 outlines these axes:

According to Foucault (1985), three simultaneous relationships must be taken together as the location where subjects act ethically: the relation of self to self, self to others, and self to world (objects, sociopolitical entities). It is not enough to understand ethics as following a set of ethical codes, whether they are religious, civic, sexual, etc., because they are always enacted in relation to an actor's relation to self, others, and the world–what may be loosely called an ethical subjectivity (This is one reason why there can be multiple interpretations of moral codes amongst religious communities–such codes always rely on a set of relations that interpret, disperse, and mobilize).

Educational scholars can view ethics in its widest sense in order to capture its utility – that is, what one should or ought to do (that is, as an operational/methodological definition for analyses of subjectivity). Under this broad definition, quite rightly, ethics can entail any sort of practice related to the "right way to be", from dietics to business ethics, to *La Cosa Nostra*! This is precisely why educators must think hard about what kinds of ethical practices we want to foster in science education, as well as the basis for such actions. This basis, we maintain, involves considering how students view their relation of self to self, others, and the world(s); as well as instilling a politically active approach to science through education.

When students and teachers engage consumerism, they may ask a basic ethical question such as: What should we do? They may come up with, or find a series of ethical prescriptions readily available such as: "recycle!" "spend less!" "donate!"

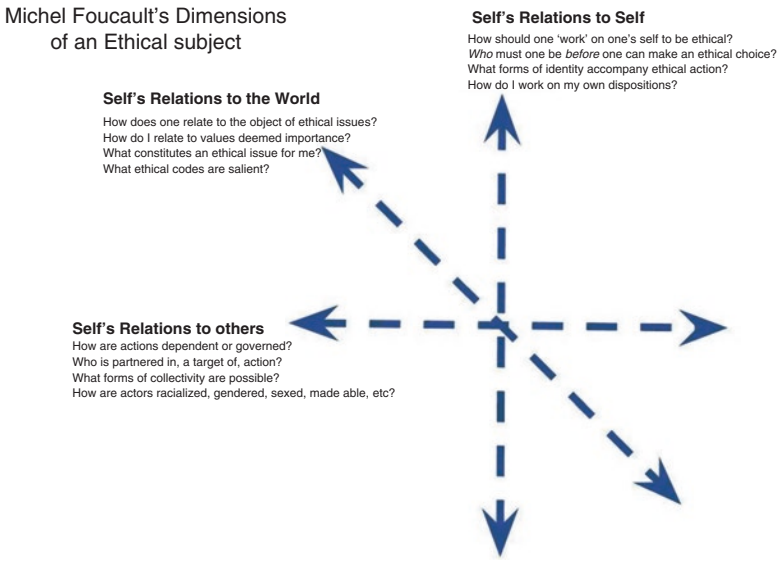


**Fig. 7.1** Three axes of the ethical self as presented in Foucault's (1985) *Use of Pleasure*

"plant trees!" "become more efficient!" "get involved!" "make a difference!" etc. However, all of these actions mean very different things depending how students and teachers see themselves in relation to the world, others, and themselves. Table 7.1 describes how a subject could possibly hold different relations of self and how these might affect ethical action. Through this table we suggest that moving from an individualistic mode of ethical engagement to a politicized form is desirable if educational communities are going to face social inequality and environmental destruction. Such a shift requires the reconfiguration of relations to self along the three axes described above (see Fig. 7.1):

Educational communities that engage in ecological activism—say starting a recycling program—can therefore do so for entirely different reasons under the large umbrellas of personal accountability (individualistic) or dutiful community participation (philanthropic) or collective activism (politicized). None of these categories are wrong in themselves, nor mutually exclusive–rather they allow educators to ask which orientation of self, other, and world is most useful, appropriate, and just for making ethical decisions in science and science education. These different relations can be critically traced and analyzed in their discursive formations in terms of how they delimit and enable particular ethical actions and relations. These considerations may help educators abandon forms of ethical engagement that maintain and reproduce possessive individualism and depoliticized forms of ethical engagement.

**Table 7.1** Example approaches to ethical action based on the relation of self to self, others, world

| Relation | Individualistic | Philanthropic | Politicized |
|---|---|---|---|
| Self to self | I take personal responsibility for my actions. It's all about how I make choices! | I see myself as part of, and having responsibility to, a larger community | I devote my work to collective social, ecological justice |
| Self to other | If everyone takes personal responsibility for their actions, change happens | Everyone should engage in community service where they live and work | Communities must engage in activism at all organizational levels |
| Self to world | Human beings are inherently selfish, but have "free–will" to make choices for their future | The world is a mosaic where individuals take part and give back | Extinction and suffering occur because of structural inequality and injustice |

## 7.2 Toward a Union of Ethics and Politics

We argue that science education needs to ethically engage in politicized modes of action, which include peaceful protest and boycotts, to prevent social inequality and climate change – caused in part by rampant consumerism. We take Jacques Rancière's (Rancière and Corcoran 2010) view of democratic politics, defined as interventions into the taken–for–granted order of things in the name of equality (in the context of science education, see Bazzul 2015). Rancière's work offers a theory of political subjectivity–one who endeavors to change the status quo, its rationalities, in the name of equality. Ethics as a field of relations of self to self, self to other, and self to the world, translated into actions, must establish a political orientation in order to engage with the wicked problems of the twenty–first century. In this way, ethics can become an extension and compliment of politics, not something that takes the place of political action. Foucault lays the groundwork for a re–examination of ethics as political praxis. Ethics as a set of relations becomes both a mode of political participation and a practice of self–resistance against technologies of power that govern our conduct. Larry Bencze and Lyn Carter (2011) have described how governmentality operates even in science education in terms of the way it can foster possessive individualism. (Neo)liberal governmentality is not just "out there" but in the depoliticizing discourses of science education (Bazzul 2012). Schooling under the logic of neoliberalism involves shaping individual and organizational conduct to maximize human capital value through self–promotion, entrepreneurialism, and private investment above the needs of communities (Brown 2015).

Considering how conduct is governed in late modernity is important because conduct is also representative of an "ethos" in how it carries a quality of legitimacy; that is, conduct implicitly carries ethical content. In this way ethics can be completely in line with oppressive forces–even when practiced with rigor and good intention! This is one of the reasons why Rancière was wary of a return to ethics over politics. Neoliberal capitalism can form an ethos or a particular way of acting by constituting the relations we have with others, the world and ourselves. Therefore,

an unreflective ethics would likely not be a form of resistance to consumerism in neoliberal, capitalist times. As Maurizio Lazzarato (2013) points out, practices (care) of self also have a neoliberal capitalist version:

> Contemporary capitalism—its companies and institutions—prescribe a care of the self and a work on the self that is both physical and psycho–logical, a "good life" and an aesthetic of existence that appear to delineate the new frontiers of capitalist subjection and evaluation, and which signal an unprecedented impoverishment of subjectivity. (p. 157)

But just as capitalist relations require an ethical subject, engaging in political acts of resistance also requires a relation to self–to recognize oneself as a legitimate speaker/actor–as having an "ethos" known along the three axes. Lazzarato (2013) summarizes the importance of ethos for Foucault:

> The formation of an *ethos* is at the same time a "focal point of experience" and a "matrix of experience," where different forms of possible knowledge, the "normative matrices for individual behavior," and the "modes of virtual existence for possible subjects" are articulated in relation to each other. (p.155, italics in original)

What kind of ethos and relations of self are required to embody democratic principles such as equality in science education?

Philosophically, this question may be more challenging than it first appears. One problem at the inception of democracy is not the principle of equality but its ethical differentiation–how we determine what and who is good and bad–as they do not operate on the same principle (Foucault 1985). Here Lazzarato warns:

> In the same way as Guattari, Foucault cautions us that we cannot oppose neoliberal liberty, which in reality is an expression of a political will to re–establish hierarchies, inequalities, and privileges, solely by an "egalitarian politics." For this would be to disregard those criticisms leveled against egalitarian socialism by different political movements already before the liberals (p. 163)

The argument that not all are "fit to speak," make decisions, do science, must be refuted both on ethical grounds (people need a legitimate ethos to be!) as well as political grounds (all peoples are equal), and preferably both at once.

An ethos, manifested in relations to self, that works against rampant consumerism would open new fields of collective action. Students and teachers would also come to recognize this ethos in others. People who promote collective justice embody this ethos; they are afforded spaces to speak about what is ecologically and socially just; they may come to misrecognize ethical actions that centre around individualism and the promotion of neoliberal, biocapitalist forms of life (Pierce 2012). Ethical actors who are activist, conscientious in the sense of Freire's conscientização (critical consciousness), risk hostility not only from those who will not afford them an ethos, but also from each other as they endeavor to afford one another, politically, with the collective (equal) right to speak. A foundation of equality forms the basis of an ethos that is to be politically active, affective, effective, powerful, socially and ecologically just. In effect, politicized democratic principles come to form the ethical relations of self that afford everyone the equal right to be speaker.

However, politics cannot manifest without an ethos or ethics, a set of relations of self, because subjects must always enact politics within a differentiated discursive

field where an ethos is recognized. In summary, ethics today can work against consumerism by aligning with political principles (equality) along three axes of relation to self–and these principles are meaningless without modes of self–conduct to carry them out. Politics requires a complementary ethics, much the same way neoliberal capitalism and unabashed consumerism have their own ethics. These ethics will function in terms of intertwining relationships of self to self, others, and the world, and afford different ways of being, a new life in contrast to what is already given; that is, to live in transformative ways, in order to transform oneself. Perhaps like Freire's (1972) lifelong praxis, this ethical life would be one of struggle and transformation, inhabiting the relations of the self in a way that connects a political subjectivity with an ethical differentiation in values. However, there will always be uncertainty with the nature of relationships to self, others, and the world because subjecthood emerges from assemblages of material and discursive elements that cannot be fully known at any given moment. While ethical forms are molded by truth and power, the ways we rework our relations to ourselves, others, and the world comprise an escape from these forms. As Lazzarato (2013) points out, "in a certain way, we are obliged to use the Foucauldian methodology because, in contemporary capitalism, it is impossible to separate ethics from economy and politics" (p. 170).

In terms of consumerism, giving attention to relations of self can be a way to intervene in the way advertising establishes affective ties to self through ideology, networks, simulacra, and value. Slavoj Žižek (2011) outlines how ideology can grip relations to self in the example of the humanitarian value added to Starbucks™ coffee, where the corporation donates a small portion of its profit to a special cause when you buy its product–an ironic example being ethos® water! In effect, what one is buying is the feeling of philanthropy, and freedom from guilt–they are included in the price! To put it another way, a commodity's value now includes harnessing a subject's relation to self: "I am part of the solution, I care, I make a difference, etc.". Green consumerism is another example of this form writ large. However, a different ethical, collective form of existence problematizes the idea that consumerism can deal with social inequality and environmental destruction by subverting the logic: "I am what I buy" (Mueller 2009).

If the sociopolitical and cultural world that determines relations to self is constantly changing, then experimentation in ways of acting, in forming an ethos or an ethics, is fundamental to education committed to transformative change. Foucault stresses that resistance exists precisely at the point where a subject attempts to deploy relations to self, other, and the world—to become a possible (political) subject. For Foucault, it is when a subject faces the intensity of power that life is most visceral and intense (Deleuze 1988). Therefore, when facing consumerism, it is precisely when a subject takes on the full force of the structural causes of consumerism (capitalism), that they will face the most intense forms of opposition, calamity, and, perhaps, joy and wonder. And so we arrive at key questions of ethical being in relation to activism and resistance in modern life. Though discourses of power will constitute subjects in modernity, which aspects of discourse, practices, truths, modes of action can a subject apply to themselves? How can I remake myself in this particular location as an ethical subject? What power and modes of resistance are

available? On a more basic level, *"What can I do? What do I know? What am I?"* (Deleuze 1988, p. 115). As Deleuze ironically comments, do not the changes in capitalism find an unexpected "encounter" in the slow emergence of a new self as a center of resistance?

Indeed, this is the overall point of this theoretical chapter – there are multiple approaches to ethics! Here, in this first of two sections, we propose what could be called a *politico–ethico* approach that connects both ethics and politics. And though we have used Foucault's work to describe an approach to ethics through relations of self, we have not traced what relations of self are active in specific ethical concerns in curricula or classroom settings. Such a concerted approach may help educational communities deal with rampant consumerism under advanced, neoliberal capitalism (Brown 2015)–which has its own way of orienting social relations and a person's relation to self, to others and to the world. In the final section of our chapter, we emphasize the need to move beyond considerations of the subject and imagine ethical possibilities based on assemblages and intra–actions of material/non–material, non–human/human entities.

## 7.3 Ontologies, Agential Cuts, and Ethics

The axis of relations of self to the world, described above (see Fig. 7.1), brings into relief an ontological dimension that can be understood through engagement with new materialisms. With the prevalence of anthropocentrism in modernity, modes of action, subjectivities, and ethics privilege the human perspective. In most modern forms of scholarship, knowledge claims, social, and even scientific phenomena are often examined from epistemological standpoints, to the exclusion of the ontological. We are aware that the duality of epistemology and ontology is also a Eurocentric way of conceiving of realities, and may to some extent contribute to further forms of colonization–a question we are exploring through the work of indigenous scholars. Moreover, limiting conceptualizations of educational experiences, ethics, and the self to solely epistemological perspectives, might lead us into the trap of reducing bodies, human and non–human, to sedentary and inert objects. In this section, we suggest that ontologies and physical entities are not necessarily just inert physicality's subject to human–philosophical questions of being, but they also have agentic potentialities. By agency we do not mean a liberal humanist understanding of the ability to *act*. Instead, we are using Karen Barad's (2012) new materialist conception that "agency is not held, it is not a property of persons or things; rather, agency is an enactment, a matter of possibilities for reconfiguring entanglements…it is about the possibilities and accountability entailed… [in] articulations and exclusions that are marked by [different] practices" (p. 54). Examining ontologies and our relations to matter provides alternative ways of thinking about ethics and the affects of materialisms in science education.

### *7.3.1 Re–conceptualizing Materialisms*

When thinking of materialisms and matter, it is important to move beyond Marxist views. As Delanda (2012) argues, "Marx's theory of value was indeed anthropocentric: only human labor was a source of value, not steam engines, coal, industrial organization, et cetera… we need to move beyond that and reconceptualize industrial production" (p. 41). According to Delanda, scientists and ecologists (and we would argue educators!) are strategically positioned to carry out this re–conceptualization. As Delanda (2012) says,

> Ecologists (not only activists but scientists) are well placed to help in this regard, because as they study food webs they must consider all sources of "value": the sun, the photosynthetic process that transforms solar energy into chemical energy, the micro–organisms that decompose dead bodies and re–inject nutrients into the soil, et cetera. Combining ecology and economics is a good idea, so that a barrel of oil is not valued only in terms of its market price but as a non–renewable source of value due to the energy it contains. (p. 42)

However, this is not to suggest that scientists are the only ones with answers or with the advantage of engaging with matter. Instead, it is to argue that engagement with the sciences calls scientists and science educators to take matter seriously, and that the very conception of matter should matter in our re–conceptualization of ethics.

We now know that ethical questions related to matter and science have been limited to notions of consequence. Barad (2012) maintains that "ethics is taken to be solely a matter of considering the imagined consequences of scientific projects that are already given…asking after potential consequences is too little, too late, because ethics of course, is being done right at the lab bench" (p. 54). However, as Karin Hultman and Hillevi Lenz–Taguchi (2010) argue, "[w]hat we do as researchers *intervenes* with the world and creates new possibilities but also evokes responsibilities" (p. 526, italics in original). We argue that our responsibility as science educators and researchers is not limited to our relations with matter and organisms, but that "[r]esponsibility entails providing opportunities for the organism to respond" (Barad 2012 p.38). Based on ontological views of agency, the opportunities to respond emerge when different bodies and entities engage with one another. However this engagement is more than discursive and/or communicative interaction, it is intra–active (intra used instead of inter to signify that entities are mutually dependent). Meaning, entities in intra–action mutually constitute the phenomenon together. In the social sciences, researchers and scholars are often positioned as active observers (subjects), who study the passive observed (objects). According to Barad (2003, p.815), "phenomena do not merely mark the epistemological inseparability of observer and observed; rather, phenomena are the ontological inseparability of agentially intra–acting components". The subject and the object are constituted in their intra–action with each other, when they come together in a specific context. It is important to see things not as "static arrangements in the world, but rather [they are] apparatuses [that] are dynamic (re)configurings of the world, specific agential practices/intra–actions/performances through which specific

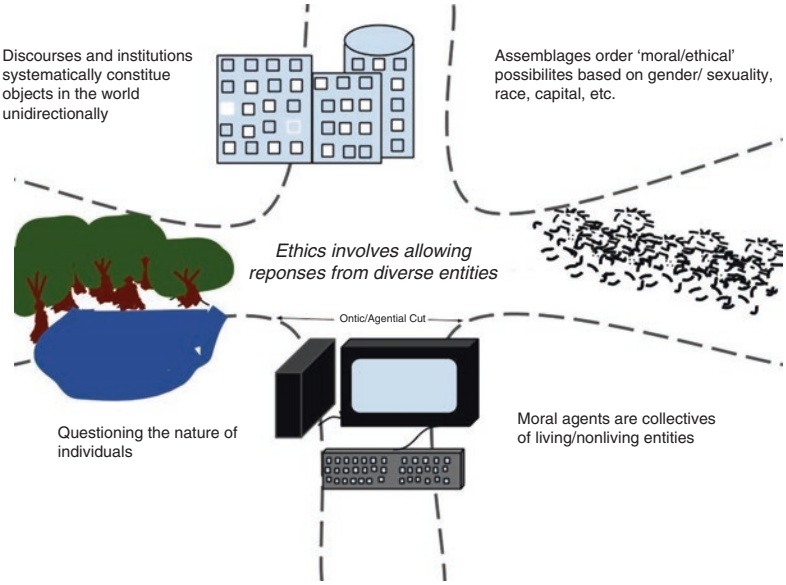


**Fig. 7.2** Agential Cuts and the interconnectedness of entities (Barad 2007)

exclusionary boundaries are enacted" (Barad 2003, p. 816). Barad (2012) argues that objects are not passive entities, but are (re)configured in their relation with other entities. So the question remains: how do humans give justice to the world? This question is one of responsibility and requires engagement beyond what humans *do to* the world and moves toward how should humans mutually intra–act with the world.

Barad (2007) suggests that all matter has an agentic potential to influence other matter. In opposition to a Cartesian cut, in which the subject and object is separated with the privilege given to the former, Barad (2003) suggests we consider agentic cuts that "emerge through specific intra–actions" of different entities including human and non–human (p. 815). Figure 7.2 demonstrates a potential ontic, agential cut–where institutions (e.g. schools), organic and inorganic matter, populations, and technological entities are mutually constitutive. The identities of these entities do not exist as a priori, rather they are mutually constitutive in the phenomenon of the cut itself. It is more than just human cultural–sociopolitical designations that constitute phenomena and the ordering of matter–entities constitute each other co–existensively in their intra–actions. This work troubles the nature of causality, agency, and change in that each context, including contexts whereby ethical decisions are made, must take into account hitherto unconsidered actors such as water, microorganisms, soil, etc. (Barad 2012).

Elsewhere, we have used Deleuze and Guattari's notion of assemblages to argue for the importance of ontologies and material entities for science education (Bazzul

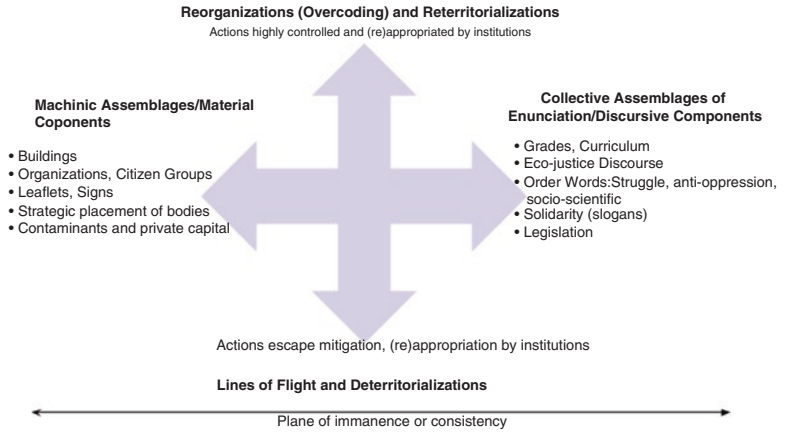


**Fig. 7.3** Student Activist Group in Deleuze and Guattari's (1988) terms (Bazzul and Kayumova 2016)

and Kayumova 2016). According to Deleuze and Guattari, ontology is already a part of the sociopolitical assemblages and thinking about material entities along with social orders invites us to engage with vibrant systems. Figure 7.3 diagrams the dimensions of assemblages of Deleuze and Guattari as it pertains to activist communities, student organization, and overall formal education. When it comes to science education, for example, a student activist group as an assemblage is made up of various entities, institutions, and human and non–human bodies as well as sign systems, discourses, and particular views of science and education that overcode the activist group and allow it to function. More defined and regulated groups are organized in a more territorialized assemblage. Overcoding can be viewed as "a second articulation, consolidating the [material components] and further stabilizing the identity of assemblages" (DeLanda 2006f, p. 15). What if groups, activities, materialities happen to be less regulated and less defined? According to Deleuze and Guattari, deterritorialization allows multiplicities and divergences of entities to reach their productive and emergent potentialities in their own existence. Therefore, we argue that "ontological exercises seek to palpate multiplicities in the world and construct concepts that bring forth these multiplicities without being caught by rigid identities and totalities reproduced through repetitive, rigid practices in science education" (Bazzul and Kayumova 2016, p. 8).

## 7.4 Toward New Materialisms

This chapter has engaged consumerism and ethics from two different, but interrelated, theoretical perspectives. Using Foucault's historical analyses from the *History of Sexuality Vol 2*, we have outlined three interrelated axes of the relations of self

(self to self, others and the world). We contend that constituting ethical subjects that take action on topics such as ecological justice and consumerism requires consideration of these axes. Furthermore we maintain that for transformative political engagement to take place, these relations of self must be based on a collective politics (Bazzul 2015). This collective politics would not consist of a permanent ground, but would shift according to the temporal and contextual nature of particular struggles, for example, queer, anti–consumerist, or environmental struggles. Conversely we also suggest that a politically engaged science education needs to consider an ethos to secure the ability of subjects to speak, think, and act in socially just and divergent ways.

Following Barad (2007), we also presented a view of ethics that takes place within an ontological frame where nonliving and living actants set the conditions for the emergence of entities. Along these lines, ethics becomes the responsibility of allowing entities to respond and take shape. Ethics, therefore, takes place within an emergence of being, and in multiple directions. In this way, students and teachers can come to understand humans' intra–dependence on entities such as insects, bodies of water, forests, atmospheres, soil, populations, cultures, feelings, etc. In viewing ethics as fostering the ability for entities to respond, we see ethics as a horizon of justice to come, as well as a means for science educators to draw connections between the abiotic and biotic world, human/nonhumans in order to address specific ethical issues like consumerism. Educational communities can use Deleuze and Guattari's (1988) concept of assemblages to organize the possibilities for action on discursive and material levels, and look for lines of flight and different possibilities of being outside of consumerism. Such an activity can put science education in the service of more socially and ecologically just futures.

Consumerism, with its adherence to the logic of capitalism, fosters relations that promote the reproduction of capital and the subjects (biocapital) necessary for this reproduction (Pierce 2012). This means that any ethical engagement with consumerism must be a politico–ethical engagement, one that redraws the lines between material/non material, human/nonhuman that make consumerism possible.

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**Jesse Bazzul** is an assistant professor in the Faculty of Education at the University of Regina. He sees science education as a critical site of social transformation and philosophical engagement. Currently, his research interests involve finding new ways for students to engage ethically through science education. His work has appeared in Cultural Studies of Science Education, Research in Science Education, and Review of Education, Pedagogy and Cultural Studies.

**Shakhnoza Kayumova** is an assistant professor at the University of Massachusetts Dartmouth and a research scientist at the Kaput Center for Research and Innovation in STEM Education. Her research focuses on exploration of affective ontologies and critical epistemologies as agentic spaces for empowerment of culturally and linguistically diverse learners in science education. Her recent work appears in academic journals such as Anthropology and Education Quarterly, Democracy and Education, and Journal of Research in Science Teaching.

# Chapter 8
# Altering the Ideology of Consumerism: Caring for Land and People Through School Science

**Sara Tolbert and Alexandra Schindel**

On a daily basis, news media report on consumer spending, advertisements entice youth to buy into products as a form of identity marketing, and pop–culture heroes/heroines define themselves through branding product endorsements. At the same time, advertisers track Internet searches and spending habits to collect data and bring consumers individually–targeted advertisements for instantaneous consumer gratification and to increase company revenue (Cameron 2013). Absent from these consumerist practices is consideration of the significant ethical dimensions of buying, consuming, and discarding–ethics which might examine: Where do goods come from? Where do they go (and for how long) after they are discarded? Where do the resources for goods come from? What are the costs and benefits to land and people in this economic process?

In this chapter, we confront the consumerist status quo by exploring ways that school science learning experiences can provide youth with avenues for critiquing this entrenched ideology. We propose that one such lens for critically questioning consumerism can emerge within an ethic of caring or developing empathy for land and people. We understand this ethic to be multidimensional and contextualized, yet in this chapter we emphasize caring for land as embracing our human and more–than–human interrelationships, and caring for people as socio–politically and economically located. We proceed by first describing how consumerism has become a dominant ideology as well as an often under–interrogated way of life in the context of neoliberal reforms. We call attention to how unfettered consumerism has had

S. Tolbert (✉)
Department of Teaching, Learning, & Sociocultural Studies, University of Arizona,
1430 E. Second St., Tucson, AZ 85721, USA
e-mail: saratolbert@email.arizona.edu

A. Schindel
Department of Learning and Instruction, University at Buffalo,
564 Baldy Hall, Buffalo, NY 14228, USA
e-mail: aedimick@buffalo.edu



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devastating effects on individuals, communities, land, and other living beings. We then propose an ethic of caring for land and people by drawing on conceptualizations of caring in education literature, environmental education, and Indigenous thought. Next we draw from two case studies of high school science contexts to explore how youth challenge consumerism and construct alternate ethical economic and environmental practices, re/claiming an ethic of caring for self, each other, land, and community within the contexts of economic oppression.

In the first case, students explore how coal mining on Native lands in their own state generated power for wealthier residents of another state, while Native residents suffered from the depletion of pristine aquifers on the reservation. After visiting the reservation, the students saw firsthand how water was used wastefully to slurry coal rather than for sustenance in a water–scarce environment. They also came to see how fossil fuel as an energy source predominantly benefits the coal industry with little regard for communities living near coal mining operations. Reflecting on this case helped them take on local anti–coal activism and rethink their own water usage and reliance on coal–powered electricity. In the second case, students explored both economic and ecological benefits of reusing old materials. Students in this impoverished post–industrial city celebrated their own up–cycled innovations as well as local community resources (e.g., the local markets), divesting, in a small way, from the larger capitalist markets that have exploited their communities. In sum, we engage with the concept of youth ethical consumerism by questioning how science and environmental education curricula can critique the current capitalist and consumerist status quo, and promote ethically–minded economic and environmental practices, through caring for land *and* people.

## 8.1 Consumerism: Creating Environmental and Economic Crises

> The invasive character of a global capitalist consumer economic system and culture give many of humankind the appearance of weeds. (Daniel Wildcat 2009, p. 49)

In this chapter, we refer to consumption as a process of creating, purchasing, and using goods and services. Consumption has become a major economic and cultural practice that impacts our way of living (Norris 2007). Within the current free–market policies of modern capitalism, consumption is a process "undergirded by the ideology of consumerism" (Sandlin et al. 2012, p. 140). An underlying tenet of consumerism is that the increasing consumption of goods is inherently desirable. However, consumerism has become so embedded within the value systems of consumers, particularly in the United States, that, as Trevor Norris argues, human relationships are becoming "increasingly mediated by objects" (Sandlin et al. 2012, p. 141). In this section, we examine the impacts of consumerism on two interrelated problems, namely economic and environmental exploitation.

All forms of material economic activity–extraction, production, distribution, consumption, and disposal–have environmental impacts. A capitalist–consumerist society is built around these activities, driven by neoliberal practices that promote

"the market and profit above considerations of climate change and environmental sustainability" (Hursh and Henderson 2011, p. 171). Harvey (2007) explains that neoliberal policies favoring unregulated capitalism have resulted in an "escalating depletion of the global environmental commons (land, air, water) and proliferating habitat degradations," leading to the exploitation of natural resources and "the wholesale commodification of nature in all its forms" (p. 35). One of the most alarming features of this shift is the transformation of the common good "whereas citizens have responsibilities for and obligations to their fellow citizens and communities, consumers have no such duties to their fellow consumers" other than to continue to uphold "consumerism" (Sandlin et al. 2012, p. 146). Furthermore, the capitalist notion of property rights has severely disrupted notions of "communal possession of the land," such that individual property rights rank above that which is best for the land, its human and non–human inhabitants, and future generations. For example, individuals who have wells on private land, even in areas of water scarcity, are often grandfathered into the right to use water with few restrictions (see Arizona Department of Water Resources 2016).

Recent history has shown that, indeed, capitalism and environmental degradation (and erosion of the global environmental commons) are linked (Bazzul and Tolbert 2017). Ecological disasters fueled by overconsumption are also linked to societal problems and particularly to the global exploitation of poor and minoritized communities (Kahn 2010). As one example, the Lago Agrio oil field in Ecuador is known internationally as a site of environmental devastation (including deforestation and water and soil contamination), and local Indigenous residents have litigated against Chevron for environmental remediation and for compensation to care for those in the affected communities who have experienced devastating health problems resulting from the pollution (https://en.wikipedia.org/wiki/Lago_Agrio_oil_field). As a result of such examples, the working poor, who cannot themselves afford to partake in the accumulation of the capital they produce, are directly affected, e.g., through increasingly lower wages and environmental degradation, by the crisis of capital's need for maximizing wealth accumulation (Kahn 2010).

Douglas Booth (2004) argues that although economists have proposed that market capitalism would improve environmental conditions because consumers benefitting from rising standards of living would demand a cleaner environment, this has not proven to be the case. In fact, the growing demands of the market have been coupled with increasing neoliberal free–market policies that minimize government intervention rather than with economic or political strategies that would support environmental protection. Furthermore, as consumers become distracted by their ability to purchase cheap products, they may be more inclined to ignore (or not be as critically aware of) wealth inequality. Benjamin Barber (2007) points to this as a crisis of the free market or capitalism's "incapacity to satisfy the real needs of the poor and its tendency to try to substitute faux needs and manufactured wants for the missing real needs of consumers in developed societies" (p. 123). In many countries, including the U.S., our understandings of the responsibilities and duties of citizens are undergoing a definitional shift from citizen to consumer (Apple 2001). Jakubiak and Mueller (2011) highlight how collective civic actions, e.g., such as those that

might otherwise disrupt unregulated and socially/ecologically harmful development, have declined over the past three decades, while "green" or "socially responsible" consumerism has created an illusion that consumers can enact disruptive politics merely by making more (seemingly) informed decisions about their purchases. The idea that consumer choice and shopping can rectify larger structural disorders has become pervasive (Levine 2009). Referring to this as an assault on democracy, Barber (2007) contends we live in a world "where shopping seems to have become a more persuasive marker of freedom than voting" (p. 37).

We propose that science education must address these crises and provide youth with alternative frameworks to radically alter or reduce consumption and consumerism–i.e. frameworks which center caring, ethics, and sustainability, over consumerism, which we turn to next. A more critical engagement with consumerist ideologies disrupts the social and ecological degradation of unfettered capitalism and its material economic activities (extraction, production, distribution, consumption, and disposal).

## 8.2 The Ethics of Caring: Authentic Human and Ecological Relationships

We view caring as central to an understanding of human and ecological relationships. We recognize that caring can be viewed as an ambiguous concept that means different things to different theorists (Antrop-González and de Jesus 2006). Thus, we begin this discussion by first grounding it in Fisher and Tronto's (1990) definition, that caring is tied to both human and environmental sustaining and flourishing:

> On the most general level, we suggest caring be viewed as a species activity that includes everything that we do to maintain, continue, and repair our "world" so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life–sustaining web. (p. 41)

This definition asserts that caring is–or at least *should be*–central to our ways of being and interacting within the world. It also highlights the interconnections between care for self, community, the land, and society.

Because our research focuses on schools, we begin with a conception of caring that values the relationships between people within schools. Our understanding of care differentiates between aesthetic and authentic care (Noddings 2013). Aesthetic care highlights the more superficial aspects of life, such as abiding by school or classroom rules. Within schools, adults express an aesthetic form of caring when they view students' caring about school from the perspective of whether students dutifully fulfill school rules and policies. In contrast, authentic caring is "student–centered caring" (Rivera Maulucci 2010, p. 629) because it focuses on deeper relationship building between teachers and students, in which teachers take time to understand their students and to learn about the students' communities and families as well as their concerns and interests. Many students, and particularly those who

have been disenfranchised within schools, may only be responsive to learning from a teacher who first demonstrates authentic caring to students (Valenzuela 1999). In other words, a student who feels that her teacher cares about her well–being and life beyond the classroom borders may be more responsive to the teacher's requests for her to engage in classroom activities and homework. As one example, our prior research revealed that it was primarily through authentic caring relationships between a teacher and students that students in a high school environmental classroom became authentically engaged in environmental restoration activities (Schindel and Tolbert 2017). Our conception of care includes attention to how consumerism and consumption impact human and more–than–human inhabitants as well as how they disproportionately impact minoritized communities. Although the concept of caring for the environment frequently appears within environmental education literature, it is often considered as a behavioral construct that youth are encouraged to develop (Johnson and Manoli 2010). Education research has rarely employed a more critical theoretical lens of caring to science or environmental learning, and even less so one that is responsive to socioeconomic contexts of the learners (e.g., minoritized youth) (for an exception, see Schindel and Tolbert 2017).

An ethic of authentic *caring for people* must attend to all the emotional and physical needs of people (and of youth in particular), including personal safety, economic stability, personal health, and emotional and physical well–being. As one example, access to healthy food is a problem that disproportionately affects youth and families in economically oppressed communities (Larsen and Gilliland 2009). (We use the descriptor "economically oppressed" versus low–income or economically disadvantaged. The phrase economically oppressed more explicitly locates the inequity within structural oppression versus individual circumstance). Another result of capitalism has been decreased access to healthy and minimally processed foods, as nutrient–rich foods have been increasingly replaced by nutrient–poor manufactured foods (Wildcat 2009). The impact on individuals and families in economically oppressed communities has been particularly severe. Individuals and families in neighborhoods with limited access to affordable nutrient–rich foods are prone to higher rates of obesity and related diseases such as diabetes. On the other hand, access to healthy foods such as local fresh produce (e.g., direct sales from local farms, prevalence of farmers' markets, etc.), which are generally more available in affluent communities, has been correlated with lower rates of obesity and diabetes (Salois 2012). Consequently, we must rethink our over–reliance on the current agribusiness model: "Life on the planet cannot afford the cost of the factory–produced, –processed, and –packaged fast–food nation we have become" (Wildcat 2009, p. 121). Therefore, an ethic of caring for people requires recognizing the interrelated human and environmental concerns and the ecojustice concerns that become intensified within economically oppressed communities.

We also conceive of an ethic of caring for land that is both sustainable for the land and all its inhabitants and that emanates from the development of authentic caring relationships (human–to–human and more–than–human). Caring for land and its inhabitants demands awareness of and action against the way land is exploited in unsustainable ways in the name of consumerism (e.g. natural resources depletion

for human energy, water, and technological uses). We draw upon Indigenous thought as central to our understanding of caring for land and (re)conceptualizing relationships among land and people (e.g. Bang and Marin 2015). Environmental biologist and member of the Seneca Nation, Henry Lickers, describes First Nations peoples' orientation to all living and non–living inhabitants of the Earth as family:

> First Nations people view themselves not as custodians, stewards or having dominion over the Earth, but as an integrated part of the family of the Earth. The Earth is my mother and the animals, plants and minerals are my brothers and sisters. (Canadian Council on Learning 2007, p. 2)

This family–ness is represented in the language and cultures of Indigenous communities and nations across the globe; for example, mitakuye oyasin, or "all my relations" of the Lakota, whanaungatanga (family–ness) and maanakitanga (reciprocal care) of the Maori.

We understand caring for land and people as an already present (but often overlooked) aspect of youth's lives. Synthesizing these multiple perspectives, we conceive of an *ethic of caring for land and people* that has the following features:

- authentic caring relationships among and between educators and students (and student–to–student) within schools;
- a recognition of and active resistance to oppression–physical, economic, emotional, etc.;
- a respect and love for land and its inhabitants;
- and understanding humans as interrelated and integrated with the Earth family.

Authentic caring, then, can be viewed as a more empathetic understanding of the impact of consumerism on land and its inhabitants as well as toward oppressed communities.

Given that youth articulate authentic caring relationships as playing an integral role in their participation in both school as well as environmental learning (Schindel and Tolbert 2017), in the following sections, we share case studies of two school and curricular programs within science education that are illustrative of the aforementioned ethic of caring for land and people. Following our presentation of the two cases, we revisit the concepts of consumerism and sustainability through the lens of caring for land and people.

## 8.3 Case Studies of Caring for Land and People in Science Classrooms

Below we present a background context and vignette from each of the science classrooms in which youth express ethical mindsets towards consumption in ways that position caring for land and people at the center.

### 8.3.1 The Case of Leadership for Empowered Youth High School

This study took place at a high school, Leadership for Empowered Youth (LEY) [all names of places and research participants are pseudonyms], located in a low–income area of a city near the U.S.–Mexico border in Arizona. The city has the sixth highest poverty rate in the U.S. for a city of its size (U.S. Census Bureau 2011), and is located in a state where racist–nativist policies have radically marginalized minoritized youth, families, and communities (Jimenez-Castellanos et al. 2013). According to the school's founders and the school director, the primary mission of the school is to productively engage students in developing the social and academic skills, sustainability practices, and political capital necessary for sociopolitical and ecological change–making.

Within this supportive institutional context, the science teacher, Ms. Bell, and I, Sara, explored how to (re)imagine school science such that students are engaged in understanding science–related societal problems and their potential (personal, political, scientific, and structural) solutions through our collaborative research project, Community Engagement and Youth Leadership through Science Education (CEYLSE). Our collaboration focused on the introductory general science class, in which a primary goal was to introduce students to social change and change–making in science through an issues–based approach to the integrated science curriculum (see Tolbert et al. 2016). During the summer of 2014, we worked alongside other LEY teachers to identify several overarching themes for the science curriculum that were connected to LEY students' interests, as well as pressing local and global science–related justice issues, that could guide instruction in the integrated science class. We worked collaboratively to compile resources and curriculum materials around these themes, with particular attention to local community resources (including guest speakers, activist projects, community organizations, field trip sites, etc.). Throughout the year, we revised and refined our unit topics to accommodate students interests and concerns as students, through integrated science as well as their other courses, became increasingly informed about and engaged with school/community sustainability issues (e.g. organic gardening on campus, rainwater harvesting) and local community problems (urban heat island effects, "climate readiness," water rights/use, disproportionate access to green space, homelessness, etc.).

There were 22 youth participants in CEYLSE, the majority of whom are Latinx, from low SES backgrounds, and enrolled in ninth or tenth grade. In the integrated science class, students explored relationships between consumption and sustainability through a variety of connected issues. Central themes included energy and water consumption, as well as waste production. Students researched how the coal industry has substantially contributed both locally and globally to environmental degradation, with disproportionate effects on low–income and/or minoritized communities. Ms. Bell and I (Sara) decided to focus on two case studies to highlight environmental justice issues related to energy and water use: (1) The industrial tri-

chloroethylene (TCE) plume that contaminated the water and soil of residents on the south side (low–income, predominantly Mexican American) of the city, leading to severe illness and even death, and (2) the Peabody coal mining operation at Black Mesa (on the Dine' Nation) that drastically affected the quality of the aquifers on Dine' and Hopi reservations in Arizona. For the purposes of our argument, we focus on the 2nd key issue–namely, the Black Mesa coal mine.

Peabody Coal began strip–mining on Black Mesa in 1970 (see Fig. 8.1), using 1.4 billion gallons of pristine aquifer water per year to slurry 5 billion tons of coal through a 273–mile pipeline to an electric generating station in the Mojave desert (for more info see www.blackmesatrust.org). The electricity generated was used to power large cities in the Southwest, like Los Angeles, California, while residents of the Hopi and Dine' reservations faced limited access to electrical energy. After 35 years of activism, Hopi and Dine' tribal members along with environmental organizations successfully shut down the Peabody Coal mine on Black Mesa in 2005. However, tribes are still coping with the environmental effects of the operation, and Peabody coal mining continues in other areas of the Dine' reservation.

As part of this unit, students also conducted independent research on the Black Mesa coal mining operation, noting how the information given varied according to the authors of the report. They also watched and discussed "Power Paths" (http://www.pbs.org/independentlens/power–paths/film.html), a documentary about how tribal members are organizing against nonrenewable energy companies and increasing tribal access to renewable energy sources as well as jobs in renewable energy industries. In addition, a Hopi tribal member and activist with the Black Mesa Trust visited the class and shared his knowledge about the impact of the Black Mesa coal mining operation and the history of Indigenous activism to eradicate it. This guest


**Fig. 8.1** Black Mesa Peabody Coal Mine Photo credit: Black Mesa Trust (www.blackmesatrust.org)

speaker also emphasized the importance of water, particularly for desert inhabitants, encouraging students to consider water as a sacred resource. In preparation for a tour of the Hopi springs, he requested that students be respectful of the sacredness of water and that they did not bring bottled water to the reservation, but rather their own reusable bottles filled with tap water. He also explained how purchasing bottled water is supporting the commodification of a sacred community resource and produces harmful waste (plastic bottles). Students then visited the Hopi reservation, where a well–respected tribal leader/Elder led students on a 4 h tour of the springs to demonstrate how the Black Mesa coal mining operation had negatively impacted the quality of sacred springs on Hopi land.

Through individual and focus group interviews with CEYLSE student participants, we learned that students were profoundly impacted by the experience – shocked by the negative effects of the Black Mesa coal mining operation on the Hopi sacred springs, but also impressed by the limited access to electrical power on the Hopi reservation. One group of students from CEYLSE went on to present what they had learned about TCE and Black Mesa at both a local and a national conference. Miguel, a tenth grade 15–year–old Native student and CEYLSE participant, when asked by a research assistant about how these activities in science class had "changed [his] behavior, any things [he does] in his regular life," he responded that "the whole subject [of science] in general" has made him change his behaviors and way of life. Furthermore, Miguel, after connecting to the Hopi elder during our visit, became re–engaged in issues of water rights within his own tribe, becoming more active in the youth leadership council in his community. The Hopi visit helped him remember that his nation is not the only one struggling with the injustice of water contamination and inequitable access to clean water: "It's not just happening to me and my community."

Back in the classroom, students connected their experiences at Hopi to relevant issues in their local community, such as the city's over–reliance on coal versus solar power, and the impact of local coal mining in the surrounding mountain range. Students analyzed the local electric company's role in imposing impediments to city residents' access to solar power as well as how those policies disproportionately affect predominantly low–income Mexican American residents on the south side of the city. The local electric company had been attempting to eliminate residents' ability to "bank" electricity credits from solar panels, thereby making it less affordable to own them. Additionally at the time of this study, the coal burning power plant was located on the south side of the city. (Since that time, the local energy company has shut down that coal power plant, due in part to LEY student activism in collaboration with local environmental activist groups.) Students also conducted water and energy audits and researched measures to reduce both energy and water consumption in their homes and school, and studied how, by doing so, they could help their families reduce their monthly utility costs. Additionally, they studied how reducing/reusing waste (e.g. disposable materials) can slow waste production on their school site and in their community and mitigate the need for manufacturing products from new raw materials. For example, Ms. Bell challenged the youth to create new products (e.g. sculptures, water filtration systems/prototypes) from waste

found in their homes, school and neighborhoods (Tolbert et al. 2016). Ramon, a 14–year–old ninth grade student and CEYLSE participant, commented that one of the most important lessons in science had been "how to save water – like how not to use too much of it and what we can do to lower our daily water usage." Miguel reconnected with his own family's sustainability practices, grounded in economic sustainability, "I started saving my plastic cups. I see my grandma do it, but I didn't really pay attention to it [before]."

### *8.3.2 The Case of Global Experiential Academy*

Global Experiential Academy (GEA), located downtown in the heart of a post–industrial city, lies on a block that is wedged between a working class residential neighborhood, a freeway exit, and busy commercial intersection. The city has experienced significant racial segregation since the 1960s, exacerbated by school busing, blockbusting, and diminishing property values. On the other hand, activist communities have also brought economic and community development that have made many downtown neighborhoods into thriving cultural and artistic centers.

GEA is part of a large network of schools that focus on inquiry and project–based learning and that are designed and built for collaborative group work and interdisciplinary thinking and learning. The school building was recently renovated with the primary goal of encouraging collaborative learning. The environmental science class meets in a room that is marked by tall windows that line two sides of the room, and is next to a greenhouse and an open collaborative learning space filled with movable chairs and tables.

Mr. Woodson, the environmental science teacher, joined a school/college partnership program and aligned his class with a nearby university, so that students could earn college credits for his course if they filled out an application and successfully completed the class. The course focuses on global environmental understanding and awareness through overarching themes, including sustainability of urban cities and understanding socioeconomic inequities through historical and structural processes. Students have multiple opportunities for self–initiated projects, such as designing movies about their city and engaging in a sustainability project. I (Alexa) conducted research within this classroom setting on a youth civic engagement and environmental learning. Within the eleventh grade class, there were 14 participants in the research study, predominantly students of color, majority African American.

On Earth Day (April 22nd), the Environmental Science class put on an Earth Day Summit. They invited students from all grade levels in the K–12 school to learn about their self–initiated sustainability projects. The projects included: making recycled paper, repurposing old clothing, creating a youth–led environmental organization in the community, creating an urban garden on an abandoned park, making organic pizza, upcycling crayons from elementary classrooms, creating a wind turbine, and making natural soap. The Summit spread across three locations in the school–their classroom, an open gathering space outside the classroom, and a

greenhouse room. Students set up multiple stations to showcase their projects and created an atmosphere of fun: they DJ'd music, led visiting students in planting seeds in the greenhouse, and created a large face painting station. One group's sustainability project involved giving out handmade pizza to the visitors. The group identified a local market that their parents "didn't even know about" and bought organic ingredients to make pizza. Nelly, a member of this group, highlighted that this market was located in the city's center – a 5–min walk from the school and an area that lacks large grocery stores – and that her group's project helped support a local business.

The groups explained the purpose and benefit of their projects to younger students who visited the Summit. Many students shared in focus group interviews that they took pleasure and pride in their production of items that were useful and suggested that reusing items was more sustainable than recycling them. The recycled paper group gathered orders for booklets they planned to sell ($5 for a 10–page booklet). One member of this group, Shayne, explained their project in terms of environmental sustainability, stating:

> Instead of throwing away our paper, we just made new paper. Instead of being wasteful and then going back out and buying more paper and cutting more trees, we used our scraps of paper to make new paper, which we weren't going to the store and buying new paper which brings the level of trees down, which is another way that it is causing deforestation and stuff like that.

The group that repurposed used clothing constructed a large denim apron with many pockets. Students in this group shared that they realized that the upcycled items could be useful to others, could earn them money, and could save them money through reusing old or discarded items. Another group wanted to create a community garden. Students contacted the city and were granted permission to plant a garden on an underused lot near their school. Nate, a student involved in the project, stated that he saw this as "sustainable for the community." J.J. added that this could lead to eating locally and decreasing a community's reliance on importing foods from long distances, because "people wouldn't have to waste gas to go to [the grocery store] or Walmart to get food, they could just go to the garden and get whatever they need."

## 8.4 Caring for Land and People: Attending to the Ecological and Economic Dimensions of Sustainability

Consider how in the two case studies students engaged with ethical dimensions of caring for land and people. What we have learned from youth and educators in our research is that care and empathy for land and people can be fostered within school curricula and aid in disrupting the ideology of consumerism. In the case studies, we see youth begin to articulate and carry out more ethical economic and environmental practices in personal, school, and community settings.

In the coal mining example, we see how students came to better understand the ethical and environmental impacts of nonrenewable energy consumption through a case study approach of the Peabody Coal operation. Central to this experience was interacting with community members who had been involved in organizing against the operation, as well as seeing first–hand how coal mining has negatively impacted historically marginalized Native populations in the Southwest. Students also explored traditional Indigenous ethical perspectives on land use – namely, water as sacred. This case study provided students with yet another example of how unfettered consumption has dire consequences for land and people – and those consequences are disproportionately severe for economically oppressed people. Through this investigation, students experienced opportunities to develop empathy for marginalized communities outside their own, while also connecting the experiences of others to struggles they themselves face as residents of low–income neighborhoods. Ms. Bell, the science teacher, then helped students brainstorm ways to use the Peabody Coal case study as a context for reflection and action in their own school, home, and community. Students were encouraged to see connections between caring for land and people and ethical engagement with economic and environmental processes as interrelated and inseparable.

Within the youth–authored sustainability projects, we saw a variety of ways in which consumption practices were positioned in relation to both economic and environmental sustainability. One of the strongest themes that emerged across multiple sustainability projects was the integration of economic and consumer practices alongside environmental sustainability. In the sustainability projects described above, environmental sustainability was positioned as a significant – but not as the only – defining characteristic for the youth's projects. Instead, youth and their teacher viewed significant economic factors related to the process of consumption as necessary and interrelated aspects of pursuing environmental sustainability. Their teacher fostered this integration in the project's design, which stated "There is evidence that people agree that we need to live more sustainably but don't always act in a way that leads to sustainability of the earth's natural and human systems." As the projects were enacted, youth wove ethical and sustainable forms of consumption into their projects as they positioned consumption through multiple dimensions of caring for land and people. Youth also demonstrated caring for people through care for students' health and well–being with organic food consumption, care for the economic survival of their local community through local consumerism at an inner–city market or growing one's own food, and care for personal economic well–being through selling the goods they created. Many of the projects simultaneously demonstrated care for land, which was demonstrated in their recognition of both the resource production costs for land and people and for the after effects of consumption, or the disposal of the products they use. This was especially seen in the paper recycling and crayon and clothing upcycling projects. Within these projects, youth applied an ethic of caring for land and people to think about all aspects of economic consumption – extraction, production, distribution, consumption, and disposal.

We argue that teachers of students in economically oppressed communities should consider issues of sustainability and consumerism within the larger contexts

of students' own economic needs and lived experiences. For example, the principal of LEY, the school in the first case study, has remarked that many of the current approaches to sustainability education, and even critical education, fail to attend to marginalized students and families' own economic realities and limitations. Therefore, though these approaches may broaden students' awareness of environmental activism and/or sustainability, in the end, he remarks, "they're still poor." In the two cases described here, sustainability education is interwoven with economic oppression in important ways. Students associate sustainability and environmental activism with caring for oppressed communities including their own families, but also attending to ways that sustainability practice can have small though useful impacts on their economic situation (e.g., selling up–cycled clothes, saving on electricity and water bills, etc.). These cases encourage us to further consider how both science and environmental education, as well as the larger environmental sustainability movement, can be more responsive to the economic circumstances of oppressed communities.

While we have begun to explore relationships between economic oppression and environmental learning here in this chapter, we also wonder what is the responsibility of those who live in economically privileged communities to those who live in economically oppressed communities, and how schools can address this responsibility in science and environmental learning. We recommend that conceptualizations of care and affect be expanded to include caring for the youth and communities who suffer most from unfettered capitalism while also embracing the entangled and interdependent relationships among human and more–than–human communities. Research on science and environmental education in schools has rarely taken on these critical issues. In this chapter, we have demonstrated how through school science, youth become more critically aware of consequences related to overconsumption and unfettered consumerism while coming to understand its deleterious effects on land *and* people, particularly marginalized communities–including their own. As they re/learn sustainable practices, they attend to *both* ecological and economic dimensions of sustainability–caring for both land and people.

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**Sara Tolbert** is associate professor of education in the department of Teaching, Learning, & Sociocultural Studies at the University of Arizona. Through critical qualitative, feminist, and participatory research methods, she investigates how teachers can facilitate caring, contextually authentic science learning experiences and engage youth with sociopolitical and community issues in science. Prior to becoming a professor of education, she taught science and environmental education with/for teachers and minoritized youth in economically oppressed communities in the U.S. and abroad.

**Alexandra Schindel** is an assistant professor of education at the University at Buffalo. Alexa's research examines how formal school science teachers and the youth in their classrooms engage in teaching and learning science in ways that mediate social and environmental justice. She examines how curricular experiences can be academically, socially, and politically empowering for young people. Her current project with Sara Tolbert is a teacher–researcher collaboration that leverages science teachers' expertise and knowledge as social justice educators to explore how youth engage in personal and social transformative action.

# Chapter 9
# Teaching About Sustainable Production and Consumption

**Helen Kopnina**

## 9.1 Education for Sustainable Development and the Concept of Sustainability

In the context of the re–evaluation of environmental education (EE) and education for sustainable development (ESD) at the close of the Decade of Education for Sustainable Development, which lasted between 2005 and 2014, sustainability has become a major issue (Huckle and Wals 2015). Corporate, political, and citizens' powers to transform current patterns of production, consumption and distribution are crucial in order to achieve greater environmental as well as social justice, and education remains the main vehicle of transferring knowledge and skills to achieve this transformation. Education for and about sustainability tends to involve competencies that enable students to develop their knowledge of sustainable production strategies as well as knowledge about the consequences of their consumption choices (Andersson and Öhman 2016). The mainstream sustainability models, summarized by, among others, Washington (2015), tend to focus on eco–efficiency and minimizing environmental damage, failing to address the feasibility of long–term sustainability. The damage is simply minimized or negative effects delayed rather than root causes of unsustainability eliminated (McDonough and Braungart 2002).

According to the critics of the so–called "triple P" conventional model (i.e. people, profit, planet), it is questionable whether the objective of balancing social, economic and environmental triad is feasible in the first place, since human equality and prosperity can hardly be achieved with the present rate of population growth

H. Kopnina (✉)
Faculty Social and Behavioural Sciences, Institute Cultural Anthropology and Development Sociology, Leiden University, Wassenaarseweg 52, 2300 RB, Leiden, The Netherlands

The Hague University of Applied Science, The Hague, The Netherlands
e-mail: h.kopnina@hhs.nl; h.n.kopnina@fsw.leidenuniv.nl



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and natural degradation (Rees 2009). In fact, the stated goal of maintaining economic growth, re–distributing of wealth while simultaneously keeping the health of the ecosystems intact appears to be naïve, misleading and oxymoronic (Rees 2010). The promotion of economic development in the quest for ecological modernisation (the idea that environmental and social conditions will improve when wealth and technology further develop) may have caused more harm than good in promoting a system of production and consumption that is essentially unsustainable (Washington 2015). Foster (2012) has noted that the current modules of sustainability that try to address issues as diverse as global climate change and the loss of biodiversity have simply failed, and the sense of optimism that is shared by many proponents of sustainable development in general, and ESD in particular, give little more than false hope. Without systematic and radical reform of the present growth paradigm and the models of current capitalistneoliberalism, sustainability becomes all but impossible (Foster 2012).

This implies that sustainable lifestyles promoted throughout the DESD that encourage young people to reflect on their personal consumption behaviors, assumptions and experiences, need to include meaningful ways in which sustainability frameworks can be evaluated. These ways should enable students to "analyse global and personal patterns, causes and impacts of consumption and to unfold the ethical dimension of reducing the social and ecological impacts of human productive activities at global and local levels" (Heiss and Marras 2009, p.182 in Huckle and Wals 2015).

One of the problems of unsustainability is waste. According to Girling (2011), most of the raw materials used in manufacturing are already lost before finished products leave the factory and about 80% of sold products are thrown away by consumers within the first half year of their lives. While the idea of 'sustainable consumption' seems appealing, without the possibility of decoupling economic growth from resource consumption, the ideal of sustainable consumption is often questioned (Kopnina 2012; 2016a, b; 2017), not the least because of the so–called rebound effect or "Jevon's Paradox" (Greening et al. 2000). The rebound effect refers to the effect of technological improvements on actually stimulating more consumption. Since production is related to consumption, one of the associated risks of subversion includes stimulating of consumption of "green" products, rather than absolute reduction in consumption. The contemporary emphasis on "green consumerism" might also be driving more guilt–free consumption while the larger problems of sustainability remain unsolved (Zizek 2010) (Kopnina and Blewitt 2014). In the case of energy efficiency, it was demonstrated that savings associated with efficiency gains are reallocated to increased consumption (Isenhour 2015). Most of the so–called sustainable products are still produced in a linear system in which products are made of raw materials, used, and discarded. This "cradle to grave" process that, despite good intentions targeted at "eco–efficiency" (doing more with less) was criticized for leaving the existing industrial growth–based destructive system intact (McDonough and Braungart 2002).

Thus, the approach of sufficiency that limits what is produced or consumed in absolute terms was proposed (Figge et al. 2014). Sufficiency exemplifies alternative to conventional eco–efficiency models of sustainability, such as the steady state

economy (Daly 1991), Cradle to Cradle (C2C) (McDonough and Braungart 2002), and the circular economy (Webster 2007). The steady state economy is based on a steady sustainable population and a minimized throughput of resources (Dietz and O'Neill 2013). Yet, research on perceptions of circular or close loop production and consumption in young people in education is usually limited to studies that discuss the conventional models of sustainable consumption (Huckle 2012; Kopnina 2013).

The circular frameworks are often discussed as hopeful alternatives to the "mainstream" sustainability approaches, emerging from industrial symbiosis or industrial ecology. The American architect William McDonough and the German chemist Michael Braungart (McDonough and Braungart 2002) have argued that a new post–industrial revolution is needed to reverse unintended negative effects of industrialization. This revolution should ideally develop the types of products that stay in the "loop" – without materials that need to be thrown away. C2C framework (McDonough and Braungart 2002) proposes a radical re–evaluation of the methods of production, and the re–orientation toward a goal of an unproductive–waste–free system that equates waste to food.

Addressing this goal, an educational charity, the Ellen MacArthur Foundation promotes debate and discussion around the possibilities inherent in just one of these models: a transition from today's predominately linear economy to a circular economy (Webster 2012). Ellen MacArthur Foundation encourages re–thinking of business models in relation to product design as well as forward and reverse supply chains in order to reach and maintain operational efficiency (Lieder and Rashid 2016). In practical terms, this implies that the products need to be designed in such a way that the entire supply chain, from raw materials to waste, becomes "circular". This also requires economically feasible value recovery activities as part of efficient closed–loop supply chains (Lieder and Rashid 2016).

The circular economy models are not without limitations as they can be used to justify further "business–as–usual" growth (Washington 2015). The 'pioneers' of circular economy, or C2C have indeed sometimes profited from setting up certification systems, limiting the global applicability of their concepts, or sometimes cooperating with companies are far from strictly adhering to these frameworks (Brennan et al. 2015). Ellen MacArthur Foundation sees circular economy, as advertised on its website, as a "new engine of growth".

In this chapter I shall explore how students can be taught to distinguish between linear and circular models and how the pitfalls of subversion can be avoided. The following sections will discuss different sustainability models including areas in which subversion is possible. The implications for teaching circular economy to bachelor's students will be discussed within the case study of an experimental online course piloted by vocational schools in Rotterdam, Utrecht and The Hague universities, and Leiden University College in The Netherlands. This course was targeted at increasing students' awareness of alternatives to mainstream production models.

## 9.2 Contesting Sustainability Frameworks

The circular economy model emphasizes the role of diversity as a characteristic of resilient and productive systems (Brennan et al. 2015). Translated into business practice, this involves the private sector in seizing business opportunities within manufacturing based on a system of product loops consisting of reuse and repair activities (Lieder and Rashid 2016).

Based on these insights, the idea of circular economy was propelled forward by reports by the Ellen MacArthur Foundation and other initiatives stimulated by both government and business stakeholders (Brennan et al. 2015). The circular approaches are basically critical of conventional approaches to sustainability which seek to reduce rather that eliminate damage. Even the well–intentioned practices such as recycling, lead to mostly down–cycling, where materials are reused to make products of lower quality, which require energy to be actually given new (and lesser) life. As the authors of C2C reflected, a bad thing should not be efficient. Eco–efficiency, as in the case of "saving electricity" the authors argue, will only prolong the essentially unsustainable system, in which electricity, for electric cars for example, still comes from fossil fuels (McDonough and Braungart 2002). Rather than down-cycling (converting valuable products into low–value raw materials), upcycling (converting low–value materials into high–value products) was proposed.

The "waste = food" principle is well illustrated by the metaphor of the cherry tree, with its berries and leaves that serve as food for other species and for formation of the soil (McDonough and Braungart 2002). C2C proposes that only biodegradable materials, such as organic materials and non–compostable materials that can be infinitely re–used should be used. This way, a product can be disassembled and the two kinds of materials can be either used for fertilization or for 'within–the–loop' manufacturing processes that do not require virgin materials. Inspired by such frameworks, some companies have noted that closed loops model correspond with business sense through its potentially immense savings.

Examples of such products are not hard to find, as they were present in all pre–industrial production systems, from buildings made of local materials to biodegradable textiles and clay cooking pots (Kopnina and Blewitt 2014). It can be argued that it is time to go back to the circular systems our ancestors understood. An experience with sustainable companies shows that with smart marketing one can sell old ideas as new.

This does not mean that producers and consumers should revert back to pre–industrial life–style, or that producers will be selling "back–to–the–cave" products. Innovative strategies involve the use of increasingly advanced capacity of solar and wind power energy, the use of transport that ranges from wind–energy powered public transport to solar airplanes, such as Solar Impulse.

## 9.3 The Risks of Subversion

One of the weaknesses of the circular systems is that a product in use for longer (and thus rejecting built–in obsolescence which prompts consumers to keep on buying new products). This implies that direct sales of new products decrease, impacting on–going profits that could otherwise be made (Brennan et al. 2015). As Washington (2015) has pointed out, since the economy lives by importing raw materials and exporting waste, economic growth is simply incompatible with ecological sustainability and social equality, as demonstrated by growing empirical evidence ranging from the failure of climate change mitigation (also by developed countries) to persistent economic disparities. The key to solving this conundrum is of the steady state economy with fixed population and a constant sustainable throughput of resources.

Critical observers have noted that companies that get certified as C2C or good practice examples on the Circular economy are far from realising the necessity of decoupling resource consumption from economic growth as many innovative designs still strive towards maximising the latter and making profit. For example, some of the case studies listed on Ellen MacArthur website are not very 'circular', other than in changing some minimal elements within the overall linear model. One of the companies listed is Autocraft Drivetrain Solutions, which provides remanufactured diesel and petrol engines, transmissions and machined components to the automotive industry. Autocraft offers a full remanufacturing solution including core collection and storage, strip down, and identification and supply of replacement parts. Yet, other than attempting to recover components for the automotive industry, Autocraft's ultimate goal is expanding into other types of components as a path for further growth, as stated on the website of Ellen MacArthur Foundation. A similar case is described by another listed case study: the Coca–Cola company that seeks to increase the recyclability of its bottles. As one of the case studies below will demonstrate, obviously, recyclability is a far cry from upcycling, and neither does Coca Cola offer any other 'circular' process and product transitions. As the case study below will illustrate, circular economy and C2C can also be coopted to justify business as usual models.

## 9.4 The Case Studies at Vocational Schools

This case study is based on the minor Circular Economy in the Cloud, an experimental online course piloted by Universities of Applied Science (vocational schools) in Rotterdam, Utrecht and The Hague International Business Management Studies (IBMS) departments. The course started in September 2014 by the Rotterdam Business School and the author of this chapter was in a position of tutor/assessor. The program was used as trial for introducing the online course on circular economy on a European level. The intention of examining this case study was to use the

experience from teaching this course, and evaluating results to recommend if successful, and improve, if needed, the theoretical content used for preparing students for distinguishing between linear and circular models.

The main objective of this course on circular economy, given between September 2014 and February 2015, was to teach students what circular economy is and how Small and Medium size Enterprises (SME's) could make the transition from a linear business model to a circular economy business model. 68 students were initially enrolled in the minor). The author of this chapter has supervised 2 out of 17 original teams of students – 4 students in one group, 5 in another group.

The minor had a strong practical component, with knowledge and experience sharing through the cloud (the online platform) being key to the quality of the student deliverables. Of the international students the majority was Dutch, followed by European, South American, and Chinese students in their second and third year of study. Most of the students were between 21 and 24 year old, evenly divided between males and females. All students had a background in international business, marketing, finance, and branding.

The students were supposed to improve the ability to combine knowledge, skills and attitude to show expected behavior when performing a professional task in an international business context. Seventeen SME's were selected on the basis of their general agreement and interest to participate and students could subscribe to work with a company. SME's were willing to participate because they expected to benefit from the practical solutions the teams were supposed to offer. Teams of up to five students were formed.

It was assumed by students and lecturers that the companies would benefit from keeping up–to–date with the most effective techniques like in procurement and inbound logistics concerning circular economy. The intention was that companies develop the closed–loop production technologies or tools for enabling circularity of production processes that will give them competitive advantage over "linear" competitors. Overall, the aim of the assignment was to critically consider the aspects of added value to product/service containing circular economy aspects.

## 9.5 Description of Companies

The two teams that the author has supervised involved a project with a company that made bridges ("Bridges") and a company that is specialized in renting camping equipment ("Tents").

Bridges was founded in 2012, located in facilities provided by the Technical University of Delft. Bridges is separated into three departments: Engineering; Research and Development/Innovation; and Products (bridges and pipes). The student group worked with the Products division. The bridges are manufactured from steel, plastic, resins and fiber, which are provided from two main suppliers. These bridges have the following advantages over regular wooden bridges: "Expected

lifetime of hundred years, no maintenance required, easy to implement, and zero erosion from nature" (Company website is anonymous).

Additionally to preparing a report advising how the company should apply the circular economy concept to their business, market expansion was one of the central aims of the student project. The company found out that there is a demand for 500 bridges to be replaced annually in the Netherlands. Apart from the conventional wooden bridge manufacturer, there was one main composite bridge manufacturer with a capacity of 100 bridges annually, leaving a capacity of 400 bridges to be targeted. In the long–term, the company wanted to expand to other European countries.

Tents specialises in tents delivered to festivals and partners with Sita, Europe's second largest waste management company. By recycling the materials that are left behind and redesigning the tents by using fewer materials, Tents claimed that it was able to reduce the carbon footprint of festivals by recycling the tents into a high quality granulate used for future tents. In the initial meeting with the students, reported in the initial student report, the company claimed that the tents are made from 100% recycled film that is also used in agriculture. This was referred to it as "ag plastic" and Plasticulture, with the application of this type of film found in many products from nursery pots to crop row–covering material. Through a deposit scheme, Tents tried to encourage the user to return the tents to them. The tents were either recycled and rented out again or returned to the materials' supplier (from the company's website, as well as from initial interview with the students, it was not clear who the supplier was or what would happen to the tents after they were returned to the supplier).

In the consequent meetings with the company director, the students have reported to the researcher/instructor that the supplier was "probably based in China". The company's director has admitted in the conversation with the instructor that the current model of Tents is far from the ideal of "upcycling" or being a complete circular economy operation, but the Tents is willing to consider change for the better.

Besides the aim of students to advise the company to transit from a linear to a circular model of production, the company was particularly interested in expanding its market to the United Kingdom. According to guidelines given to students, the plan needed to contain an outline of the number of festivals, attendees, turnover, margins, archetypes of the UK–festival market, a list with possible partners and analysis of the competition.

## 9.6 Findings from Case Studies Tents and Bridges

### *9.6.1 Tents*

Students analyzed the current inbound/outbound logistics, documentation provided by the company, noting that the current products are bought from Asian suppliers. The supplies need to be transported to the production sites and from there to the Netherlands to be transported to the targeted locations at the festivals or the homes

of the clients. The students noted that the problem with the current way that the products are produced and transported is the high costs and $CO_2$ emissions.

Students emphasized in their written report that there are several ways to improve the current inbound/outbound logistics. Proposed improvements with the inbound logistics included production at local sites, finding local suppliers and revising shipping to other places than the festivals for outbound logistics. If Tents could be available at the camping sites of festivals, this would create the desired result: people coming to festivals by public transport. Another way to promote this could include giving a discount when a public transport ticket is shown. The students suggested that the delivery method can be improved by combining delivery with other cargo, or delivering products by public transport. Ideally, the tents could be stored on the campsite.

To lower associated costs, the group suggested that customers could rent the tents. In this way, each tent can be reused several times, so fewer tents have to be produced. The students wrote in their report: "when a tent is damaged the customer will not be able to get back their fee and when an inner tent is dirty it can be replaced, washed or reused in another way." Yet, the students noted, this means that the current business model needs to be changed.

As for the use of resources, the students have noted that recyclable plastics and cotton fiber mass were produced in China. The students have contemplated the use of materials that could extend the longevity of the tents to make them more suitable for refurbishing, transforming the used tents into parts for a new one, using a repair kit for the current tents. While the main business was renting airbeds, tents and sleeping bags, it could be supported by additional services, such as cleaning, repairing and, if needed, replacing inner tents.

### *9.6.2 Bridges*

Reporting on the feasibility of transition to the types of material that could remain in a closed–loop system in their evaluation interview with the instructor, the students reflected that they were refused information about the material use in the whole supply chain. One of the students has reflected: "I think they [the company] had no interest in circular economy in the first place. I think they were just thinking of expanding… and we [as business students] could help them…". Indeed, as reported by other members of the group, the most important objective of student participation, as far as their sponsor was concerned, was to provide the client with an analysis that portrayed the company as sustainable. In accordance with the company's wishes, the group was set out to advise Bridges how to create a competitive advantage based on the value chain and material analysis, no matter how circular or linear the processes are.

In their final report focusing on desk research about materials used for bridges, students distinguished synthetic fibers, the raw materials used to create synthetic fibers, such as raw petroleum (carbon), silica (glass), and basalt (ceramic) and natu-

ral fibers found in plants. These include cellulose fibers, animal (protein) fibers and minerals (such as asbestos, which is now banned due to its carcinogenic qualities). As the student teams have found out in the desk research section of their report, most natural fibers have different specifications and functions that highly depend on the environment in which the plant grows. In an evaluative interview with the instructor the students reflected that most of these materials can be infinitely re–used rather than recycled after productive life of the bridge has ended.

However, it appeared that these suggestions would require an overhaul of the existing business model. According to the evaluative interview with the team after completion of the project, the company supervisor has communicated to the students during the last stage of their project that the Bridges will remain true to its original business model as it "proved to be profitable". The feasibility assessment consisted of an evaluation of the company's and competitors' value chains and suggestions how Bridges can be promoted as being more sustainable than competitors.

The group pitched a proposal to their sponsors (both university and company) after 4 weeks. While students recommended that the company address their competitive disadvantage as a "circular economy company", recommendations towards a circular economy approach were incomplete. The student report, while distinguishing theoretically between circular and linear processes, has ended in a vague recommendation that the "Bridges" needs to keep on working towards circularity. In the oral evaluation with the students it appeared that this vagueness was due to the fact that the students began to doubt the feasibility of the transition, as well as the company's willingness to undertake the necessary steps. The obstacles to the successful implementation were the lack of management's commitment to the project and the unwillingness of the company to change its business model.

## 9.7 Reflection on Student Projects

According to the documents of the DESD the "basic vision of ESD is a world where everyone has the opportunity to benefit from education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation" (DESD 2005, online). In circular economy too, essential future developments for implementation require more extensive work in the area of social awareness and new business models. Indeed, "educational approaches in the area of value management are necessary to change the prevailing perception of waste and uncover the potential of circular product systems and their competitive edge" (Lieder and Rashid 2016, p. 13).

In order to learn about sustainable lifestyles, particularly in relation to consumption and production, the students needed to learn alternative production models, as well as overcome a number of practical challenges. One of the most crucial challenges to achieving transition from linear to circular model requires "economically feasible value recovery activities as part of efficient closed–loop supply chains"

(Lieder and Rashid 2016, p. 13). The economic feasibility of such transition was undermined by the reality of financial constraints described by the sponsor companies.

Since the students in some cases were refused information about materials used or about the whole supply chain or parts of it, it appears that the learning exercise described here was largely unsuccessful. There appears to be a degree of mismatch between expectations of the company and the students on the one hand, and mismatch between theory and practice on the other hand in the sample of companies that the student teams approached.

These mismatches had to do with a number of factors, including the recruitment method, in which the companies were not explicitly informed about the circular economy models nor appeared to have a clear understanding of what these models entail. Rather, the "business as usual" qualities were sought after – students' expertise in marketing, branding, and finance. Perhaps unintentionally, it appeared that the reports of business students could help companies to underline their comparative advantage of being green and even appearing to want to go further.

Second, sponsor companies have realized half–way through the project that transition towards a radically different business model was impractical, expensive, or altogether impossible given financial constraints. The Tents company supervisor, in a meeting with this researcher, has admitted that changing production processes, including materials and transportation, will not be considered, as the company has no surplus capital to invest in this costly change.

Thus, the sponsor companies experienced practical constraints when confronted with the need for the radical overhaul of established practices within the entire supply chain and the question of financial viability of the "ideal scenarios" of linear–circular transitions. In their oral evaluation of their experience, the students have reported that they started doubting the feasibility of such a transition for companies either within outdoor equipment and rental service, and urban infrastructure industries. As one of the students from the Tents company has reflected in an evaluative interview with the researcher: "We thought we could just… suggest change and they [the company] will do it… We didn't know they didn't have money… [or] how much exactly they need to invest to change their… [supply] raw materials… I am not sure it is always possible… that companies can afford to change… even if they want to".

Another mismatch observed was between what students learnt in macro–economic theory and the application through micro–economic scenarios in small companies. The real–life examples have confronted both students and companies with difficulties of linking one small company to global supply chains in such a way that all stakeholders – from producers of raw materials to consumers – could contribute to the overall re–orientation of production. As a result, the students were disappointed with their results.

Yet it is important not to throw a baby out with the bathwater. When considering Cradle to Cradle and circular economy, it is important to distinguish between what is feasible and realistic and what is ideal. In the context of this case study, it did not appear that the students made a meaningful contribution to the companies, or that the companies were willing or able to make the transition. However, the students did

gain critical learning experience, and the companies reportedly did consider the possibility of change in their current business model (Kopnina 2016a).

## 9.8 Case Studies Leiden University College

The author was also involved in instruction of students of the advanced course Environment and Development (E&D), the elective advanced course at Leiden University College (LUC). For the course period reported here, from August to October 2016, the sample consisted of students with ages varying from 22 to 24, with 10 males and 11 females. In E&D there were 21 participating students. One of the many aims of the course was to encourage the teams of 4 students to come up with suggestions for Cradle to Cradle or circular economy products based on the largely theoretical study of different frameworks of sustainability (for detailed description of the course see Kopnina 2017).

One of negative examples students have found was posted on Ellen MacArthur's Foundation website by Coca–Cola Enterprise (CCE). Using the case study *Coca–Cola Enterprises; increasing post–consumer plastic content in packaging*, the student wrote, "we are able to recognize a case of greenwashing". Coca Cola states that it is "committed to maximizing the usage and value of the plastic used in bottle production", whereby they decided to invest in Continuum Recycling, a plastic reprocessing facility.[1] The case study states that at each stage of the packaging sector, CCE is trying to improve the overall recyclability of their product, reduce the amount of materials they use and use more renewable content in order to maximize the usage and value of the plastics used in bottle production.[2] The following diagram (Fig. 9.1) is given to show the cycle of their bottles and how they are aiming towards a circular economy.

The student has noted that in CCE advertisement, CCE uses 6% of renewable materials, 64% of virgin materials and 30% of recycled materials in their bottle production. Initially the large percentage of virgin materials, defined as "resources extracted from nature in their raw form", used in its plastic bottles seems like they are becoming more environmentally friendly as they are 100% recyclable although not biodegradable or compostable.[3] However, these virgin materials include sugar cane juice and/or molasses, whereby a case of upcycling can be identified as CCE is converting low–value materials into high–value products that become more desir-

[1] Coca–Cola Enterprises; increasing post–consumer plastic content in packaging. (n.d.). Retrieved October 23, 2016, from https://www.ellenmacarthurfoundation.org/case–studies/increasing–post–consumer–plastic–content–in–packaging

[2] Coca–Cola Enterprises; increasing post–consumer plastic content in packaging. (n.d.). Retrieved October 23, 2016.

[3] Virgin Materials. (n.d.). Retrieved October 23, 2016, from http://www.caslab.com/Virgin_Materials_Meaning/ and What Is the Coca–Cola PlantBottle? (n.d.). Retrieved October 23, 2016, from http://www.hpcorporategroup.com/what–is–the–coca–cola–plantbottle.html

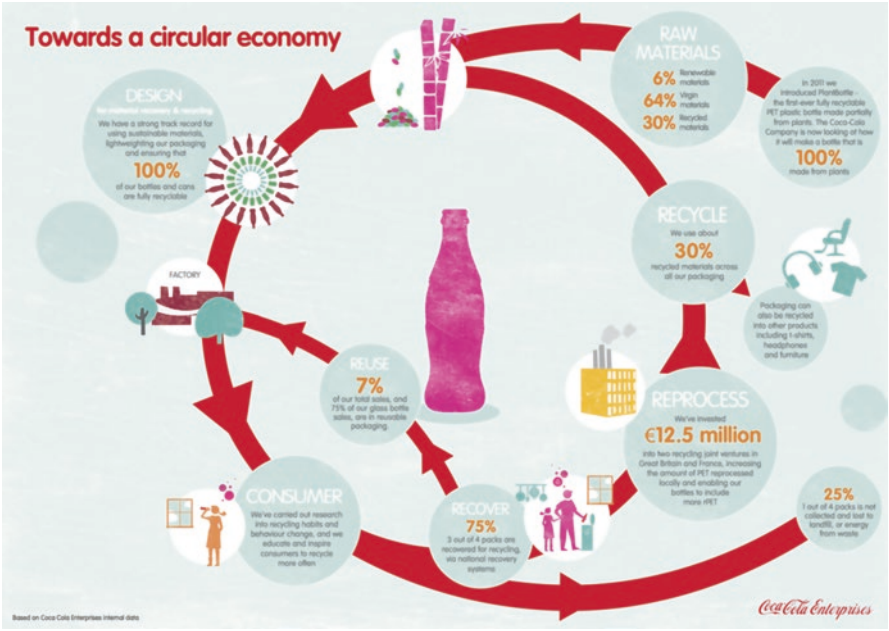



**Fig. 9.1** Towards a circular economy, the Coca–Cola Bottle (Coca–Cola Enterprises; increasing post–consumer plastic content in packaging. (n.d.). Retrieved October 23, 2016) (Adapted by a student)

able to consumers. However, this means that large amounts of these virgin materials need to be extracted in order to keep up with the high volume of production. Whereby CCE neglects to mention where they extract these goods from, the amount they use, its shipping $CO_2$ emission, the resources needed to extract these natural resources and delivering them to their factories as these consist of endless amounts of pollution and harm to the environment that the new bottles don't fully compensate for. However, Coca–Cola made the announcement that they hope to use 40% of PET or renewable plastics by 2020, instead of virgin goods and only 30% recycled materials.[4] Given this, the student reflected, the company is only promoting that they are becoming "green" in one aspect of their product life cycle; their plastic bottles usage.

The students have also reflected on more positive cases. Exposure of the students to literature from the fields of industrial ecology and ecological economics has inspired one team of students' ideas to look into the case of ecological or "green fabric". One of the teams selected a company that has incorporated the "waste = food" principle in fabric design, branded Climatex, resulting in the fully biodegradable quality fabric which was awarded Gold–level C2C Certification (http://www.

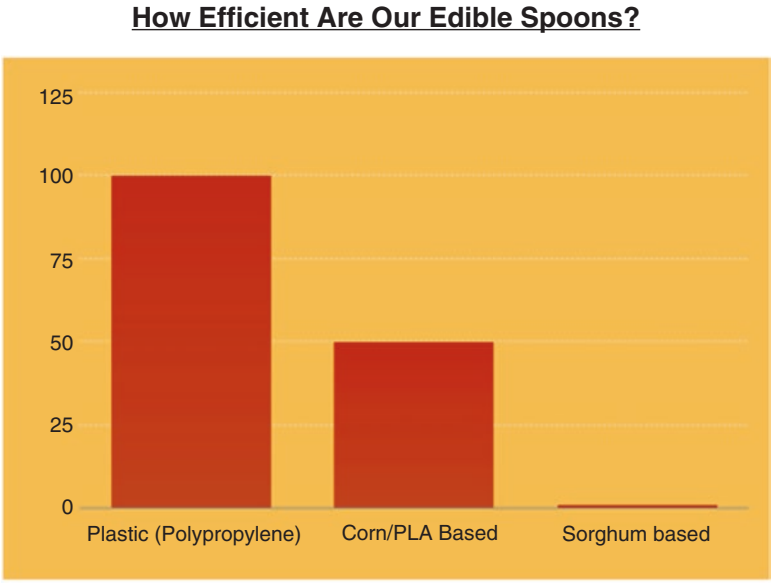
[4] Coca Cola Enterprises to reduce virgin plastic use. (2015, June 10). Retrieved October 23, 2016, from http://www.letsrecycle.com/news/latest–news/coca–cola–enterprises–to–reduce–virgin–plastic–use/


**Fig. 9.2** Climatex (Adapted by a student)

c2ccertified.org/innovation–stories/designtex). Remarkably for normally protective profit–oriented business models, Climatex stresses the importance of transparency of its production and in fact encourages others to imitate its innovation to contribute to the economies of scale (http://www.iehn.org/publications.case.rohner.php). This potentially can make the fabric not just widely available but also affordable for various industries ranging from interior design, healthcare, automotive, transportation, clothing, and shoes. The group has commented that this product has inspired them to think that if such a material can be produced on a large scale, this could signify a significant transformation (see Fig. 9.2).

Another group made a presentation about Bakeys Foods Private Limited edible spoons and other utensils, made of water, sorghum flour, rice flour, and wheat flour, without preservatives and pesticides (http://www.bakeys.com/). The company was established in 2010 in Hyderabad, Andhra Pradesh, India as an alternative to disposable plastic/wood cutlery and bamboo chopsticks. The cutlery was intended for developing countries as these have the greatest amounts of plastic waste and pollution. The spoons have a 18–24 months shelf life and are biodegradable. On the surface of it, the product appeared Cradle to Cradle as one can literally eat one's waste and one uses 'solar income' for plant matter. Celebrating diversity can be related to counteracting monoculture of rice, and the product design is both innovative and traditional (see Fig. 9.3).

The group has noted a few features that have made this product less Cradle to Cradle. Spoons were sold in plastic wraps. From the information the group could




| Manufacturing One Pound of the Material | Energy Used (kWh) | Water Used (gals) | Solid Waste (lbs) | $CO_2$ Emissions (lbs) |
|---|---|---|---|---|
| PP (polypropylene) | 9.34 | 5.12 | 0.029 | 1.67 |
| Corn PLA | 5.37 | 8.29 | 0.042 | 1.30 |
| Sorghum | 0.18 | 1.15 | n/a | 0.19 |

**Fig. 9.3** Bakeys spoons (Graph made by students)

gather it was unclear where the energy used for production come from and it was not clear exactly does the factory in India functioned. There transport used for distributing the small orders of cutlery was also noted as problematic. Business challenges included the fact that edible spoons were two times more expensive than plastic spoons. While the company got funding from the crowd–funding platform Kickstarter, the funding from mostly American donors made the product too expensive for average Indian consumers, as well as too expensive to ship to America to compensate the donors. The students have thought of a number of solutions, including bigger capital that should come from investors in the target market, particularly the Indian wealthy and environmentally–aware consumers, and keeping all distribution in India to lower the cost and eliminate transportation problems. More transparency as to the way the factories are operated, and products delivered and packaged were found desirable.

## 9.9 Reflecting on the Case Studies

Generalizing from the case studies, this chapter has raised a number of questions related to ideal and feasible options for sustainable consumption and production. As Huckle and Wals (2015) have noted, in order to address sustainability challenges, we need to teach our students to link unsustainable consumption to the structures and processes that shape consumer capitalism. The examination of economics of radical alternatives in this chapter was exemplified by production models that reach beyond conventional sustainability with its focus on reducing the damage through eco–efficiency and toward more circular or closed loop models.

In fact, more sustainable production and consumption practices may require policy which can move us beyond consumer choices to reengage individuals in their roles as citizens, helping to effectively and fairly regulate resource use and waste production (Isenhour 2015). Such re–orientation would require the willingness of schools, sponsor companies, students, and perhaps most importantly, "big" actors, such as governments in radical rethinking and re–evaluation of available sustainability options.

The risk of subversion applies to both production and consumption through rebound effect as well as through the continuing domination of economic growth models. Obviously, not everything that is branded ethical and sustainable is actually realistic, as far as delivery of services is concerned. Based on the brief analysis of student assignments, it can be recommended that in the teaching of the circular economy one should be aware of the pitfalls and risk of subversion of good intentions and green–washing. One way to deal with this is to embrace economic and social pragmatism and partially abandon ideal or theoretical objectives of closed loop systems. Indeed, it might be impossible to build a 100% sustainable bridge using organic fibers, or to factory–produce enough edible spoons to serve the lower income consumers of an Indian market without using fossil fuels. To achive this, students need to be taught why certain frameworks are more useful than others in evaluating the 'circularity value'. Recognising the risks of subversion needs to be part and parcel of both research and teaching practice that attempts to address practical challenges of sustainability. This requires examination of actual products and services when linking production and consumption, with particular emphasis on critical examination of the entire supply chain. This is helpful in evaluating the overall "sustainability value" of courses such as those presented above, as well as being able to judge some ideas for sustainable production and consumption as better than others.

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**Helen Kopnina** (Ph.D. Cambridge University, 2002) is currently employed at both at the Leiden University and at The Hague University of Applied Science (HHS) in The Netherlands. At the Leiden Institute of Cultural Anthropology and Development Sociology she lectures in anthropology and development and environmental anthropology. At the HHS, she is a coordinator and lecturer of Sustainable Business program, and a researcher in the fields of environmental education and environmental social sciences. Kopnina is the author of over seventy peer reviewed articles and (co)author and (co)editor of twelve books.

# Chapter 10
# Challenging Speciesism: Youth Repositioning of Identities as Ethical Adults

**Carolina Castano Rodriguez**

> *It is urgent that we assume the duty of fighting for the fundamental ethical principles, like respect for the life of human beings, the life of other animals, the life of birds, the life of rivers and forests.*
>
> (Freire 2004, pp. 46–47).

## 10.1 Domination, Marginalization and Exploitation: Humans and Other Animals

Despite the growing amount of scientific evidence exposing the unsustainable treatment of animals (see for example United Nations Environmental Program–UNEP 2010a), the domination, marginalization and exploitation of other animals is still a norm (Kahn and Humes 2009). Critical researchers like Henry Giroux (2001) argue that social institutions such as schools shape particular identities and legitimize specific narratives, value systems, social practices and ideologies. Educative institutions often fail to problematize, and instead normalize, unethical social practices that reproduce the domination, marginalization and exploitation of others, particularly of the natural world as described by Helena Pedersen (2010). For instance, school curricula contribute to reinforce the domination of humans over other species, as it was identified in the Australian Science Curriculum (Castano Rodriguez 2015). The contents described in the Australian Science Curriculum positioned humans as separated from other animals, and with dominion over nature, failing to provide opportunities for the construction of identities that challenge the exploitative nature of our current relationship with other animals. In this chapter I further explore two aspects of science education; first, how science education practices promote dominant ideologies that commodify and transform other animals into

C. Castano Rodriguez (✉)
Australian Catholic University, 115 Victoria Parade Fitzroy, Melbourne, VIC 3065, Australia
e-mail: carolina.rodriguez@acu.edu.au



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economic objects, and second, how it could offer spaces to re–construct and transform youth identities into more ethical and critical ones.

Speciesism, a term first coined by psychologist Richard Ryder in 1970 (2010), is described as the validation of the different forms of human domination over other animals. Speciesism ideology contributes to normalize the subjugated status of non-human animals in society. It is reinforced by nearly all our social practices and institutions, including economies that are based on exploitative capitalism and industrial techniques (Nibert 2003). As Melanie Joy (2008) states, speciesism is "arguably the most entrenched and widespread form of exploitation in human history" (p.17). It provides a platform for the legitimatization of unethical practices in which nonhuman animals spend whatever lives they have being tortured until their brutal utilization by humans (Kahn and Humes 2009). These different forms of institutionalization and validation of oppression of animals are significant contributors to an unsustainable lifestyle with regard to global warming and natural resources depletion (UNEP 2010a). For instance, the 2010 UNEP (2010a) report of the environmental impacts of consumption and production stated the higher amount of land and water consumed in industrialized farming practices compare to agricultural practices supporting plant based lifestyles.

Educative practices have, more often than not, failed to integrate knowledge and practices that critically question the subjugated status of nonhuman animals (Pedersen 2010). Important questions about the treatment and commodification of animals in western societies remain absent in many school and university classes (Pedersen 2010). This poses serious educational issues reinforcing a culture in which, as Nel Noddings (2013) states, one does not have to justify inflicting pain on other creatures. To counteract this, education needs to be re–thought. It needs to provide platforms and pedagogical practices that problematize the domination, oppression and subordination of other animals. Particularly, those disciplines that deal with knowledge about animals, such as science and environmental education, need to adopt a total liberation pedagogy. Total liberation pedagogy is described as critical pedagogy that works against all forms of oppression, including those of nonhuman animals (Kahn and Humes 2009). It states that we cannot attain total liberation whilst we are still engaging in oppressive practices against any species. Total liberation pedagogy could provide a platform to critically analyse the socially constructed nature of other species by educating ethical humans who act against the domination of other animals (Kahn and Humes 2009).

Contributing to the conversation of how to challenge the subjugated status that educative institutions in western societies give to other animals and nature, is Nodding's (2003) argument of educating for love of place. Nodding's argues that "an intimate connection with the natural world is a continuing source of happiness for many people" (p. 129) and education should teach to "extend care to all those involved" (p. 130). She emphasises in the urgency to include the study of the human–non–human animal relationships in schools. However, she also argues the need to frame the discussion of the issues surrounding our relationship to other animals within the quest for balance; to acknowledge the complexity of this relationship in the consideration of moral issues. Within this view, a total liberation

pedagogy might not be possible, but the consideration of it could be fundamental in the understanding of the construction of more ethical adults.

In this chapter I critically analyse personal narratives of, first, my own education as a scientist, and second, university students during a class founded on total liberation pedagogy. I describe the positioning and formation/transformation of my and their identities as ethical/unethical consumers.

I start by analysing my own transformation of identity from acritical consumer to becoming a critical and ethical consumer who follows a vegan lifestyle. This process of transformation informs my views and practice for transforming youth consumerism. Following this, I describe an elective unit I designed for pre–service teachers aiming at challenging students' views and practices that support unethical lifestyles.

The narratives I present contribute to an understanding of the formation of youth identities as consumers of nature, and how education could integrate themes of animal's rights, environmental justice and anti–consumerism to provide platforms for youth to reposition themselves as ethical adults.

## 10.2 Lack of Critical Spaces in Education as Leverage for the Emergence of Resistance and Activism

When someone asks me why I decided to become an educator or why am I vegan, my answer is the same: because of my love for nature and all species, and my willingness to live a more ethical and less consumerist lifestyle. It is the love and care for all species that also drove me to study Biology. It was this same love and care that made me aware early on during my degree as a biologist of the desensitisation process toward other animals and the instrumentalist view of nature that was promoted. It was this acquired awareness that drove me towards questioning education and at the same time encouraged me to contribute to transform the lives of others to resist this desensitisation process.

Since Primary school I showed and expressed my interest in other animals and nature. When I chose to study Biology it was because of the possibilities it offered to engage in working with and towards nature. However, what I was presented with by the professors while studying Biology was a process of desensitization and normalization of an instrumentalist view of other species and nature. The identity as a biologist that was promoted in the classes I participated was formed and shaped on the bases of objectivism and superiority over all other species and nature. For instance, we had to dissect animals during several classes and there was no discussion regarding the ethics of this practice and its relevance. This was not very distant to my experiences in Primary and Secondary school were I had to bring animal organs such as a cow's heart and observe animals kept in the classroom such as fish. In none of these classes were there opportunities to pose moral questions about these practices or the reasoning behind it.

As Pedersen (2010) argues, “emotional relations with animal individuals are not fully compatible with a scientific discourse that often values detached objectivity” (p. 37). My Primary, Secondary and University education did not offer any spaces to critically examine the dominant ideologies that commodified other animals and nature. The experiences I describe above were common along my school and university years. In no class I remember a discussion about whether we agreed with these practices or if they were morally justified. My experiences are not distant to what some government initiatives provide as guiding policies for universities and schools. For instance, in Australia, the national science curriculum does not provide opportunities to challenge speciesism (Castano Rodriguez 2015). Moreover, it positions humans as owners and carers of nature with a superior role in which we need to administer the natural world.

It was until after I obtained my university degree that I started reading about animal liberation theories to fill in the gap that my own education had left. It was my experience while studying Biology and the year I worked as Molecular Biologist that motivated me to investigate why as a society, and as scientists, we consume the messages of our oppressive relationship with other species without much questioning.

The experiences I had motivated me to search for other spaces that supported my transformation and ultimately led to the reconstruction of my professional and personal identity. After a year working as a Molecular Biologist I decided to change careers to education. By reading about animal liberation and anti–oppressive theories, I decided to become a vegetarian and then progressed towards mostly veganism. The lifestyle I have chosen is not only an ethical choice but also a form of resistance against capitalism and consumerist practices; a contribution to “ways that disrupt the dominant corporate order” (Sandlin et al. 2009, p. 99).

### *10.2.1 Lifestyles as a Form of Resistance*

Factory farming, the industry involved in meat and dairy production is a multimillion dollar industry that has much influence in media, politics and our daily life choices (e.g. Singer and Mason 2007). Veganism is an anti–consumerist choice that challenges money–making businesses that operate under conditions that provide some of the most brutal treatment of other animals with devastating effects to the environment (Kahn and Humes 2009). As stated in the UNEP 2010 report:

> Food production is the most significant influence on land use and therefore habitat change, water use, overexploitation of fisheries and pollution with nitrogen and phosphorus. In poorer countries, it is also the most important cause of emissions of greenhouse gases ($CH_4$ and $N_2O$). Both emissions and land use depend strongly on diets. Animal products, both meat and dairy, in general require more resources and cause higher emissions than plant–based alternatives. (UNEP 2010a, pp. 78–79)

This report poses questions regarding our food production practices and diets. Moreover, in a press release of the launch of the UNEP 2010 report, the message for a shift in diets was presented as a priority:

> Perhaps *controversially* [emphasis added], it also calls for a significant shift in diets away from animal based proteins towards more vegetable–based foods in order to dramatically reduce pressures on the environment. (UNEP 2010b, para. 7)

Despite presenting a plant–based diet as a more sustainable alternative, it is interesting to notice this more ethical and sustainable diet is worded as "controversial." A vegan lifestyle goes beyond food choices. It requires understanding of how other animals are presented and consumed by social institutions, including understanding of how governments influence our consumption and choices. For instance, some politicians from both of the major political parties in Australia have called for the introduction of Ag–gag legislation. Ag–gag legislation has been introduced in several states in the United States during the last 5 years (Royal Society for the Prevention of Cruelty to Animals – RSPCA 2014). It seeks "to prevent individuals recording or documenting the operations of commercial agricultural facilities. Generally, Ag–gag laws target undercover investigators, whistleblowers and journalists" (Voiceless 2014, para. 1).

Surveillance footage has been so far the most effective, if not the only way, to inform the general public of the reality of the animal treatment practices occurring inside factory farms. However, instead of opening spaces for discussions between the general public, the government and the farmers, politicians from both major political parties in Australia have expressed support for the introduction of this legislation and even labelled animal protection activist as "akin to terrorists" (Potter 2014, para. 20). Thus, in an age when unethical practices are not criminalised, but instead are those who try to expose the truth behind the normalization of cruel practices, education needs to be radicalized. This does not mean that everyone needs to adopt the same lifestyle. Instead my call is for educators to open more spaces to expose the issues and present those messages and voices that have been silenced; to provide opportunities for the youth to consider anticonsumerist, anticapitalist and more ethical choices and practices.

## 10.3 Liberation Pedagogy and Re–construction of Youth Identities

As a critical and caring scholar my challenge has been to offer spaces for students to identify how diverse social institutions have shaped the construction of their identities and offer spaces to empower students to envision more ethical ways of interacting with nature. I follow Paulo Freire's (1970) critical education concept of developing students' consciousness by increasing their awareness of the social inequalities that structured their lives and community. However, nowadays, academics committed to liberation pedagogies and academic freedom (such as freedom

of speech, ideas and practices) deal with the growing challenges to coexist with a society in which academic freedom is shaped by an authoritarian age (Sleeter 2008). This is reflected in the students' identities and their struggles in considering views and practices that challenge their own and resist consumerist culture. For instance, during one of my undergraduate classes while discussing the issue of the social and political aspects of climate change, some students stated that they did not believe that climate change was accentuated by anthropocentric practices, or that it had social and political dimensions. I asked them about the sources of information they used to support their arguments and they stated that "well, in the media, in the news, I am sure there are scientists who do not believe climate change has to do with human's actions." When asked further about the scientists and media sources they referred to, one of them replied "to be honest I do not care. We are in Australia and it is not affecting us so why do we need to care about it? I honestly could not care less." This comment was followed by a student stating that the issue she perceived was that no other lecturer and at no point during her high school years was any teacher questioning them about climate change or the impact of their actions on nature. She explained that the school did not provide for critical thinking and therefore they did not feel they have the skills to engage in a critical debate. These students' comments represent the acritical nature of the school curriculum in Australia (Castano Rodriguez 2015).

As Pedersen (2010) argues, the lack of opportunities during the school and university years to consider more ethical lifestyles could be due to political and capitalist forces supporting farming practices that produce large profits. Furthermore, as Richard Kahn (2008) critically reflects on the challenges of sustainability:

> Sustainability is not being realized because, in large part, it represents the antithesis to the political, economic, and cultural status quo of the powerful forces now fuelling the wrath of a globalized mono–society of militarism and transnational capitalist development agendas. (p. iii)

Within this climate, it is expected to hear that lifestyles that aim at reducing harm of other are considered by many as radical choices, perhaps not because of the nature of these choices but because they have not been presented openly in educative discourses or school practices. Thus, not surprisingly, when I first present spaces to critically consider alternative, more ethical practices, my students are faced with complex challenges that most have not experienced before.

### *10.3.1 Radicalizing Youth Experience*

In an attempt to radicalize the education presented to my students, undergraduate pre–service teachers, since 2013 I started to offer an elective unit founded on critical pedagogy and transformative learning theories (unit is the Australian term for course). It aims at exposing students to the oppressive, speciesist practices we contribute to. Cultural Historical Activity Theory (CHAT), as a "theory of human development rooted in dialectical materialism" (Chinn and Hanna'ike 2010, p. 231),

provided the analytical framework to understand the process of transformation of the students as situated within the material and social settings (Leont'ev 1981). It provided a framework to understand the intersubjective process of self–reflection and transformation of my students as nested in historical and cultural contexts, including issues of power and contestation (Stetsenko and Arievitch 2004).

Field notes, semi–structured interviews after end of the unit and students' work samples were collected by another two colleagues. Work samples included personal reflections based on emotional worksheets in which students had to identify their emotional state at different moments during each session. Options included: I feel happy/excited, neutral, sad, stress or upset (Fig. 10.1). Students had to explain their choice and in another worksheet reflect after each session.

In the quotes presented below I use pseudonymous to narrate stories of how the students repositioned themselves as critical citizens and dealt with issues of power, culture and contestation.

The aim of the unit focuses on understanding the different dimensions of society and education that legitimize exploitative and oppressive practices. It provides opportunities for students to explore and consider alternative practices. The unit was informed by Transformative Learning (TL) Theory as the platform for total liberation pedagogy. TL was first proposed by Jack Mezirow in the late 1970s and refers to learning that merges "critical thought with critical action to effect change" (Kitchenham 2008, p. 108). Mezirow's (2000) Transformative Learning Theory is influenced by the work of Paulo Freire (1970). Mezirow (2000) defines transformative learning as a process whereby,

> We transform our taken–for–granted frames of reference to make them more inclusive, discriminating, open, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action. (p. 214)

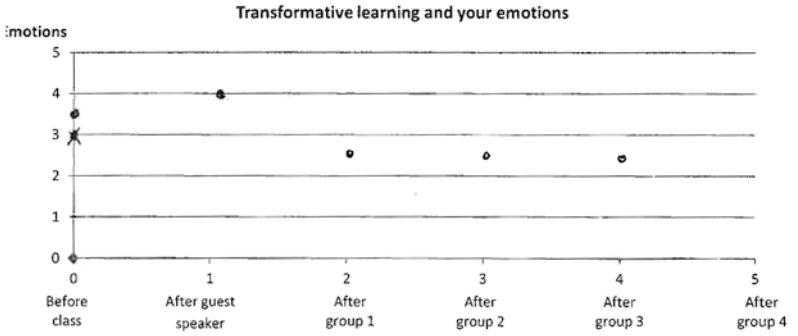
During the first section of the unit students are challenged to consider how their identities have been constructed to consume messages that reinforce oppression of other animals and consumerist behaviours. Students are presented with a list of assumptions such as: Zoos are ethical spaces that promote the wellbeing of animals and support conservation practices, Humans need to consume anima proteins. Students choose the assumption they feel most identified with or pose their own assumption. Students investigate which aspects, practices and institutions in society reinforce and support those assumptions and how it influences their attitudes and views on such practice/assumptions.

During this section students build critical awareness, or what Freire (1974) called "critical awakening." Most students express in their end of class reflection their concern in how unaware they were regarding the issues studied: "[I feel] shocked at how people don't care and why things are not being done about it" and "[I feel] a little bit nervous and ashamed to have believed in what I believed before." In fact, students' discussed how education has not previously challenged them to critically analyse their beliefs and actions. As one student, Norma, stated:

> I would agree I live a life now very passively and would like to have more control because of what I believe in nature and society. (written answer, end of session 1, August 15th, 2015)

**Educating for the 21st Century**
**Transformative learning and your emotions**
**Rate your feelings from 1-5 according to the following scale:**

Happy/excited (5), Neutral (4), Sad (3), Stress (2), Upset (1)




Reasons for your feelings for each activity:

Time 0: Ready to start the day.

Time 1: Slightly motivated to look more into activism, just not sure what yet.

Time 2: Bit stressed out by the fact that the Australian Government can limit freespeech even when it affects the people (Transpacific deal)

Time 3: But upsetting knowing how much meat ~~consumption~~ consumption ~~effect~~ can effect the environment.

Time 4: Sad that humans can treat an animal so harmless as a dog so cruelly, and not understand ~~the~~ how horrible their actions are.

Time 5:

**Fig. 10.1** Example of emotional worksheet used by students during each session

In the emotional graph sheet used, students support their emotions with words such as shocked, upset, frustrated, sad and ashamed when confronted with those social structures that reinforce unethical choices and attitudes. They further question why education and society has not challenged them to consider their choices as unethical and cruel, and critically position themselves regarding media. For instance, some of them use words such as sick, concerned, insulted or confused by the realisation of how society reinforces messages that do not present all the facts and truth:

> I feel sick of how easily people can be manipulated. [Culture and media] are designed to make us feel okay about doing something that is morally wrong (Lyn, written answer, August 15th, 2015)

> The vague language used in media and education plays with emotions rather than tells facts. I feel very concerned about how I can start to measure my own mind when it comes to falling (and not falling) into marketers traps and see the real picture/facts. (Tran, written answer, August 15th, 2015)

Despite these feelings, most students also describe excitement to investigate further about diverse issues that affect their choices and society as in the case of Karla:

> I feel shocked to know a number of new disturbing facts and frustrated that the information is not so transparent. I am glad I know what I do now. Excited to challenge myself. (written answer, August 15th, 2015)

My students' reactions and their concerns reflect the lamentable contradiction of a democratic society that promotes freedom of choice but whose institutions, including the educative one does not problematize and instead legitimizes unethical practices. It is evident that the formation of identities of most of my students as acritical consumers of nature, including other species, has been constructed by an educative system that does not encourage critical examination of the social structures that so much shape our practices. This does not differ much from other studies such as Pedersen (2010) study regarding the messages promoted and those silenced about other animals in different schools.

As critical theorist such as Giroux (1988) and Freire (1970) state, curricula cannot be separated from culture and politics. Critical dialogue is thus positioned in the unit I offer as an aspect needed to change the present conditions of self and the society and to challenge current anti–ecological and oppressive practices. As John Hoben (2015) states regarding Freire's notion of critical dialogue:

> dialogue provides a means of exposing illusion and ideology, since critical dialogue enables the oppressed to decode his or her own culture and the oppressive mechanism found within it. (p. 46)

Silence, instead of perceived as neutral, is reflective of acritical acceptance of situations that do not allow for autonomy or disagreement (Greene 1988). Moreover, as John Hoben (2015) argues regarding the schooling critiques of Austrian philosopher, Ivan Illich, "the fundamental function of modern schooling is at once to reinforce and to obscure capitalism's inequalities" (p. 51). In fact, academics committed to work against consumerist and unethical practices need to be aware that schooling "could lead to a society where education is commodified and even the very possibility of independent thought and action is stifled" (p. 50).

For most of my students, my class is the first time they are confronted to think about how their lifestyles have been shaped by various aspects of society while more ethical choices that challenge consumerist practices have been silenced. The narratives from the students regarding their journey towards transformation carried out during the rest of the unit, provides examples of the diverse aspects that contribute with construction of youth identities as critical and reflective ones.

## 10.4 Transforming Youth Identities

Following from my own experience as a scholar, other studies such as Pedersen (2010) analysis of the educative system or Kahn and Humes (2009) study of emancipatory educators working towards human and non–human animal rights, one will think that educating youth to construct critical identities is a challenge of epic proportions. To work towards the transformation of youth identities from acritical to critical ones who question the status quo of capitalism and unethical consumerist practices means acting against the established unethical structures of society. This is not an easy task, and one has to be ready to face the challenges that will be posed upon us. When students choose to take up the elective unit I offer on Transformative Learning, their process exposes the complexity of challenging their identities.

Following Transformative Learning theory during the second part of the elective unit, students are invited to consider alternative life choices that challenge dominant ideologies. They create campaign videos, identify alternative practices that pose more ethical choices and commit to one of these practices over a period of 3 weeks. Students reflect on the process of repositioning themselves as ethical citizens, in their final written task. Students, such as Farin explain how the process of Transformative Learning has engaged them in considering issues they have never been pushed to consider before:

> [I am] seeing different viewpoints and issues/questions I have never considered before – forcing me to think about the issues. (Final written task, October, 2015)

In some cases, the process is evidence of the reconstruction of their identities. This is the case of Maria, who during one of the sessions initiated a heated debate with another student, Cami, who was a vegetarian and was considering progressing towards veganism. During that debate, several students were still positioning themselves as consumers of other species and nature on the bases that, as Maria argues, "as any other animal, the natural order is that we need to kill others to survive" (field notes, October 11th, 2014). Cami, who presented her views on vegetarianism as a way to resist consumerist and unethical practices, was the only voice in the group during the initial sessions who proposed veganism as an alternative action to challenge some consumerist practices. Her voice was not well received at the moment, and was perceived as "too radical", as explained by Maria in her final interview. Cami's reacted to her peers' comments and during one of the sessions she expressed how she felt judged by her classmates and decided to stop presenting her views to them (field notes, October 11th, 2014).

During the following sessions, I invited activists from animal protection, environmental and human rights groups for guest presentations. During the final assignment, students had to reflect on their learning, and their emotional and transformative process during the unit. Students stated how influential and eye opening the debates with the activists and all conversations that took place in class were.

In fact, Maria, one of the strongest voices initially criticising alternative lifestyles such as veganism, and a mother of one baby girl, described during a final semi–

structured interview her process of reconstructing her identity towards a more ethical one. Reconsidering the conversation that took place with Cami she explains:

> I believe throughout this unit I have felt a level of transformative learning. […] My real transformative learning came from the presentations by my fellow students. […] The level of investigation that we have covered this semester has really inspired me to take my research of world topics to a new level and I find myself really digging into topics and searching all avenues for all information I can get. (Interview, 2014)

Maria repositioned herself towards adopting a vegetarian lifestyle after considering other options:

> The environmental impact of the meat industry is quite extensive and shocking, but it was really the treatment of the animals that has the biggest effect on me and my decision to make the commitment to the cause that I have […] My initial commitment was to eat locally sourced meats, free range meats that have to travel less distances therefore reducing my impact on the environment. I also felt that free range cattle would have a better life than the cattle whose meat reaches our supermarket shelves. As I started to implement this I was committed to purchasing and cooking free range meat, but as I would prepare it, cook it and eat it, my mind was drifting to the information that I had learnt as well as the images and videos of animal cruelty I had seen. Therefore, I really didn't enjoy meat at all anymore, so I have stopped eating it. Interview, 2014)

She further explained how her new knowledge has encouraged her to share her decision with others:

> I really do believe that knowledge is power, so when asked why I've made my choice to follow this diet I quite happily share what I have learnt with both friends and family as well as suggest websites they could research or documentaries they could watch to see the impact a meat based diet can have […] I feel that I've made the right decision for me and am happy to advise people on where they can find information about the impact their choices have on the environment and the quality of life for animals everywhere. (Interview, 2014)

During the classes, the students were involved in critical dialogue deconstructing their identities and identifying the mechanisms by which society legitimizes unethical practices. This critical dialogue also included consideration of alternative views and practices that were often silenced and absent from the popular media and school curricula. As explained by Transformative Learning theory, transformation of views and actions occurs after disorienting dilemmas confront the established views of the person and alternative options are critically considered (Mezirow 2003). This transformation provides a re–construction of identity towards a new one or towards repositioning an identity that was already under consideration but was not fully positioned. Moreover, in some cases, students repositioned their identities from passive consumers of messages that legitimize unethical practices to personal, and in some cases social activism, as a form of exposing to others the new knowledge and alternative practices they have gained (Carter et al. 2014). Thus, pedagogies that aim towards total liberation, such as Transformative Learning, contribute to expose, problematize and challenge the messages that have been legitimized by political, social and educational institutions. They also contribute to develop activism, both at a personal and social level, by constructing identities of resistance.

## 10.5 Are We as a Collective of Educators Sustaining Capitalism or Sustaining Life?

Critical scholars interested in challenging the status quo of capitalism and consumerist practices are dealing with youth populations who are often subjugated to a consumerism acritical culture, at least in western societies such as Australia. My students' comments reflect the illiterate society they live in regarding our interactions and consumption of other species. Thus, as Jennifer Sandlin et al. 2009argue, education needs to foster critical resistance around issues of consumption, and for this educators need to "create more democratic and sustainable spaces within our classrooms, communities, and societies when we are inundated by materialism, consumption, and economic/social/cultural oppression" (p. 99).

Scholars interested in educating youth committed to more ethical and sustainable lifestyles, need to expose those debates and issues that structured curricula and standardized measures often silenced. A critical education needs to problematize unethical and consumerist practices that have been widely legitimized; it needs to "open the policies, discourses and practices of schooling to criticism" (Giroux 1988, in Hoben 2015 p.60). This requires radicalization of the curriculum and pedagogy for transformation, heightening the social and political forces that constrains youth in considering the construction of more ethical identities. Such education could take many shapes. It could for example incorporate ecopedagogy (Kahn 2010), transformative learning (Carter et al. 2014) or ethics of care (Noddings 2013) as a framework. In all these approaches, the focus is in providing youth with alternative choices and practices that are associated with caring for the natural world and with tools to criticize and resist current unethical and unsustainable practices. By incorporating transformative critical pedagogies into our educative practices we sustain life, by ignoring and silencing them we will continue to validate and sustain capitalist, oppressive and unethical practices.

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**Carolina Castano Rodriguez** is a lecturer in science and environmental education at Australian Catholic University, Australia. She has carried out research projects in Australia, Colombia, Ecuador and Argentina, incorporating transformative learning and critical theories to science education within socioeconomic disadvantaged populations. Her main interest is in the link between science education, social justice and ecojustice.

# Chapter 11
# Promoting Mindfulness in Education: The "SURE" Approach

**Nathan Hensley**

> *Can the United States and the American people pioneer sustainable patterns of consumption and lifestyle, (and) can you educate for that?*
> *(Brown as cited in Hensley 2011, p. 95).*
> *Education is primarily for adult life, not for child life. Its fundamental responsibility is to prepare for the 50 years of adulthood, not for the 20 years of childhood and youth.*
> *(Bobbitt as cited in Kliebard 1975, p. 29).*
> *What knowledge will allow the students to live on?*
>
> (Morris 2008, p. 40).

When considering the emphasis on consumption and materialism within the educational approaches present today (Taubman 2009), we see an entire generation of disengaged and challenge avoidant students who are ill equipped to address the big challenges associated with advancing sustainability. Thus, it is important that the educational enterprise is transformed to embrace deep learning (Assadourian 2017). According to Kevin Warburton (2003), deep learning is associated with a student's "intention to understand, rather than to simply pass an assessment task" (p. 46). Therefore, the shift into deep learning should promote a more reflexive (i.e. critical) engagement with one's lived experience in a monetized world (Hensley 2011). John Dewey suggests that the "greatest inhibitor to an education that continuously reconstructs experience [is the] *acquisitive society*" (Schubert 2009, p. 136, emphasis in original). William Schubert (2009) explains that the acquisitive society transforms everything "into products to be acquired [and which blinds insight] into what is worthwhile, for whom is it worthwhile, and how we make it worthwhile" (p. 136). The acquisitive characteristics embedded in contemporary education are exemplified by the educational approaches that sustain consumption habits from one generation to the next in a form of cultural reproduction.

N. Hensley (✉)
School of the Earth, Environment and Society, Bowling Green State University,
201 Memorial Hall, Bowling Green, OH 43403, USA
e-mail: nhensle@bgsu.edu



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Modern day curriculum reproduces educational approaches that are fragmentary and reductionary, thus treating schools like they are factories that primarily "produce workers and consumers" (Hensley 2012, p. 62). Christine Wamsler, Johannes Brossmann, Heidi Hendersson, Rakel Kristjansdottir, Colin McDonald, and Phil Scarampi (2017) further critique contemporary education by stating that current "teaching, and learning [approaches] appear insufficient to address global sustainability challenges" (n.p.). This pedagogical inadequacy, in turn, pushes theorists and practitioners to rethink educational priorities. Consequently, the value of helping students to develop ecological mindfulness has recently been explored in sustainability education scholarship (Mueller and Greenwood 2015). Wamsler et al. (2017) also share that, "ecological mindfulness… promotes the integration and blending of thought, rather than disintegration and separation" (n.p.). Like deep learning, ecological mindfulness supports a holistic coming together of the curriculum by emphasizing interrelatedness and interdependence.

Marie Eaton, Kate Davies, Sarah Williams, and Jean MacGregor (2017) note that there is an overemphasis on efficiency and speed in today's educational settings, which distances students from getting to know themselves and reduces reflection and mindfulness. Education aimed at advancing future employment is myopically grounded in advancing technical skill sets that "prepare students for a highly competitive and volatile world-of-work rather than life" (Sol and Wals 2015, p. 204). To move forward in a more integrative fashion, we need to embrace a form of curriculum and pedagogy that moves beyond unsustainable forms of cultural reproduction and assist youth in adopting more ethical consumption habits that promote an education grounded in lived experience. In this chapter, I offer an approach to moving beyond the deeply entrenched viewpoint that schools are obliged to produce future workers and propose replacing this paradigm with a more authentic educational structure that involves the following four components: **s**lowing down, **u**nplugging, **r**econnecting and **e**cologizing – or SURE.

## 11.1 Slowing Down

In the fast moving and frenetic world in which we live, it is incredibly challenging to slow down. Within traditional educational settings, the activities that are considered slow and long-term such as thinking, contemplation, and reflection typically lose out to urgent tasks (Levy 2017). Tasks that are urgent in today's education system include standardized testing, developing efficient teaching approaches, and the assessment of learning for better quantification. When educators slow down their instruction and allow students to also slow down, they promote mindfulness. Mindfulness is "a state of active, open attention on the present…[and it] means living in the moment and awakening to experience" (Mindfulness n.d.). Living in the moment and awakening to experience are both attributes to optimal learning conditions (Hensley 2011). According to Eaton et al. (2017) an overemphasis on efficiency and speed has led to a "culture dominated by an economic system that is

**Fig. 11.1** Students slowing down to quietly reflect and write in their journals during a nature hike in Northwest Ohio. ©Hensley 2011

devoted to ever faster and more efficient production and consumption" (n.p.) which obfuscates reflection and contemplation.

When teachers adopt pedagogies of slowness they are more likely to promote deep learning and critical thinking (Miller 2014). As demonstrated in Fig. 11.1, slowing down allows for deeper exploration of ecological relatedness and meaningful interaction with the natural world (Eaton et al. 2017). It enables us to better connect to our places, to one another, and to ourselves (Miller 2014). Slowing down enables students, teachers, parents, and community members to mindfully interact with content in a place-based context building relevancy and promoting authentic discourse.

According to Meenakshi Thapan (2013), slow curriculum "implies a movement out of established discourses that pervade the extant literature and opens up new dimensions of inquiry and analysis" (p. xi). The opening up of new dimensions of inquiry promotes centering and balance. Ashwani Kumar (2013) adds that curriculum understood as meditative inquiry "emphasizes the significance of the art of awareness and the process of centering in order to have a deeper perception into one's own consciousness and one's relationships" (p. 125). When coupled with unplugging, slowing down becomes even more impactful. By intentionally slowing down and unplugging from the multiple forms of screen-based media in which we are constantly inundated, teachers create learning environments that celebrate direct experience and reflection.

**Fig. 11.2** Students canoeing on the Maumee River in Northwestern Ohio. ©Hensley 2016

## 11.2 Unplugging

Unplugging involves powering down our gadgetry and disconnecting from the distractions that take us away from silence, solitude, relaxation, peace, and harmony. Unplugging from our over-reliance on gadgets of any type is essential to seeking quiet reflection, solitude and silence. Paralleling the process of slowing down, unplugging enables students, teachers, parents, administrators, and community members to step away from electronic distractions while embracing the sacredness of community, place, and self-awareness (see Fig. 11.2). The concept of unplugging can go beyond the physical unplugging of electronic devices. To unplug from the idea that success is embedded in material acquisition and large bank accounts is important because there are many dimensions to sustainability education that require all of our attention and demand meaningful and intentional reflection (Eaton et al. 2017). Unplugging from the predominant discourse of consumer culture enables all of us to breathe deeply and engage with the aesthetic dimensions of lived experience (D'Alisa et al. 2015). At the essence of unplugging is the permission to allow the youth of today to encounter "experiences that lead to transformations, that open new vistas, that allow for new ways of structuring the lived world" (Greene 2001, p. 37).

In order to be more attuned to transformative learning opportunities, as Maxine Greene (2001) urges, we "need to weave circles of quietness, of attentiveness about ourselves" (p. 75). Becoming more attentive and attuned to our lived experiences

can make us better poised to embrace powerful learning opportunities. Instead of getting bogged down in the day-to-day screen-based milieu that represents a great deal of our schooling today we need to "uncouple from the familiar in the midst of ordinary life just in order to see" (p. 71). When the texture of lived experience is valued in an educational context, electronic devices are seen as one-of-many formats, rather than the primary means of teaching students. Unplugging from technology can provide more opportunities for our youth to reconnect to each other, to the natural world, and to their surrounding communities. Reconnection is at the heart of reinhabiting our places as well as at the heart of building important relationships.

## 11.3 Reconnecting

> Viewed from the perspective of meditative inquiry, education no more remains a problem of information transmission or means-end learning. On the contrary, it emerges as a space of freedom where the main focus is to learn about oneself and one's relationship with people, nature, and ideas. (Ashwani Kumar 2013, p. 4)

Enabling our students to reconnect and build relationships with the surrounding human and natural communities in which a learning situation is situated is central to mindfulness-based sustainability education (see Fig. 11.3). One way to facilitate reconnection is to build sustainability literacy. Vijaya Deshmukh (2017) states that a "sustainability literate person is one who is expected to understand sustainable ways of doing things, individually and collectively, have sufficient knowledge and skills to decide and act in a way that favours sustainability and adaptability with resilience" (p. 3). Sustainable literacy is intertwined with reconnecting because understanding our bioregion, which literally means our "life place," demands reconnecting to it at the human and ecological levels.

Likewise, reconnecting at the human level is necessary to achieve sustainability. To become more aligned with the human condition, it is important to build relationships and strengthen our communities. Over a 100 years ago, Lucius Seneca (1912) stated that "while we live, while we are among other human beings, let us cultivate our humanity" (p. 161). Cultivating our humanity involves understanding how our actions affect others, human and non-humans, and this understanding requires critical consciousness. Only then, will our students be able to make important connections across all aspects of their learning journey as they forge unique life experiences. Ashwani Kumar (2013) explains that critical consciousness "aims at developing the capacity to think in a way that does not blindly conform to or accept the givens of the society" (p. xvii). In the educational arena, this translates into transgressing the school as a factory model of teaching, and advancing ways of knowing that allow us to see how we are embedded within our places. And when students develop a sense of place with their surroundings they are more likely to want to protect it (Louv 2008).

To recognize our embeddedness in our life places is also to appreciate the value, interconnectivity, and interdependence of all forms of life. William Pinar (2013)

**Fig. 11.3** Students reconnecting to their bioregion through exploration and discussion in the prairie. ©Hensley 2010

notes that it is "through critical… consciousness that one comes to understand how one is implicated in what is" (p. xvii). Instead of creating larger rifts between one another, as humans, we need to build bridges and connect. This level of connection necessitates meditative inquiry: "an existential process of being attentive to the way one thinks, feels and acts inwardly as well as in one's relationship to people and nature" (Kumar 2013, p. xvii–xviii). These relationships are the very networks that we rely upon on a day-to-day basis. Strong social support networks are directly correlated with strong psychological resiliency (Gilligan 2004). People who feel well supported through friendships and a variety of allies are better situated to overcome obstacles and various stressors—such as the death of a loved one or a major illness—that they encounter in life.

Although the strength of our connections may feel somewhat intangible, they are a key determinant to our wellness and wellbeing (Tomyn and Cummins 2011). This is why it is so important to allow our students to reconnect in/with the educational process. Building a sense of community is vital to a curriculum that emphasizes the quality of educational experience over training future workers, and also to increase students' sense of self. When students know more about who they are and their value sets, they are much more likely to be compassionate to others, both non-humans and humans. Thomas Merton (2015) states that the "whole idea of compassion... is based on a keen awareness of the interdependence of all these living beings,

which are all part of one another and all involved in one another" (p. 30). Matthew Fox (1999) further elaborates:

> To develop compassion, then, means to develop an ever-keener awareness of the interdependence of all living things. But to develop such awareness implies deep study, not only of books, of course, but of nature itself. It implies study as a spiritual discipline, as a means of entering more and more fully in the truths of the universe in which we live. It implies rejoicing on the part of spiritual people at the facts of our universe that science can and has uncovered, and therefore an authentic kind of ecumenical dialogue between science and spirituality. (p. 24)

Reconnecting is also a part of what it takes to see how different parts of living systems operate and how we can help to advance a mutually beneficial human-earth relationship. Kumar (2013) shares that "awareness implies a meditative state of mind… [that enables] a deeper perception, communication, and learning, which are transformative in nature" (as cited in Pinar 2013, p. xviii). Promoting the kind of thinking and action that strengthens the awareness of the interdependence and interconnectivity of all life characterizes the concept and practice of "ecologizing."

## 11.4 Ecologizing

Part of ecologizing is connecting the dots between numerous systems, concepts, and ways of knowing while working towards a more pluralistic understanding of our planet. Sally Gradle (2007) says that ecologizing requires understanding the "relationship that ideas… have with one another" (p. 1504). Moreover, to help students ecologize, "educators should teach how to inquire, and how to look for the connective patterns between one subject and the next" (Gradle 2007, p. 1513). In this sense, ecologizing is aligned with the process of recognizing the "hidden wholeness" (Merton 1992) within all life on this planet. Ecologizing requires the ability to think in systems while moving beyond a mechanistic viewpoint of the Earth and its inhabitants (Palmer 2008). On the contrary, a mechanistic viewpoint sees the living world as an apparatus that can be controlled and predicted. Through a mechanistic worldview, nature is seen as expendable because it can be replaced or fixed, like a machine, if necessary (Hensley 2011). However, to ecologize is to bring together multiple ways of knowing to weave together a more accurate and holistic worldview than exists in the mechanistic worldview. Biologist Edward Wilson (1998) observes that, today "we are drowning in information, while starving for wisdom. The world henceforth will be run by synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely" (p. 294). Ecologizing aligns with Wilson's notion of synthesizing as it requires being able to put together, pragmatically, the right information at the right time while thinking critically about it. Erik Assadourian (2017) of the World Watch Institute points out that, "synthesizers are those who can take learning from one realm and apply it to another" (p. 13) in a way that helps to untangle the wicked problems inherent to sustainability-related challenges.

**Fig. 11.4** The author (in the foreground) is working with students to promote wide angle vision and awareness in Southwest Florida. Photo courtesy of Florida Gulf Coast University. ©FGCU 2014 (used with permission)

To ecologize also involves abandoning the tunnel vision that is characteristic of the modern day curriculum (see Fig. 11.4, above). Instead of simply recreating and duplicating the worldview of the factory model schooling that has been a predominant fixture of American education for over a century (Spring 2007), it is time that we embrace ecological thinking. As Peter Senge states, "the unhealthiness of our world today is in direct proportion to our inability to see it as a whole" (as cited in Sterling 2001, p. 16). An ecological worldview has profound epistemic implications since it invites one to perceive the living world no longer as a machine, but as a living, breathing, universe full of wonder and vitality, essential for our survival. In sum, while the dominant mechanistic worldview overemphasizes separateness, an ecological view of the world emphasizes relationships and interconnections (Derby 2015). Thus, ecological thinking is at the core of ecologizing, and when it is incorporated into educational setting, it is an opportunity for transformative teaching and learning.

Ecologizing is a form of systems thinking which Derek Cabrera and Laura Cabrera (2015) tell us, "at its core, attempts to better align how we think with how the real world works" (p. 12). In this sense, ecologizing is a way to add value to direct experience and increase relevancy in the ways that we think and the ways that we act. The same authors add that "[t]he real world works in systems – complex networks of many interacting variables" (Cabrera and Cabrera 2015, p. 12). Furthermore, we find that wicked problems, characterized by being highly complex, highly nonlinear, and resistant to one-sized-fits-all problem solving, require systems thinking. It is also a way of asking more relevant questions. This is why Richard

Bawden, Irene Guijt, and Jim Woodhill (2007) propose that we should advance an "agenda of good questions" (p. 136), which is essential to advancing the forms of inquiry that are transdisciplinary and most responsive to the sustainability problems that we face today (Hensley 2017a).

## 11.5 Incorporating SURE into Curriculum and Pedagogy

> Undoing ourselves from the fix we have inherited is going to take some doing (Jardine 2015, p. xx).

Putting the SURE framework into action should be a gradual process that involves a value and perspective shift. This shift requires moving away from viewing education as a mechanistic enterprise that reproduces the educational approaches and perspectives already deeply ingrained in our public schools. Instead of viewing the natural world as a collection of objects to be studied, the SURE framework promotes the "communion of subjects" (Berry 1990). It is a perspective that recognizes the inherent interdependence and interconnectivity between all life on the planet and especially within our bioregions (Hensley 2011).

To slow down, unplug, reconnect, and ecologize is a way of thinking and a structure for action that can also be applied to everyone's day-to-day life. It is a philosophical orientation that can promote the increase of value ingrained in day-to-day lived experience because it encourages a relational form of interacting with our social and ecological communities instead of an extractive economic orientation (Jackson 1996). In the classroom, educators can implement SURE in a fashion that involves one component or multiple components at a time. I will provide examples below. The components of SURE do not need to be incorporated in a particular order because each one has pedagogical value.

Slowing down is not just connected to the pace of instruction but also to the quality of experience. Educators who teach in a slow fashion provide more experiential access to the topics or themes being addressed on a given day. Slowing down could include developing lessons that engage students in multiple ways instead of the traditional transmission of material and then testing. In higher education settings, slowing down could involve starting class with 5 minutes of silent meditation (Parks 2017) and end with silent reflection upon the topic of the day. Slowing down could also include the use of a labyrinth to help students clear their minds before or after, or in the middle of, class (Compton 2002). Labyrinths have a one-way path that leads the participant to the middle and one path that leads back out while creating space for silent, meditative reflection. These strategies allow students to think more deeply about the content and gives them a chance to process the material before moving on to a different class and different topics. There are several methods that educators can utilize to slow down, especially in the context of advancing mindfulness (Davidson et al. 2012), which is "intentional cultivation of moment-by-moment non-judgmental focused attention and awareness" (Meiklejohn et al. 2012, p. 291) that is also found in the process of unplugging.

Unplugging could involve bringing a class of students outside to study how stormwater flows through the school yard (Hensley 2014). Disconnecting from screen-based media while studying nature commonly optimizes the process of building ecological literacy and may increase student learning (Louv 2008). Pam Mueller and Daniel Oppenheimer (2014) demonstrated that switching a laptop for handwritten note-taking can increase learning. The use of technology can be a very helpful aide to the teaching and learning process, but it is not a replacement for hands-on and minds-on experiential activities.

Reconnecting, in and beyond the classroom, could involve team building activities in which students get to know one another better and make connections regarding things they have in common. Reconnecting may also involve helping students to develop their sense of place through learning experientially about the social and ecological communities in which they are situated (Hensley 2011). Reconnecting in ways that strengthen the quality of relationships amongst students, the community, and the natural world is at the foundation of the sustainability movement to counteract the modern day curriculum. By intentionally looking for the connections that make up our life places or bioregions, people can start engaging in ecologizing.

As the bioregions we inhabit become more fragmented, the importance of revitalizing our communities and the surrounding natural systems becomes even more important. Ecologizing promotes an ethic of care and biophilia—which is a love of life and life-like processes (Wilson 1984)—for our bioregion because it encourages us to explore the multidimensional systems that make up our places. As Edgar Morin states: "it is necessary now to ecologize everything" (as cited in Gadotti 2008, p. 39). Enabling students to ecologize requires increasing student attentiveness to the interconnections within the world that they inhabit. For example, having students map the relationships that exist within their schoolyard is a great start to ecologizing. One way to implement this is through making concept maps (Kinchin et al. 2000), which are considered valuable "tools for organizing and representing knowledge" (Novak 2008, n.p.).

## 11.6 Cultivating a Mindful Curriculum into the Future

Today's curriculum is comprised of frenetic, consumption-oriented, materialistic, and mechanistic worldviews that are not sustainable (Miller 2014). The outdated perspectives on how people learn and ways to assess that learning are inadequate and this demands action (Wamsler et al. 2017). The SURE framework for transforming youth perspectives on consumerism has many theoretical and practical applications. More importantly, this framework is a way to transcend the "schooling as training future workers" approach with a divergent thinking emphasis that promotes pluralism and holistic worldviews (Hensley 2017a).

Contemporary educational philosophy, pedagogy, and curriculum need to be better linked with sustainability because we are facing an ecological crisis that demands that we prepare the next generation to be able to address the ecological and social

uncertainties that lie ahead (Wamsler et al. 2017). After reviewing the impacts of the contemporary curriculum approaches on educational experience, we can recognize the significance of the SURE framework in relation to promoting holistic sustainability education. Instead of outdated educational modalities that are entrenched in efficiency and pre-determined standards, the SURE approach embodies a form of teaching and learning that engages students through authentic interactions with themselves, other community members, and other-than-human inhabitants of their bioregion. Promoting mindfulness through educational practice has transformative potential and is more easily incorporated through the SURE framework.

It is time to move beyond today's unsustainable curriculum and find ways to infuse sustainability at all levels of education (Hensley 2017b). The SURE framework embodies a praxis of possibility that gains traction by building relevance and mindfulness in the lives of students and teachers at all levels. Instead of a one-size-fits-all approach, the SURE framework is pragmatic by enabling educators and administrators to implement it in ways that fit a variety of learning contexts in a broad range of places.

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**Nathan Hensley** is an Assistant Professor of Sustainability Education in the School of the Earth, Environment and Society (SEES) at Bowling Green State University. His research interests include understanding the intersections between curriculum theory, place-based education, and sustainability studies. In his most recent scholarship he has been exploring, from theoretical and practical viewpoints, how to best prepare our next generation to face the grand challenges associated with sustainability such as addressing climate change, harmful algal blooms, and how to promote an ethic of stewardship within formal and non-formal teaching environments. He lives with his wife and his two young daughters in Bowling Green, Ohio.

# Chapter 12
# Towards Ethical Youth Consumerism in Alaska: The Transformation of Alaskan Education and a Viable Transition off Fossil Fuels and the Consumer Pipeline

**Princess Daazhraii Johnson**

> The power. We are a natural part of the earth. We are an extension of the earth; we are not separate from it. We are part of it. The earth is our mother. The earth is a spirit, and we are an extension of that spirit. We are spirit. We are power. They want us to believe that we have to believe in them, that we have to assume these consumer identities and these political identities, these religious identities and these racial identities. They want to separate us from our power. They want to separate us from who we are. Genocide. (John Trudell 1980)

To begin a dialogue on ethical youth consumerism in Alaska, and a conversation that might have implications elsewhere, we must establish what is meant by consumerism and examine the underpinnings that have been detrimental to our relationship with the natural environment. Consumerism is commonly defined as a way of promoting the increasing consumption of goods as economically desirable for the consumer. In other words, consumerism is a heightened preoccupation with buying material stuff and an inclination towards acquiring material wealth over time (Websters New World College Dictionary 2016). Hyper-consumerism is the amplified cultural awareness associated with this preoccupation towards material spending and the prestige that comes with being able to spend and a ever increasing rush to the marketplace to acquire increasing goods, while turning over previous trends and fads that contribute to the *status quo*.

In his book, *Alaska – An American Colony*, Stephen Haycox (2015), boldly points out that while the myth of rugged individualist continues in Alaska, the history speaks more to the colonialist nature of the capitalist expansion and the ongoing dependence on the development of oil and other resources to fuel the comfort of the modern American lifestyle, which is only made possible by outside sources of food and other supplies being shipped in to Alaska. There are signs of consumerism everywhere. Consider, for example in both urban and rural Alaska, the increasing

P.D. Johnson (✉)
University of Alaska Anchorage, Anchorage, AK 99508, USA
e-mail: princesslucaj@gmail.com; princess@cchrc.org



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size of our transfer and dump sites, the lack of recycling, construction of big box stores (e.g. Walmart) in the larger cities, and economic focus on extracting resources – in particular oil. Oil, whether we liked it or not generates over 80% of the state of Alaska's revenue. The dominant narrative is that Alaska is considered an 'oil state'. This dependence on oil has led to a precarious situation and fiscal crisis for Alaska more recently with the withdrawal of many oil producing companies and a much lower price paid for extracted oil. All of this is occurring as Alaska has just experienced the third consecutive hottest year on record (Rosen 2017) and the negative effects of climate change are causing the relocation of entire villages, threatening the food security of Alaska Native peoples, and damaging the infrastructure of the state, to name a few (Melvin et al. 2016).

Given the need for us to keep the world's atmosphere from warming to an unsafe threshold for all life we need to work immediately towards a 'just transition' off of fossil fuels (Kahn 2016).

> The idea of a 'just transition' increasingly features in policy and political discourse and appeals to the need to ensure that efforts to steer society towards a lower carbon future are underpinned by attention to issues of equity and justice: to those currently without access to reliable energy supplies and living in energy poverty and to those whose livelihoods are affected by and dependent on a fossil fuel economy. Newell and Mulvaney (2013, p. 132).

A move away from consumerism does not come easy. One avenue ought to be incorporating traditional values into schools so that Alaska's youth and communities shift to consuming in a more ethical and ecologically beneficial manner, hence creating smaller but more resilient economies. Here, I begin with the history of how we arrived where the best possible choices as consumers are *not* being made, then support my above claim with three major points: (a) the damage of assimilationist polices of the United States, (b) the societal/capitalist focus on individualism over community, and (c) our unwillingness to change in light of an unrecognized oppression. To conclude, I will offer recommendations for transforming Alaska's education system in order to hasten a "just transition" off of fossil fuels and the consumer pipeline. I am hopeful that the implications of these recommendations could be taken up in many other places worldwide.

## 12.1 Introduction of Consumerism and Assimilation

Consumerism was not always part of the fabric of Alaska. Alaska is comprised of 229 unique Alaska Native tribes each holding their own languages, culture, and traditions. Alaska Natives survived for thousands of years in some of the harshest conditions because of their deep scientific knowledge of the land, the stars and weather and their ability to adapt and maintain these spiritual relationships. The cultural diversity of Alaska Native people is immense with 20 officially recognized indigenous languages being spoken in the state, thriving arts and crafts that reflect each region, and an unwavering determination to keep their governance, values, and cultures intact despite a history of colonization and assimilation. Before contact

with Russian, European, and Japanese whalers, fur traders, and gold miners, Alaska Native people did not know consumerism in the sense that it has become rampant of society. Alaska Natives did not have contact with the western world until the Russians came in the mid 1700s, and their contact only occurred in a limited area of Alaska. For Alaska Native people, the hyper-consumerism of the American west, as we know it today, only permeated the culture within the past century. I am Neest'aii Gwich'in Athabascan; we did not have contact with the western world until the 1800s, and it was sporadic up until the turn of the twentieth century. Contrary to the ideology of consumerism, many of our indigenous values were rooted not in the acquisition of materials, but in giving away and providing for your community. In other words, it was in this manner that one's wealth was determined and their leadership established. However, with the introduction of western values these traditional values began to change and the seeds of consumerism appeared.

In Gwich'in oral history and stories we are taught to take "only what we need to survive" and nothing more in order to maintain the spiritual and ecological balance with the land and animals. Waste is looked down upon, as is greed and disrespect for the spirit of living things. In the Gwich'in language we say "ànˈ gwahtsii kwaa" to say "don't be wasteful," but the literal translation is "don't destroy things." This is more reflective of our epistemologies that emphasize maintaining a strict spiritual balance with the animals and elements. The notion that one should accumulate material wealth was introduced by westerners. As an example, in Gwich'in territories at the turn of the century, fur traders began to influence Gwich'in leadership and chiefs through the placing of value on material wealth. In her Master's thesis, fellow Gwich'in tribal member, Stern (2005) notes that the leadership of Chief Peter was greatly respected because of his genuine love and concern for the people. While he had little material wealth to speak of, he was highly regarded for his leadership as opposed to Chief Christian, who obtained his chief status and material possessions from the fur traders and not from the people themselves (see Fig. 12.1 for depiction of the fur trade in Gwich'yaa Zhee). The wisdom of our Interior Athabascan leadership can be illustrated in the following quote attributed Chief Peter John of Minto: "Give whatever you got and you'll get in return something better than what you give. You believe that? You got to share. That's true. That's the old Indian way. That's what we were taught."

Today, our realities across both urban and rural Alaska are vastly different. Living in urban Alaskan cities of Fairbanks or Anchorage, it is as if you were anywhere in the "Lower 48" with all the imported foods from across the globe, running water, public transportation, high-speed Internet, and ample consumer goods. Meanwhile, in rural Alaska, many villages are still without running water, and the cost of electricity and oil are much higher, Internet service is often slow and expensive, while concomitantly, many consumer goods make their way in being barged or shipped out as air cargo. Somewhere along the way, the lines have been blurred between what we need and what we want and what will ultimately bring us joy. Youth are bombarded with manipulative messaging starting as soon as they are exposed to television, smartphones, social media, and magazines – often as young as 2 years

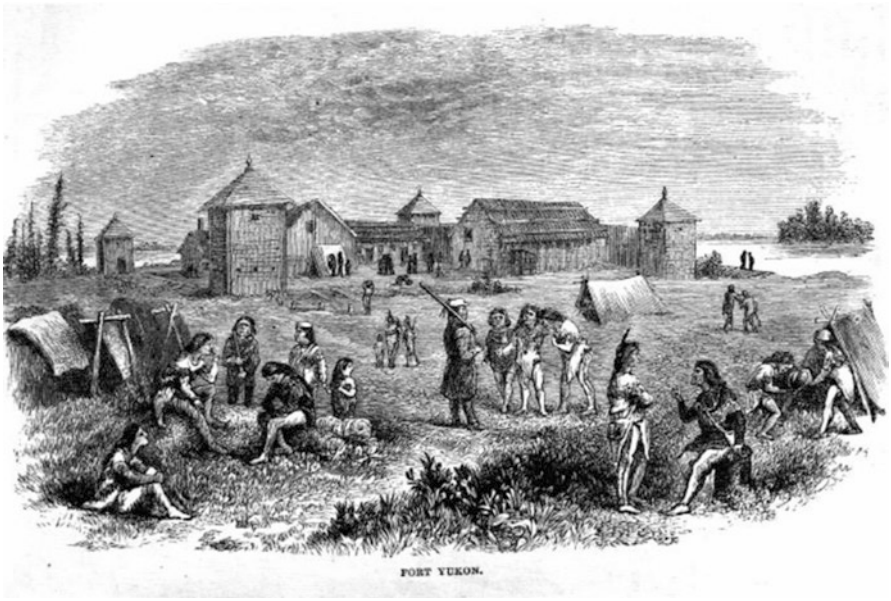


**Fig. 12.1** Fort Yukon – Hudson Bay Company's Post. © 1869 Whymper

old (Klauss 2013). And this messaging has negative consequences on the physical and psychological health of our children (Kramer 2006).

Given that Alaska has the third highest suicide rate in the nation and among American Indian/Alaska Native youth ages 10–34, suicide is the second leading cause of death (CDC 2013), addressing youth ethical consumerism curriculum is worth pursuing. The work of educators, be they teachers, parents, and grandparents to name a few, begins early in life, which involves addressing the choices confronting children in diet, toys, and clothing. Where discussion might take place in our Alaskan education system about marketing and consumer choice or the amount of screen time that is considered appropriate for each age group, those conversations that should include youth ethical consumerism are only slowly beginning to take shape. Alaska Department of Education does identify in the, 'Health Education Standards', that a student should be able to demonstrate responsibility for the student's well-being and that a student that meets the content standard should be able to 'evaluate what is viewed, read, and heard for its effect on personal well-being'. Incorporating lessons on youth ethical consumerism could serve to bolster the ability for our youth to meet this standard.

The need to address youth ethical consumerism through our Alaskan educational systems is connected, on the physical level, to the human health issues associated with the pollution of the air, water, and soil, Alaska's economy, and the overall sustainability of life in Alaska. On the spiritual and psychological level, it is connected to societal status and that old question of "can money buy you happiness or love?" Also, are we respecting our relationships to other living beings through this

overwhelming consumerism? Moreover, there is a mounting ethical tension associated with continuing to extract fossil fuels in Alaska when the science tells us that this exploitation contributes anthropogenically to the warming of the planet (I will appropriately refer to it as anthropogenic climate disruption) and threatens the longevity of so many species of life, including our own (Hassol 2005).

What will the impacts of addressing youth consumerism now have for Alaska today and for the generations to come? How might transformational moral education with its basis in ecojustice and peace education address these tensions and compliment culturally responsive curricula (Joseph and Mikel 2014)? Consider how youth possess the unleashed potential to innovate, think outside of the box, and bring enthusiasm to the forefront of what we need to move forward with a transformational change. Consider, for example, a Portland teen, Chaitanya Karamchedu, who recently discovered (through thinking out-of-the-box), a cost-effective way to turn salt water into drinkable fresh water (Bolduc 2017). Yet another example is how the youth of the Standing Rock Sioux Reservation sparked a massive movement to protect clean water and to advance an increasing awareness and activism towards the need for a shift off fossil fuels. Nonetheless, this youth potential has been deemphasized.

Recently, I was in the Yupik village of Oscarville, where the youth worked on a science project titled "Impact of Trash in our Communities" that included interviewing community members about the village dump (Fig. 12.2) and what materials contained hazardous chemicals (Fig. 12.3). In their findings, they highlighted that many community members were not aware they were not disposing of hazardous

**Fig. 12.2** Image of dumpsite in an Alaska Native Village. © 2017 Molly Rettig

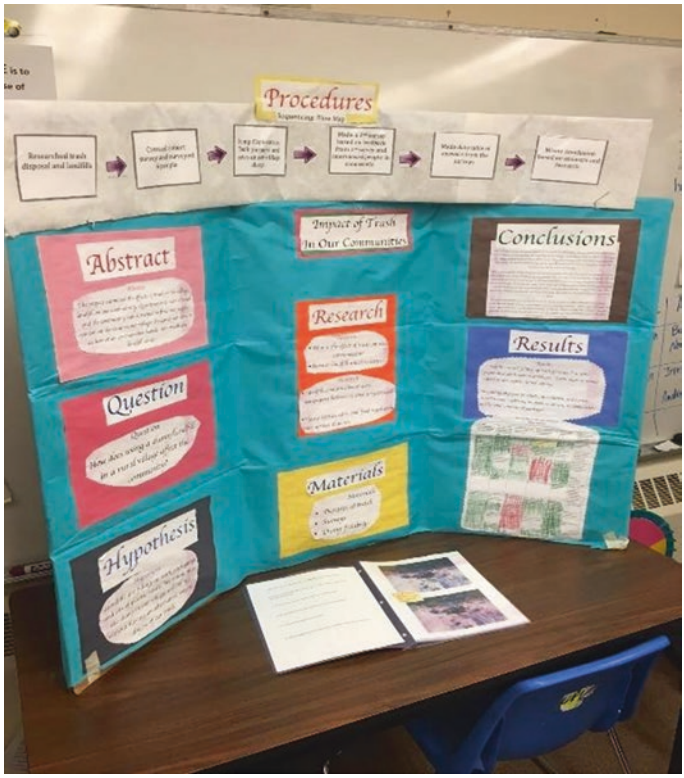


**Fig. 12.3** Oscarville Student Science project poster. © 2017 Molly Retig

waste properly. This is an excellent example of how our youth educate us all when they engage in addressing the problems we face, and this example is also a project that may have gone further to incorporate questions of youth ethical consumerism.

## 12.2 Capitalist Focus on Individualism Over Community

There are unique beginnings with the work that has already been done to understand our cultural integrity and environment through indigenous traditional ecological knowledge (TEK) and science that could be further emphasized as an integral part of the curriculum in Alaska. While educators are encouraged to utilize the Alaska Standards for Culturally Responsive Schools (1998) that includes the use of TEK, it is not required. The current state educational standards put such heavy weight on consumerist-driven agendas, capitalism and industry, that indigenous knowledge is eclipsed by what inadvertently drives youth towards the market lifestyle (AKDEED 2006).

I consider my own education in the 1990's to have been focused on grooming students towards a western ideal of success with the assumption that we would

graduate and enter the workforce prepared to climb the corporate ladder to an ever-increasing salary and attainment of a big house and several nice cars. Never were we challenged to think in which ways our work might benefit the local communities or society as a whole. Instead the focus was on individual success. Being a low-income child of the hip-hop generation, I often found myself lost in the lyrics that promoted youth consumerism through emphasizing the ideal of designer clothes, diamonds and money. Indeed, it is extremely challenging for the have-nots to settle for what is implied as "less-than." We must be able to recognize how we have assumed these identities as consumers of material, of ideas, of energy. Even today, my own journey towards ethical consumerism is ongoing and based on the emancipatory nature of my own education both in and outside of formal educational institutions and my desire to live "in a good way" as my elders have instructed.

To further complicate our socio-economic and political reality in Alaska, we have Alaska Native Corporations (ANC) established through the Alaska Native Claim Settlement Act (ANSCA) of 1971. ANC often blur the lines of representation of Alaska Native peoples because their monetary clout and political sway, while at the same time, the true government-to-government relationship rests solely with the tribal governments. Because of the way this infrastructure of ANSCA was established, it skews our traditional values towards the corporate capitalist model with a focus on the individual and creates divisiveness, ultimately sending mixed messages to our youth. Consider for example, the work of ecofeminist Ariel Salleh when she states, "The interplay of race, class, and gender politics is extremely complex. The new global business agenda creates enticing economic opportunities for indigenous elites, thereby weakening solidarity amongst oppressed communities" (Salleh 1997, p. 123). The underlying message of Alaska Native people who have gone to college and then return to lead these very ANCs is one that defends stakeholder's monetary interests while promoting the capitalist patriarchal ideal of success based on hyper-consumerism and the ability to own multiple homes and drive fancy cars. These things have become hallmarks of the you-have-made-it American mentality, while the reality of the vast majority of Alaska Native shareholders are struggling to keep their homes heated.

These are complex issues. Again, I turn to Salleh's insightful words for clarity: "In this wave of neocolonialism, indigenous people are captured by the West, being made to think they cannot live properly without its skills and products" (1997, p. 123). If we can turn around the structure of the Native corporations to be more focused on being ecologically sustainable than hyper-consumerist in orientation, then ANC's could be the example. However, this won't happen without Alaska's youth being empowered stakeholders in their own future.

By changing our behavior through both cultural and environmental understandings, as individuals and as a society, through public discourse, education, philanthropy, policy, and legislation, we might have hope for the future. With the new Trump Administration that has proposed to cut spending by 30% for the Environmental Protection Agency (Tabuchi 2017), it will be even more crucial for us all, along with our youth, to examine how the enclosure of the commons through the further privatization of water, land, and seed will affect our basic human rights

and the rights of Nature. If we are to create an "earth democracy" as Shiva (2016) describes, we must acknowledge the human and non-human continuum and further reclaim democracy so that we focus on maintaining the rights to take care of our Mother Earth in a sustainable manner (Gelder 2002).

During these turbulent times in the United States, today's youth have demonstrated that they want to be involved as they are the future leaders of our communities. At the recent 2017 Tanana Chiefs Conference annual convention in Fairbanks, youth delegates from Interior Alaska villages shared their heartfelt stories and often broke down in tears speaking of the negative impacts that drugs and alcohol are having on their lives, but they also shared messages of how traditional skills and values are keeping them in the villages. One youth commented on the significance of education: "Develop your mind and give yourself something to look forward to." The youth have one representative on the Executive board who gives input to elected tribal leadership from a youth perspective. Unfortunately, these youths' education does not go far enough to cultivate an understanding and critical thinking around our unique history in Alaska that has allowed oppressive systems to remain unchecked and intact.

Often, I hear people use the well-known idiom "we are all in the same boat" – this seems relevant and true to the extent that we have only one planet Earth and that we must change our carbon intensive behavior to protect life (Wiens 2016). Now I want to examine and understand how we found ourselves in this predicament and then work intentionally to chart a new course in education that respects and honors the regenerative nature of our Mother Earth.

It is unfathomable to care so little about a place where one lives. If the consequences of our educational system do not lead youth to become vitally cognizant of their potentiality and ethical power in shaping what it means to be an ethical consumer in Alaska or in the places they visit or live in their lifetime, then their education serves as a wasted opportunity to not only enrich their lives, but to awaken the relationships between us as humans and all the other living plants and animals we share this planet with. In this vein, understanding how our daily actions as individuals and as a collective contribute to a carbon intensive way of life that is accelerating climate change is important, and recognizing that each of us has a role to play in becoming more resilient to being inundated by hyper-consumerism is crucial.

As Alaskans, our current lifestyles are not sustainable given current anthropocene climate disruptions, the state's fiscal crisis, and a relentless hyper-consumption. We must now become awake and embrace our ability to live conscientiously and to engage democratically as stakeholders in the larger context of decision-making processes that include our ecological responsibility as consumers and producers. This is particularly important for the voices of those that have been historically marginalized based on gender, class, race and age and given recent legislation or attempts to pass legislation to limit the public's input on matters of development on public lands. Consider for example Alaska House Bill 77 (also known as the Silencing Alaskans Act), introduced in 2012, it would have limited our public participation as stakeholders in water rights amongst other issues.

While there is a long history of prescribed external remedies to fix our social ills as Indigenous peoples or peoples of color, there is no one who knows our communities better than us. A holistic approach that keeps in mind the damage of colonialism, assimilationist policies and includes an element of healing, community organizing, and reclaiming of cultural language, knowledge, and traditions is necessary. But how do we get there? Perhaps the theoretical perspectives centered on Indigenous ecofeminism that have guided my thinking and practice might be more intentionally and better incorporated into the education of Alaska Native youth. I now discuss how these perspectives provide a lens for exploring the aforementioned issues.

## 12.3 Indigenous Ecofeminism

I feel extremely fortunate for my education, as it has provided me with a solid platform from which I am able to approach not only my writing and advocacy work, particularly in protecting the sacred from desecration (such as in the Coastal Plain of the Arctic National Wildlife Refuge), but also my practice in community organizing and education. Growing up, I witnessed the violence against the land, our Mother Earth, and violence against us as Alaska Native women coupled with the marginalization of our voices, but I didn't have a language to express the effects on my psyche. Often, I would express myself through poetry, theatre, and film (Peter-Raboff 2003).

Today, in my research and practice, I continue to delve deeper into identifying the underlying assumptions of the world we live in and just as importantly, to explore the possible solutions to these problems. I realize that having a theoretical framework from which to analyze these issues is crucial. My research of critical pedagogy has led me to be influenced by the work of Paolo Freire (1996), of sociologist Tyler (2013) with her focus on social inequalities and resistance, and grassroots organizer and educator Margaret Ledwith and Freire (2016) who explains "we cannot change anything without challenging the ideas underpinning the distorted reality that has so powerfully taken hold" (p. 132). This perspective is most closely associated with what I refer to as *Indigenous ecofeminism*. Many ecofeminists have contributed to my thinking and helped to shape my unique perspective.

As an Indigenous woman, my mother, grandmother, aunties, and "sisters" have all influenced my perspective (Fig. 12.4). They helped lay the strong values of honoring self and respecting others, of valuing the wisdom of dreams and the significance of our spiritual connections to the land and animals. They taught me to utilize my intuition in making decisions and to live life in a good way reflective of our Gwich'in traditional values. I am so grateful for the silent hours I spent with my grandmother as she taught me there is much to learn in stillness. Later in life, I would be fortunate to learn from the example of many Native activists and artists who helped me see the urgency of us sharing the Indigenous ecofeminist perspective to bring balance back to the way us humans are interacting in the world. Casey

**Fig. 12.4** 1899 USGS photo with Princess' great great grandmother (seated with child). © 1899 Shrader

Camp-Horinek, mentor/Auntie and member of the Ponca Nation, exemplifies this sentiment well in her response during an interview about the movement at Standing Rock and the connection between human mothers and Mother Earth:

> All life comes from our Mother Earth, and then we are born unto this earth, and we go, "Aah," and we breath that sacred breath that comes from our relatives, the trees and the plant nations — where they give us this thing called oxygen and we breathe out this thing called carbon dioxide. That is that sacred trading of energies that we are given so that each of us can have life. There is an intricate, intricate dance of life that happens between the Mother Earth, and the mother, and the spirit and the body. All this is an ongoing dance until we transition into the next world.

Ariel Salleh has this to say: "ecological feminists are both street fighters and philosophers" (2014, *Foreword*). This statement is especially true for women of color who engage in the frontlines of community organizing work. We take our philosophies to the streets in our messaging, in songs and dance, and we confront the systems that impose their irrationality upon us in our own homes, classroom, academia, hospitals, and in the halls of Congress (see Fig. 12.5). We do this as we seek to heal and understand the historical traumas that affect our daily lives, as we give birth and juggle raising children with work and school, and as we seek to find time for self-care and reflection.

Salleh (2014) goes on to write, "its first premise is that the 'material' resourcing of women and of nature are structurally interconnected in the capitalist patriarchal system." The ever insightful and passionate scholar, Shiva (2014) adds:

> The colonization of regenerative sources of the renewal of life is the ultimate ecological crisis: patriarchal science and technology, in the service of patriarchal capitalism; have torn


**Fig. 12.5** Photo taken at a 'Keep It In The Ground' rally in front of the White House. © Pederson 2015

> apart cycles of regeneration and forced them into linear flows of raw materials and commodities. (p. 33).

In Alaska, it is easy to see these elements at play in how we have an imposed a poverty culture in rural Alaska, namely, the economic value of a subsistence lifestyle is seldom articulated and valued in a meaningful way. Rather, Alaska continues to be seen as a resource extraction state – where responsible development and production are defended and glorified as embodying the state's progress and growth. Meanwhile, the regenerative aspects of our land and waters in creating the lush bio-diversities that allow us to thrive, such as our salmon fisheries, migratory waterfowl, tundra berries and medicines, fall through the impoverished cracks of a patriarchal linear worldview.

It is worth noting that Alaska carries one of the highest rates of violence against women in the nation (NCADV 2015). The history of colonization shows us that where there is violence against the land, there is violence against women. It was common practice in the Americas for the men doing the colonizing to subjugate the women through rape, beatings, and murder (Jacobs 2013). Strategically, if you defeat the women, you cause havoc enough to gain control of the land and the people. Native women in Alaska and Canada continue to suffer to this day from what should be considered alarming rates of violence. The Missing and Murdered Aboriginal Women and Girls campaign (https://www.nwac.ca/mmiwg/) that started in Canada seeks to raise awareness and justice for the thousands of Indigenous First Nations women whose murders or disappearance has gone unnoticed, unresolved, and unaddressed by mainstream society. We have been shown that we are dispensable – that we carry less value as attributed by Western society. We have been "other-ed" just as the land has been "other-ed" or the rights of animals and waterways.

Plumwood (2007) writes so precisely to the point of how our current economic system does not value the services of life that the earth provides us with and therefore destroys and violates the critical ecosystems of the planet: "To validate an ecologically rational and ethical economy that minimizes remoteness, we need to defeat the rationalist hyper-separations between reason and emotion, prudence and ethics that are inscribed in the dominant global economy and its surrounding culture" (p. 80). She also writes at length about the way "disengagement, egoism, and the absence of care masquerade as rationality." For all these reasons, there is an urgency to apply the Indigenous ecofeminist theoretical perspective both in the classroom and out on the streets.

The ecofeminist authors above, coupled with my personal interactions and relationships with the land, animals, and people of Alaska, have all contributed to and helped to shape my theoretical perspective. With this perspective, I first address the history of our choices. To have a conversation about youth ethical consumerism among our Alaska Native youth, I examine and critique the current economic and social system, the imposed poverty culture along with the emphasis upon accumulating material wealth, and the separation between reason and emotion.

## 12.4 How We Ended up Making the Choices Being Made

> Historically, the Eurocentric educational system told the Yupiaq people that their ways of doing and thinking were inferior. The schools took pains to change the Yupiaq cognitive map and introduced them to new kinds of houses, tools and gadgets. This not only cost the people in terms of their values, traditions and self-sufficiency, but, as a result, they became wards of the government—a despondent people dependent on the "good will" of others. Education has made Yupiaq people consumers instead of producers in charge of their own livelihood. (Kawagley 1999, n.p.)

Alaska has always been a unique, beautiful, and harsh place with a known history dating back thousands of years to the original Indigenous inhabitants of the land and only more recently to the colonization of Alaska first by the Russians and then by the United States of America. It has always been recognized for its rich natural resources and our human agency, guided by the capitalistic principles that have led us to exploit these resources, many times to the brink of extinction with regard to animal species: for example, consider the near extinction of the bowhead whale and seal populations due to commercialization of whale oil and seal fur (Lundberg n.d.) and depletion with regards to raw materials such as gold. This has been and continues to be a part of Alaska's legacy and has created a deep-rooted and rigid path dependency on resource extraction that remains a hurdle to overcome.

Meanwhile, the accompanying colonization and forced assimilation of Alaska Native people has left an indelible mark upon the psyche of our communities. The historical traumas and oppression (both past and present) experienced by Alaska Native, First Nations (in Canada), and Native American peoples has been well documented (Weaver and Heartz 1999) and has had an adverse effect on their well-being

(Brave Heart et al. 2011), which has manifested into high rates of drug and substance abuse, suicide, sexual abuse and violence (Woods et al. 2012).

For Alaska Native tribes, everything we needed to survive was provided by the land. For Gwich'in in the far north, we tanned caribou hides for our clothing and skin hut shelters, and used bones for our tools, intestine for raingear, birch bark for baskets, and sinew to sew. Everything was of the land and could easily be absorbed back into the land. This way of life was integral over every region you look at across the state. There was never waste, in fact, many of our traditional stories warn of what might befall a human if they were greedy or wasteful.

It wasn't until the turn of the century in the Interior region that the missionaries helped to establish permanent villages, interrupted the natural cycles of migration we were practicing, and began executing contracts with the federal government to establish mission schools (Haycox 2015). Christian beliefs that often forbade or shunned our traditional songs, dance, and ceremony were accompanied by assimilationist policies of "Kill the Indian, Save the Man" (Churchill 2004). Hundreds of families experienced their children being taken away to boarding schools where they had their hair cut (see Fig. 12.6), were given white man clothes and food, and forbidden from speaking and punished when they spoke their native languages. My own mother, born in 1946, experienced these harmful conditions. By taking children away from their parents and grandparents, many traditional skills such as hide tanning, snowshoe making, trap setting, and so forth, were not passed onto this generation.

While all of these aforementioned things were happening, Native men tried to provide for their families, who had settled into villages, by trapping to make money to buy the provisions that had been introduced to their communities. No longer were we living off only what the land provided and following the natural cycles of the

**Fig. 12.6** Students at the all-native school in Stevens Village 1912. © 1912 Unknown

land. We were adapting to a new economy, one which would diminish the value of the traditional roles of men and women who were entirely self-sufficient and that of sharing and providing for the community over the individual.

While Alaska Native people sustainably managed the land and resources for thousands of years, the circumstances of these small populations of people able to live entirely off the land changed dramatically in a short period-of-time. Today there are the ever-increasing challenges of hyper-consumption, food security, health, and education, under the backdrop of climate change. A myriad of physical effects of climate change are being witnessed firsthand by the Indigenous Peoples of this land; including rising sea levels, increased forest fires, soil erosion, permakarsting, and invasive species, just to name a few (Cochran et al. 2013) and very little has been done to create the policies necessary to prevent the accelerated warming of the earth's atmosphere and in turn, humanities own demise. Anthropogenic climate disruption is affecting the health, availability, and access of subsistence foods (wild salmon, berries and game), and this threatens the food security of many Alaskans with a disproportionate burden on rural Alaska Native communities. When we speak of adaptation and mitigation around climate change, we should consider that these terms do not necessarily imply that the adjustments taken are fair or equitable (McNeeley and Shulsky 2011). Today, those that live a subsistence lifestyle find themselves trying to navigate a complex dual management system and inflexible regulations that impact the ability to continue this way of life.

The late Kawagley (1999) wrote: "education has made Yupiaq people consumers instead of producers in charge of their own livelihood." And our desire for imported outside goods has only increased over time in both urban and rural Alaska. Born in 1973 and raised in the 1980s mostly between Fairbanks and Anchorage, with occasional summers with my grandmother in Fort Yukon, my experience was vastly difference in just two generations. During this time people in rural Alaska ordered supplies from the thick Sears catalog (the pages of which you could later find in the outhouse), purchasing ATVs, snowgos, and household appliances. Youth watched television in the villages and yearned to dress and act in ways that emulated what we saw in the media. Soon we were playing video games, watching MTV, and dressing like rap stars in parachute pants and high top sneakers. While I did practice some traditional and cultural activities such as beadwork, berry picking and learning our songs and dances, we did not have a family fish camp or hunting camp, and therefore I did not learn crucial subsistence skills such as how to butcher, process, and preserve fish and meats. I wouldn't learn these skills until my twenties when I was intentionally seeking out these experiences and many skills I still desire to learn. Consider the following excerpt from research conducted in the Inupiaq villages of Noatak and Selawik on the Northwest Coast of Alaska:

> Changing social and economic conditions in Noatak and Selawik have made it difficult for the youth to develop the comparable hunting and fishing skill set as previous generations. Informants noted a general disconnect between the younger generation and subsistence practices, a trend characteristic of many northern subsistence-based cultures (Condon et al. 1995). Elders from both communities noted that access to a much greater number of conveniences such as cell phones, fast transportation, plumbing in the house, and store foods has

> resulted in a declining interest on the part of the youth to harvest local resources. Many felt that the contemporary youth have not learned how to work hard and perform activities that were basic necessities for the previous generation such as chopping wood, hauling water, and feeding dogs. People now eat more food available from local stores, which causes increased separation between local residents and their environment. The impact of store-bought foods was described by one Selawik informant in this way: "[there is] less fishing activity because there's more access to different kinds of food; more heatables, microwaveables, and less interest in our Native food. Lot of children, new generation, I don't think they like our style of food because they grew up with those microwaveables." Additionally, the youth are increasingly pressured to seek training and employment outside of the rural village communities, which further limits the potential for them to develop the harvesting skills of their parents and grandparents. (Moerlein and Carothers 2012, n.p.).

These changing social and economic conditions created a culture of imposed poverty. What I mean by this is that we never considered ourselves poor (for the land took care of all our basic needs) until the colonization of our communities created forced systems of dependence upon the federal government. This imposed poverty culture was amplified by western systems of economy, government, and education, coupled with the disruptive assimilationists policies of the United States and increased access to media geared towards consumerism rather than ethical beings living in ecological and spiritual accord with the world, has had a grave impact on Alaska Native people and people across the globe. This notion of living the American Dream with the indicators of western success, wealth, and happiness being based upon how big one's house is, what type of cars we drive, and what we wear, eat, the schools we send our children to has been effectively merchandized to most people around the world. By no means do I intend to over-romanticize the lives of our Ancestors post-contact in Alaska. While it might be argued that western conveniences such as travel by air, electricity, heating fuel, technical advances in medicine and running water have brought progress, and that there is nothing wrong in striving for the material wealth of the American Dream, we must question our means of arriving at such material wealth. Recall it is the constant turning over of material that drives our preoccupation with consumption.

As a result of our hyper-consumption, where and how we dispose of our waste is proving to be a daunting issue wherever humans live. In rural Alaska this is especially problematic. There is the added daunting task of removing waste when there are no roads to and from so many villages. The expenses of flying it out are astronomical. It isn't just a matter of "the bad view" either, because much of this material includes vehicles, large household appliances, electronics, batteries, and sometimes military chemical waste that poses a hazardous threat to human health. Programs run by the Environmental Protection Agency have been critical in helping to fund removal and clean-up of waste but that funding is set to run out in 2020, and other clean water programs for Alaska Native Villages are proposed to be cut under the new Trump Administration (Ellis 2017). This only illustrates further the need for not only youth, but all Alaskans, to confront our current situation with, as Greene (1978) writes, a wide-awakeness that challenges us to examine how we came to this place and the role we might play in being conscious of how we participate, whether as consumers, educators, or citizens.

Many families in rural Alaska share in the purchase and use of subsistence tools such as fishnets, snow machines, ATVs, guns, and ammunition, and sharing of subsistence foods continues to play a major spiritual and cultural role in the food security for Alaska Native People (Kofinas et al. 2016). Still the influx of solutions hidden within the imposed poverty system of the west has resulted in poorly constructed homes and community buildings that are not energy efficient and have not been designed with the insights of the village residents, failed or impractical water sanitation facilities, and food 'commodities' that have deteriorated our health and wellness. Equally serious is the unrecognized oppression created by this western culture of poverty, for Alaska Natives especially, that inadvertently drives the constant striving to put aside traditional lifestyles and turn towards more of a cash economy that will support the path to more accumulated material wealth. Where there used to be more communal food storage facilities, we now see individuals with their own freezers and refrigerators which depend on costly energy, and in case of a power outage, are susceptible to thawing and spoiling of foods. These are complex issues full of contradictions as our youth often enjoy the conveniences of modern day life. As historically oppressed communities, we must come to fully recognize the ways hegemony has entered our ways of thinking and being, then we can move forward with real solutions that incorporate the traditional ecological knowledge of our elders and Ancestors.

### *12.4.1 Towards Ethical Youth Consumerism in Alaska*

Consider this statement from theologian and author Cavanaugh (2009): "There is no need to romanticize preindustrial society. But the difference in our attitudes toward material things can hardly be overemphasized. We used to make things; now we buy them" (p. 37). When we made things, we knew the source from cradle to grave, where these materials came from and we took pride in their creation and release back to the Earth. We still maintain the knowledge of when to harvest birch bark for baskets, how to bend willow for snowshoes, how to tan caribou hides for a skin boat, and how to sew parkas to keep us warm all winter. And we continue to keep the spiritual relationship intact with animal, plant, and water beings. With globalization however, we buy clothes that are made from materials all over the world (sometimes in sweatshops and with the use of chemical dyes that harm the environment), imported foods, and all sorts of materials that are used in construction. Engaging in the process of uncovering real problems and actual need or *conscientization* (Freire 1996), in regards to how Alaskan youth interact with the global marketplace as consumers, might help lay the foundation to create an inclusive culture of caring for one another and the lands and animals we coexist with.

An ever-increasing consumption of goods in Alaska and an economy fueled by oil might be good for the global economy, but if it is at the expense of the health of the land and waters that sustain life, we must seek a better way of living and being. A just transition off fossil fuels and the consumer pipeline entails critical thinking

and analysis at every level of society. It includes ensuring oil workers receive education and training for the new economy and that responsible clean-up happens of the old extractive resource energy infrastructure. Education that includes youth ethical consumerism should play a role in this future vision of Alaska. Engaging youth in this dialogue includes critical thinking and self-reflection so that they might help in finding the solutions, but most importantly value their own self-worth in society. This is surely a break away from the unrecognized poverty culture, however it takes a reclaiming of traditional values.

Working with youth in rural Alaska and in Fairbanks, I have come to know how they care deeply for their communities, their cultures, and when challenged to think critically about issues concerning social and environmental justice, they often surprise us with their ideas and recommendations. It is our youth who have been brave enough to speak out against drugs and alcohol and who have been organizing community to come together for positive healing events, and it is often our youth that are pushing to keep our languages alive and bringing back old customs such as facial tattooing with a modern twist. To respond to their wants and needs, creating radical change could involve incorporating transformative moral education into our educational systems. Jack Mezirow presents transformational learning theory as a process in which our perspectives undergo radical change through personal reflection and community dialogue (Merriam et al. 2007). Reflecting on the history of colonization and assimilation in our communities and dialoguing about the historical traumas, internalized oppression and lateral violence we experience on a daily basis brings about healing and exactly this change in perspective.

We need to bridge the cultural divides that exist in our society to grow and form healthy, caring communities. These divides tend to maintain the culture of poverty that drives youth towards increasing consumerism rather than giving them the tools to displace it. As educators, while we might not be able to directly address all the needs of low-income or students of historically oppressed cultures, we can strive to acknowledge the circumstances in our history that led to such discrepancies. Having youth define their own definitions of success, of the difference between needs and wants and goals of education after extensive truthful discussions about existing inequalities and imposed capitalist values of wealth and success could serve as a powerful catalyst in emancipatory teaching and learning.

Additionally, as Alaskans we must take into consideration the ways in which climate change is impacting our daily lives and how our over-reliance on the oil industry has negatively impacted our economy. Our fiscal crisis has led to severe budget cuts to our education systems and therefore the urgency to value and transform our approach as educators is appropriate. Transformative moral education is also based in peace and ecojustice education. Joseph and Mikel (2014) note:

> This enactment of moral education encompasses critical understanding of human and environmental rights, appreciation of connection and interdependency among humans, all life forms, and the natural world, and moral and ecological imagination – transcending the prevailing form of moral education with its emphasis on conventional values and individual character traits. (p. 317)

Transformative moral education allows us the opportunity to move away from the many forms of violence (symbolic, environmental, physical, psychological, etc.) so prevalent in our culture today and be deliberate in reconciling differences through peace and a change of consciousness.

One approach of transformational learning, according to Elizabeth J. Tisdell, is that which "whole-person learning, including personal, political, historical, and sacred learning, is emphasized. In this view, the teacher serves as a collaborator and helps the learners share and revise their narratives as new meaning is made" (cited in Merriam et al. 2007, p. 142). If transformational teaching and learning is utilized in continuing professional education for Alaskan educators, then they will be able to see the value for themselves as learners and perhaps in turn, be more open to incorporating transformative moral education into their classrooms. The benefit of educators serving as collaborators in this venture is that it opens them up to aspects of students and community that may not have been available to them otherwise.

There has been a movement towards culturally responsive schools in Alaska for some time now, but it could go further (Alaska Native Knowledge Network 1998). In the Fairbanks North Star School District, professional development offerings aimed at incorporating cultural standards have been well received, and Alaska Native Education (ANE) along with English Language Learners offers a year-long 3-credit course on cultural sensitivity (Y. Evans, personal communication, March 22, 2017). As Chair of the Parent Advisory Committee for ANE, I have helped facilitate in-service workshops to educators on the cultural standards, and this is another opportunity to share ideas on furthering curriculum on youth ethical consumerism.

Culturally responsive schools have been poised to lower teacher turnover, which is a pervasive problem in rural Alaska especially. Imagine teachers coming in and out of the community who never have a chance to really get to know the students and their community. This attrition is destructive and maintains a status quo that is a disservice to all Alaskans. Being deliberative in pulling youth into decision-making processes usually reserved for the most privileged, and doing so through reclaiming our traditional ways of knowing and being could prove to be the revolutionary spark we need in Alaska. "Helping students make the link between what they learn in the classroom and the life they know outside of the classroom is at the core of cultural competency, a skill sought after by school districts across the country" (Walker 2011). As part of my community organizing work with youth, I strive to make the issues we face personally relevant and hope to leave youth with the same sense of hope they extend to me (see Fig. 12.7). Better engagement with the 1998 Alaska's Cultural Standards would go a long way to initiate transformative moral education as they both bring together the underlying cultural values of a diverse group of students and an element of self-reflection that allows for changes in worldview or perspective.

Together, the Cultural Standards and transformative moral education allows for a more in depth understanding of the land we live on and the animals and myriad of species we co-exist with in Alaska. The Alaska Native outlook invokes the culture of caring that our society needs, a focus on sharing and respecting our inter-

**Fig. 12.7** Youth at Effie Kokrine Charter School in Fairbanks, Alaska. © 2015 Joshua Snow

connectedness with each other and the land and animals (not destroying things), keeping in mind the well-being of the entire community. A more sustainable Alaska will depend on youth ethical consumerism that is, namely, understanding and innovation that strives for keeping in mind the future generations and the longevity of species that we all depend on. An educational system that is holistic and immersive in nature – meaning that it provides ample opportunities for place-based learning, self-reflection, and dialogue, is more suited for the unique and small population of Alaska. Unlike other areas of the United States, we truly rely on our neighbors and bridging our cultural gaps serves us all. However, this is a lot like many of the small to middle-sized communities within larger urban metropolitan places or rural settings around the United States and the world over. Lessons might be learned from the work towards a just transition that Alaskans will face in the next generation of innovation.

While I have shown there has been much damage done in a relatively short period of time in Alaska to the ecosystems and to Alaska Native peoples, for far longer we have been living determined and resilient lives. So, while many of our youth might be lured by the societal appeal of material wealth with a focus on the individual, they show an ever-increasing desire to understand our histories and reclaim the knowledge of our Ancestors. Incorporating education around ethical youth consumerism is one way we might help youth recognize their own oppression, giving them the fire they need to disrupt unjust systems of power and privilege.

The Indigenous ecofeminist theoretical lens has helped me to analyze the above issues by contextualizing, in this case, the issue of our hyper-consumption and carbon-intensive lifestyle by addressing the epistemic roots of opposing worldviews, one that hinges on domination over women and nature and the other that reveres it with great humility. Revisiting traditional Alaska Native stories, visiting with Elders, speaking with the land and animals, practicing non-violence and community organizing, are all a part of making Indigenous ecofeminism more than just a theory. Youth of any gender should apply the Indigenous ecofeminist lens to analyze the burning questions of our time, to practice self-reflection as a reprieve from social media, to create safe spaces amongst themselves and to seek the solutions based on our own connectedness to all life. As a Yupik elder I know asks, "do you have a belly button?" If you do, that is your proof that you were connected to another human being at one point in time. That bond never goes away although the umbilical cord is severed – we need each other to survive.

As opposed to being preoccupied with buying things, we should instead put our energies into making them. From first-hand experience and some studies conducted by the University of Alaska Anchorage's Institute of Social and Economic Research, many of our youth across the state desire to do hands-on work and be active, not tied to a desk (Lowe 2012). How many youth and adults might this sentiment resonate with? Perhaps, the youths are already identifying an element of modern society that is not in sync with how we were meant to live and be. As our current political and economic systems continue to buckle under the pressure of a failing economy, we are going to be forced to awaken simpler ways of living and being. Collectively, we should work towards utilizing our power to prepare for a just transition off fossil fuels and the consumer pipeline. No longer will be separated from who we are. It is our time to defend the sacred. Our youth are crying for this change.

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**Princess Daazhraii Johnson** is Neets'aii Gwich'in. Her family is from Arctic Village, Alaska. She has a B.A. in International Relations from the George Washington University and M.Ed. from the University of Alaska Anchorage. Her interests include expression in film/theater/creative writing and is a Sundance Fellow Alumni. In 2015, she was appointed by President Obama to serve on the board of trustees to the Institute of American Indian Arts in Santa Fe. She is the former ED of the Gwich'in Steering Committee where she worked for protection of the Arctic National Wildlife Refuge. She currently lives in Fairbanks with her husband and three boys and works with her community on language revitalization efforts, climate change resiliency through the Cold Climate Housing Research Center, and is a founding member of the Fairbanks Climate Action Coalition which works in partnership with Native Movement for a just transition off fossil fuels in Alaska.

# Chapter 13
# Consuming School (Science) Education: A Family-Based Perspective

**Giuliano Reis**

> *Here, you may be delegates of your governments, business people, organizers, reporters, or politicians. But, really, you are mothers and fathers, sisters and brothers, aunts and uncles – and all of you are someone's child. I'm only a child, yet I know we are all part of a family – five billion strong. (…) We are your own children.*
>
> *Severn Cullis-Suzuki (We Canada 2012)*

You probably have heard of selling/being sold to an idea. But, what if this idea is the notion that schooling is a product or service that people need to consume in order to make more money? In this chapter, I look at everyday acts (concrete experiences) of consuming school education, especially within the confines of my family. In the process, I share my perception that the things that we buy – the objects of our desire – affect and are affected by the complex network of relationships in which we find ourselves immersed with other family members. It is a horizontal notion of consumption (Fine 1993) that sheds light on the sociocultural phenomenon of commodification of education through tracing the potential "chains of cause and effect that link particular kinds of consumption to specific places, resources, people, and interests" (Paterson 2006, p. 12). As the opening quote suggests, we all are "someone's child," forever bound to a family.

G. Reis (✉)
University of Ottawa, 145 Jean-Jacques Lussier, K1N 6N5 Ottawa, ON, Canada
e-mail: greis@uottawa.ca



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## 13.1 Blood Ties

### *13.1.1 "Daddy, Juice"*

Arthur is our 3-year old godson. My wife and I visit him and his family frequently – especially during weekends. On those occasions, we have witnessed moments when he says to his father (Fred): "Papai, suco." His utterance is always understood as both a request for juice and an indication that he is thirsty. Therefore, in a matter of seconds, Arthur is handed a small spill-proof plastic cup filled with "suco." He starts sipping right away. For a few months now, Fred has been trying to instill good manners in his son. Hence, immediately after passing the cup to Arthur, he now asks: "O que você diz para o papai?" To what Arthur has learned to respond: "Obrigado, papai." Next, Fred replies: "De nada, filho." In doing so, he closes the short interaction with an indication to Arthur that the dialogue went as anticipated. Otherwise, Fred would have insisted in getting the right answer before giving the cup to his son. Nevertheless, Fred's intention is clear: he hopes that Arthur comes to understand the accepted general norm that people with proper social etiquette are expected to acknowledge their gratitude to others who have done something for them.

Moreover, Arthur appears to have inherited his dad's taste for hard rock: "Papai, Shadow on the Wall," he says. Once again, his remark is taken as a request and is promptly attended. This time, Fred plays the video clip of the song on his cell phone while Arthur dances to it on his lap. Arthur even attempts to mimic the guitar solo with his tiny voice and a big smile on his face whilst moving his head up and down. He visibly enjoys himself. Not surprisingly, Fred takes satisfaction in imparting some of his musical knowledge to his son. What father wouldn't?

Arthur might be too young to grasp the full meaning of these interactions with his father. Still, he is being introduced to behavioral elements that Fred believes will prepare him for full participation in society – be it through the customary ritual of expressing gratefulness or the appreciation of certain music styles. At the same time, what Arthur is learning from and with his parents is not guaranteed to remain unchanged. For instance, his mother (Gabriela) might reinforce the notion of thanking people ("O que você diz para a mamãe?"), which could make him more polite (a form of social capital [Mills and Kádár 2011]). Likewise, she could inspire Arthur to enjoy (consume) Forró music. Indeed, the forging of Arthur's identity during adolescence is likely to include some distancing between what he does, thinks and says and the way in which his parents tried to bring him up (Myers and DeWall 2016). In other words, and despite Fred and Gabi's best intentions, it will never be possible to tease out the precise impact that his parents will have on Arthur. Perhaps more interestingly, both Fred and Gabriela are constantly transforming themselves as they engage in parenting Arthur. Nonetheless, Arthur's family will forever remain a unique place where he can be in/with the world as he develops his consumer identity. This is such that Arthur would grow into a different individual if another set of parents had raised him.

### *13.1.2 Kenny and Carol*

Kenny and Carol are parents in a Canadian middle class family who recognize the importance of blood ties in their development as ethically oriented consumer parents (Vimal 2012). For example, Carol says about her mother: "she only buys what she needs, and she reuses things. So that only has influenced me." Indeed, she takes pride in being her mother's daughter and checking prices of products before buying them. At the same time, she focuses on the quality and origin of what she buys rather than adopting a whatever-is-cheapest type of mentality. According to her, she does not "mind spending money if it is worthwhile [and if] it is the right product." At times, her talk suggests a perception of consumption and consumerism as a living system (Capra 1997):

> But really, if you think about it, if you buy locally, it goes right back into your community. See how it reflects in your society: because it is more money in the community… It all works together, it is all one being, it comes back.

In addition, Carol is mindful of parents' impact as role models in and for their families: "I know that children always watch their parents." This is also confirmed by Kenny, who claims that his present behaviour as a mindful consumer emerged out of his fatherhood:

> I try to be very conscious of what I buy. So I try to buy things that are very ecofriendly. I try not to overspend on things. Just growing as a parent, I like to see [children] get the same opportunities that I do. (…) So, I am thinking of the future generations too, especially when we have kids, I'd like them to have the same opportunities we have.

Kenny is also realistic about possible obstacles for families to develop more ethical perspectives on consumption: "It certainly depends on your [economic] circumstances." Otherwise, families that do not have much or have debts to pay have to concentrate on surviving. Notably, sources of complication also exist within the realm of their family. For instance, Carol has to deal with opposition from extended family members to her vegetarian lifestyle:

> There is [family teasing]. Yeah, there is that. And just to dovetail with that is the idea that some people have that I am a cookie or that I don't know what I am talking about, and that I am an extremist, or any of those ideas.

However, she remains hopeful that families can transformation people: "as the pressures that we will be under increase, you will see more people like me. But there is hope. I see mothers talking to their kids." In any case, Kenny and Carol's daughter (Ariana) did acknowledge her parents' contribution to making her more concerned about the environmental implications of her consumer habits. In the end, it seems like her parents have been able to encourage her to consider adopting ethically minded consumer habits.

Kenny and Carol understand the full significance of their family interactions as they seek ways to live their lives meaningfully. Although it is not possible to identify the precise influence that they have as parents on Ariana, they are – perhaps discreetly – transforming themselves as they engage in parenting her as well as through

being a married couple. That is, much like Arthur's family, Kenny and Carol's own family is a unique place where they all can be in and with the world as they develop their consumer identities. And my family – or yours – is no different.

### *13.1.3 Family as Place*

According to David Greenwood (2013), "all experience is placed" (p. 93). Hence, this chapter is based on the premise that one's family is a critical place – if not the very first – for important transformations to emerge, like learning to consume ethically. As parents and their children undergo their personal processes "of becoming" (Freire 2003, p. 84), every one of their individual life stories continually accumulate traces of one another; that is, they get naturally "contaminated" by each other. Our families, both the ones where we started life and those that we have created with our partners, are important *loci* for experiencing consumption of all kinds. This is the common thread that connects the stories presented in this chapter. More specifically, my narratives consider how the experience of youth ethical consumerism can be realized within the confines of this social group that I have come to know as my family. In doing so, I wish to make my stories relatable and familiar (get it?) to readers in ways that invite them to appreciate the role of their families in their development as ethical consumers on their own right. Particularly, I direct my critique to the view of school education as a form of business, a mere product or service that can be purchased for a price and which offers the prospect of turning particularly young people into unrestrained consumers.

## 13.2 The Business of Teaching or Teaching as a Business?

To consume is to enter into an interaction much like a conversation. Although the act of communication can be complex (Narula 2006), a rudimentary (linear) dialogue model requires only a handful of elements: a sender, a receiver, a message, and a medium to carry that message. Besides, if there is no reaction (feedback) on the part of the receiver, the sender's message is destined to "fall on deaf ears" – meaning the conversation is over before it even started. In other words, for a conversation to take place, there is the need for at least one person to talk and another one to listen and (with any luck) reply. A good example that comes to mind is of a public environmental educator (Ana), who described an embarrassing situation in which she was involved. It was shared during an interview collected for a larger study on the practice of environmental education in diverse learning settings:

> I went to do a climate change workshop [at a local school] and the workshop was quite prop-intensive. I took a lot of games and things to show [the students] with this particular workshop, so I had to carry a lot with me. So, I drove my truck to the school to bring all these props with me. And I'd left the school and I felt really good about the classes. I felt

> like I had a lot of good interactions. I was putting the materials in the back of my truck and one student said: "Oh, you drove here today." And I had been talking about transportation and how we have too many cars on the road, and I thought: "I just undid everything I taught because I wasn't modeling what I was teaching." So, the next time I went, I rollerbladed with my partner.

In her narrative, Ana explains how her short interaction with a student made her realize that her decision to drive her truck contradicted her teaching. Put differently, Ana (sender) went to the school prepared to talk (medium) about how students (receiver) could do their share to be more environmentally friendly (message). Nevertheless, what she heard from one of the children (feedback) was unexpected, but effective enough to change how she chose her mode of transportation to the school the next time.

Similarly, for consumption – and consumerism by extent – to take place, it is necessary to have a handful of elements: a buyer (who is willing to acquire objects or services), a seller (who is prepared to supply what buyers want), and the means to compensate the seller for whatever is being sold. In modern consumption practices, money can be said to be both the medium and message: for the most part it can be safely assumed that people carry money in anticipation of participating in financial transactions. This display of a buying disposition (message) is usually met with a reaction from the seller (feedback) in the form of the setting of a price for the exchange to materialize. For example, think of one's experience of buying a latte at a local coffee shop. In this case, someone (buyer) is willing to consume coffee and therefore has made the decision to seek a place where the product is sold (seller). In order to pay (message) for the drink – or in exchange for it – the buyer offers money (medium), but at an amount stipulated by the shop's owner. Put differently:

> The economic side of commodity is reflected in its price. In Marx's words, price reflects its being the "product of labour." Price anchors commodity and consumption from one end to the economy. Consumption, in other words, always has an *economic side* to it. (Ilmonen 2011, p. 36, italics in original)

Once again, the price of the coffee is nothing but a response and reaction of the seller to the buyer's intention of purchasing it. (This intention or disposition is also displayed the moment the buyer enters the coffee shop). These components come together very quickly and so frequently in our daily lives that we rarely think about them.

So, whether you are talking to a student about a workshop or paying the barista for your favorite cup of latte, these social interactions may be said – however simplistically – to rely on the existence of similar elements. If so, then we have that Anna's workshop could be considered a product and service that she sells to students. In such case, the students would be consumers of and costumers to Anna's teaching business. If we expand this analogy further, then we have that schooling is a product or service available for consumption (Mercer, Dawes and Staarman 2009). That is, we can assume that school teaching and learning is realized through consumerist-like interactions between teachers and students. This view of school education is well aligned with more traditional forms of instruction, where "a

monologic teacher is largely concerned with the transmission of knowledge to pupils" (Lyle 2008, p. 225). From this perspective, "knowledge" is a valuable socio-cultural commodity available for sale. More importantly: such a consumerist perspective of education seems well fitted for our commercial cultural makeup:

> Culture may be defined as the whole body of beliefs, practices and material artifacts that a society uses. Our culture is commercial because of the central place material goods and reminders of material goods have in it. But the term "commercial culture" can be used in another sense as well, when applied to the flow of ideas and expressions that shape our national character and outlook. By this narrower definition, contemporary American culture is commercial because, overwhelmingly, it is produced for sale to meet marketing requirements. In this respect our culture differs from the cultures of other places and times, in which expression has either been valued as an end in itself or because of its ability to please a patron. (Bogart 1991, p. 62)

What happens when schools sell themselves as means to facilitate – however deceptively – socio-economic mobility? What happens when teachers sell (inadvertently perpetuate) a commoditized perception of schools? What are the potential implications to how teachers see and execute their jobs and how students understand and act upon the value of their school experience? Let's explore these questions. More specifically, I will examine how my family – or place – has helped to shape my perspectives on schooling, the way I teach, and made me realize my position as a privileged member of an unjust society. In doing so, I hope that others come to question their own role in the grand scheme of the education industry as consumers and producers of school education. I shall start with a story that I have carried for decades within me.

### *13.2.1 Breaching of Contract*

Some 20 years ago I landed a job as a science teacher at a private secondary school in Brazil. At that time, it was customary for pairs of teachers to be placed into classrooms in order to personally hand out the final report cards to students and their parents. It was always a blissful experience when we had a chance to congratulate a student for achieving passing marks. On the other hand, anxiety took over every time an academically failing student walked into the room. I had three good reasons to feel that way: first, whether the student had failed one subject or many, the entire grade would have to be redone as there was no summer school at that specific institution. Second, I never knew how parents would react. Third, who would want to be the bearer of such terrible news? No matter if the student saw it coming or not, the plain fact is that I did not enjoy the prospect of end up playing "bad teacher" with my other colleague in the room.

One year, I was in a room with the history teacher when a difficult student came in with his father – who, by the way, had never set foot in any of the parent teacher interviews held during the year. To my unsympathetic relief, they went straight to my colleague's desk. The student had failed the entire 8th grade because of his

below-average performance in one or two subjects. It did not take long for the father to start yelling at my colleague, threatening to take the report card down to the police precinct (!) and get us all arrested for breach of contract. The man believed that the school had failed to fulfill its contractual obligation to successfully approve his son to the next grade (!). For him, the bad report card was on us, the teachers. As I remember it, he also demanded his son's full year's worth of tuition back at some point during his outburst. Eventually, he negotiated with the school the transfer of his son to another institution. That was the end of it. (What scared me the most was the fact that his son stood quietly during the whole time, probably learning from his dad's example how to handle situations like these in life). Maybe this is an extreme case that only happened this once. In any case, that parent's dissatisfaction with the quality of the teaching that teachers had provided to his son illustrates a vision of education as a product or service that can be traded, negotiated, and for which one can be possibly refunded. This commercial angle on schooling was puzzling for me until I realized that I was too – although unknowingly and in a different way – contributing to selling it to my students. Looking back, I now admit that my privileged upbringing is partly responsible for that.

### *13.2.2 A Love for School*

I grew up in a middle-class family. My mom retired as a secondary math teacher and my father as an insurance broker – and both were very successful in their respective jobs. In our house, going to school was never an option, irrespective of the fact that my dad never graduated from university. My parents wanted the best for their three children, so they sent us to the private school system after its quality – whatever that means – surpassed those of the public schools in our town. That is, they were always shopping for the finest schools for us.

Attending a good school was synonymous with getting a good education. It also increased the likelihood of being accepted into the best universities (public institutions were amongst the most reputable ones), which would then pave the way to a successful (namely, a well-paid) career. No summer schools, "victory laps," taking time off, or going into adult education. Those options were for those in less favorable socioeconomic groups. The only work that middle class children – like me – had to do was to excel in school and graduate at the appropriate age stipulated by the government. And so I did.

I loved going to school: I had friends and liked most of my teachers. In fact, I enjoyed it so much that decided I would dispense to my students the same type of education that I had received as a younger student years before. In other words, I would be the same teacher regardless of who my students were. And so I did. Back then, I was teaching at a private institution during the day and also working the night shift at a public adult high school. Nevertheless, I taught my mature students in much the same way that I did my far younger clientele during the day. It seemed irrelevant to me the fact that they formed distinct audiences from one another. While I had wealthy teenagers filling my classes at one place, my new condition as a public

high school biology teacher at the other required me to interact with single parents, bus drivers, maids, cooks, etc. – people who were older than me and who had to work hard to provide for their families before going to school from 7 pm to 11 pm every weeknight. If the private school was a place where students could hang out with friends and make plans for the weekend, the adult public school was considered by the students as a requisite for a job at the local supermarket. Still, I believed that institutionalized education was the only way to create possibilities of a better life to people no matter how well off they were. As a result, I insisted on teaching my students how to draw a Punnett diagram as if it mattered to their aspirations of a successful life (Reis 2009). I misled myself to think that making my students – young or not – consume the service that I was getting paid to provide was a rare opportunity for them to move up the socioeconomic ladder of society. While such pedagogy was inspired by the naive ideal that anyone can accomplish the same intellectual heights irrespective of their present social and material circumstances in life, it lacked the necessary vigour to critically engage with the contradictions and limitations inherent to my teaching and the schools where I worked (Burbules and Bruce 2001). It also was an expression of my membership to a certain socioeconomic group that was different from that of my students'.

Could it be that my privileged upbringing associated with my condition as a middle-class schooled and employed male member of society had obfuscated my perception of the realities of my lower-class uneducated and subemployed students at the adult high school? What about my students at the private school: did they care about the things that I was trying to teach them? (I certainly felt less doubtful about my role at the private institution since that environment was more familiar to me.) Little did I know that my experience as a parent and immigrant would help to change my views on education – and (my) teaching by extentsion.

### *13.2.3 Crossing Borders*

In 2004, I immigrated with my family to Canada. We arrived in Victoria (British Columbia) on the wee hours of the first day of March. (Wolff-Michael Roth has a big role in this story.) Aside from the climate, we soon realized that other things were different than what we had back home. For instance, everyone we knew went through the public school system and public transportation worked. For the first and longest time in our lives we did not have a car. Maybe most shocking to me: teachers were valued in the community and received a decent remuneration. None of that existed in my world before. If anything, being an immigrant has allowed me to see the teaching profession in a different light.

On the other hand, the students I came across did not seem to differ much from the ones I had met before moving to the country. Although they were well dressed and healthy, they still occasionally misbehaved and didn't find going to school the most exciting part of the day. (It was then that we learned the expression "snow day".) My two daughters – Ana-Julia (AJ for short) and Maria-Luiza – seemed to

like school as much as my wife and I did when we were younger. Much like my parents, I too believed that they were on the right path to becoming successful in life. But things started to change when the girls grew older. The more they advanced through grades, less likable classes became. As a parent and teacher, this was disconcerting to me. Particularly, two incidents have had a profound impression on my family and on the way that I now participate in the process of consuming (selling or re-producing) school education through my teaching.

### *13.2.4 Parlez-Vous Français?*

After a few years of having moved to Ottawa, my wife and I concluded that the right time had come for our girls to enter into the French school system. The parent interview with the school board admission committee went well and both AJ and Maria-Luiza were eventually accepted. Since the process was originated at the *école élémentaire* that would become Maria-Luiza's first French school, we were tasked to find an *école secondaire* for her older sister.

The first school that AJ and I visited had been recently built. The school's performance arts program well known in the community, and AJ had a strong interest in acting. Naturally, my daughter seemed really excited with the prospect of taking theatre lessons at the new school. After someone of the administration sat down with us, I excused myself and explained that I would prefer to speak English since I was at my early stages of learning French. The person immediately asked me: "But you do understand that this is a French school, where all classes are in French?" I replied (defending myself) by saying that when we first moved to Canada, AJ could not speak English either and that we were also looking for opportunities to develop her immersion in the Canadian culture of bilingualism. It all made sense to me. Next, he asked AJ to write a test to verify her proficiency in French – which at that point was a language that she had never spoken before. It took AJ a good 45 min to complete the test and another 15 for the results to be calculated. What followed was a strong – not to say obstinate – encouragement for AJ not to register at that school. Both of us felt unwelcomed. Both of us felt inadequate. It hurt.

We did not give up and decided to go to another school in our catchment area. It was mentioned to us after some of our initial enthusiasm died. Apparently, this other school was better equipped to deal with AJ's situation as they had a learning program designed for *débutant* French students. This time AJ (we?) got accepted.

When the first parent-teacher interview came around, I invited AJ to tag along while I met her teachers. They all had something to say about AJ's timidity in speaking her third language in class. This was somewhat expected especially after the intimidation she faced from a handful of students who thought it was funny that she could not speak French and still attend a French school. (There were days when AJ asked us to stay home to regain the necessary energy to continue fighting all the negativity.) Of all the conversations we had that night, it was the one we had with the French teacher that stuck with us. Monsieur G. made the most insightful observation: "Peut être Ana-Julia est capable de parler Anglais et Portuguais couram-

ment. Toutefois, elle sera jamais capable de parler Français. Des personnes ont des différentes habiletés linguistiques." It took a few moments for us to digest his diagnosis of AJ's linguistic aptitude. In a simple sentence, Monsieur G. managed to discredit AJ for all her efforts in learning French. He simply ignored the fact that building self-confidence to speak a new language is a complex process that could take time (Labrie and Clément 1986). Besides, he also attested to his own failure as a teacher and educator. Both of use felt unwelcomed. Both of us felt inadequate. It hurt. Again.

### *13.2.5 "Re-thickening" Teaching*

While AJ is theatrically skilled, Maria-Luiza is our artist-in-residence. In grade 7, she had to read the book "Holes" (Sachar 1998) for her English class. In one of the activities related to the book, students were asked to create a bookmark. Even I, who am artistically challenged, thought that the assignment was creative. Besides, Maria-Luiza should have no problem excelling at this type of work. Her teacher apparently disagreed.

Regardless of the actual bookmark that Maria-Luiza handed in, I was especially surprised with her teacher's assessment of my daughter's work (Fig. 13.1). Not just as a parent, but also as a teacher. Although the rubric contains a number of objective criteria – for instance, book title, author's name, spelling, and grammar – it includes an equal amount of subjective ones: colour, creativity, meticulousness, etc. (I remembering feeling sympathetic towards the teacher for all the time she spent measuring the dimensions of each bookmark.) Not that I do not believe that teachers are capable of judging the quality of their students' work. But what does it say to the students? Do they understand what is to be corrected when the thickness, the cardboard, and the Bristol board construction of the bookmark are judged inappropriate? What are the adequate thickness, cardboard, and Bristol board construction for a bookmark? How does one evaluate the meticulousness with which each student prepared their bookmarks? Is there an expected standard for it? Who decides it? To what degree? Should teachers spend their valuable time restlessly measuring bookmarks to make sure they conform to dimensions stipulated in the assignment guidelines? Or should they spend their valuable time finding out if their students understand why things are measured in the first place and how (Roth et al. 2008)? Can teachers be more to their students than school employees, custodians who are paid to cover the curriculum while also keeping the students orderly contained in the classrooms? (I cannot help but picture Richard Dreyfuss' character in the movie "Mr. Holland Opus" leaving school faster than his students after the bell rang.) Is that what teachers are for?

Those teachers in my daughters' incidents – like myself at some point in my career – helped to perpetuate a commoditized ideal of education. They sold the message that whatever schools have to offer is valued as a product or service that does

Bookmark - Holes (Louis Sachar)

Camper's name: Maria Luiza

| Criteria - Visual Communication | R | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| **Information** (Title, author, camper's full name, tent number, cardboard, Bristol board construction, appropriate thickness, dimensions: 6,5 cm x 21,5 cm, double sided) thickness | | | ✓ | | |
| **Teaser** (brief saying, to grasp reader's interest without giving the story away, spelling, grammar, homonyms, proper use of capital letters, vocabulary, sentence structure, **authenticity: written entirely by the camper**) | | | | ✓ | |
| **Visual** (colour, disposition, creativity, calligraphy, originality, **authenticity: made entirely by the camper**, neatness, meticulousness) | | | ✓ | | |
| **Items** (quantity, theme, refer to document: Before the Book) | | | ✓ | | |

**Fig. 13.1** Rubric for Maria-Luiza's bookmark. She scored 1.5 points (out of 4) in the information section. Also, note the *circled* criteria and the word "thickness" in the teacher's handwriting

not need to be tailored to the individual needs of its consumers. (For some students, even the concept of schooling as a whole is nonsensical). Remarkably, it is commonplace for students to strive to get a mark (always quantifiable) over meaningful learning (hardly quantifiable).

> The institutionalized values school instills are quantifiable ones. School initiates young people into a world where everything can be measured, including their imaginations, and, indeed, man himself. (Illich 1970, p. 40)

This cookie-cutter education (Kelly et al. 2009) is based on pre-packaged curriculum-based units of instruction delivered (sold) to an idealized homogenous – not to say amorphous – student body. As harsh as my argument may sound, tit has been made by others long before. The situations described here suggest that teachers can still not teach, but deliver or dispense instruction that is mass-produced. If my daughters' French proficiency or bookmark thickness did not conform to the norm, then they were made feel incompetent. Other alternatives, like getting extra help or a chance to redo the assignment, appeared to be out of the question. Generally speaking, the problem seems to never be with the existing teaching and grading systems. It is always the individual who is at fault. And some of us – parents and teachers – continue to put our children through many years of schooling using the excuse that the reward that await them: a certified piece of paper that can turn into a golden ticket to a life of worry-free consumption and consumerism. In the words of Joel Spring (2015):

> The social capital of the family is key to providing children with soft skills to succeed in a corporatized global economy. (…) What happens if the family lacks the right soft skills? The answer… if for children to attend preschool to compensate for the family's lack of the right social capital. (p.16)

Not surprisingly, this ideology is likely to be inherited by the next generations of students. It is a cyclical problem that is kept alive in and through schools whenever ideals of consumption and consumerism become front and center in any intelligible classroom conversations about the value of getting an education.

## 13.3 Can We De-Commodify Education?

> School removes things from everyday use by labeling them educational tools. (Illich 1970, p. 80)

I have long abandoned the idea that my job is all about delivering information. I consider knowledge to be something utterly different and impossible to be simply transferred from my brain to my students'. I have also come to accept that what I do is indeed to offer a product and service for a price. However, for me, it was never about the money. Rather, I think of my salary as a consequence of my work and not an end in itself. Of course I need money in order to provide for my family, pay our mortgage and buy food. True. My dependence on it has even occasionally limited my ability to advocate for my own teaching (Reis 2017). However, money was not the main reason why I started in this business. (No, it did not feel as a sacerdotal-like calling or vocation for me either). I just wanted to do it – and do it right. (I am still on my way to doing it right).

In addition, I no longer preach that education is the salvation of society's maladies – intellectual, socioscientific, ecological, emotional, financial or otherwise. If anything, my experience as a parent, science teacher, university professor, and immigrant has taught me that there are no guarantees in the business of education. No one knows what will become of Arthur or Ariana (Kenny and Carol's daughter) in spite of everything that their parents are doing to make sure they get properly educated. Likewise, I cannot promise that my student teachers will turn out to be the great teachers I always hope that they will. What makes a "good teacher," anyway? Maybe they will learn the most valuable lessons about teaching and learning outside my classes, from their own students, as Ana did after driving her truck to the school 1 day. Maybe someone will have to threat to take them to jail for them to realize how people perceive their work. Maybe they will have to teach marginalized adults before they can begin to question their own views on education and their privileged position in society. Or maybe they will have to feel through their children what it is like to be on the other end of a discrediting remark or a pointless marking.

I seek to do right by my students and their families. I teach them as if I could make them not become the teachers that I described here, including myself when teaching the night shift at the adult public high school. How is that teaching students – low or high income – the Hardy-Weiberg equation useful in their quest to becoming a better version of themselves? How does telling AJ that she is forever to be incompetent in French useful in her quest to becoming a better version of herself? How does providing useless feedback to Maria-Luiza on her do-it-yourself bookmark activity useful in her quest to becoming a better version of herself? How do those experiences help youth to survive the world and live a happier life? How do those experiences help youth to become more ethically oriented consumers? Is this *bullying kind of education* what teachers should be selling to their students to consume? Is the (deceitful) promise of a high salary enough to justify all the suffering and confusion that we put our students and ourselves through? Is it possible that teachers have been corrupted by the school system that pays their bills as long as


**Fig. 13.2** Public trashcan. The sign reads: "Advertise sustainably." Could the product be sustainable as well or is this just another way of greenwashing consumption? © Reis 2015

they will go along? (After all, their families are more important than the role of a jobless change agent). How does relegating themselves to the weight of the system (neoliberalism) can sabotage teachers' best intentions to provoke others to acknowledge that this may 1 day happen to them too? No wonder that going to school is not the favourite part of the day for many students and their teachers, who might be already severely burnt out as it is (Codo 1999).

### *13.3.1 Stories I Live By*

Consumption can be a rewarding sociocultural and ecological experience. For instance, you can buy a bottle of soda while helping the environment or buy a skin care product and help some distant communities to alleviate the dry skin problems of their population. Likewise, you can advertise your product on a public trashcan and still promote sustainability (Fig. 13.2) or buy a water purification system and help give water to (guessed?) some distant – but needy – communities. The list does not stop: you can buy food for your pet and help sheltered animals or buy a specific brand of cereal and help fight Colony Collapse Disorder. In a way, going to school is no different: in devoting time and money on getting a school certificate or diploma, one is hoping for all that investment to pay off in the form of securing a better job, so that they can buy more sodas, skin care products, whatever is in fashion as sustainable as well as water purification systems which filters need to be replaced

regularly and cannot be recycled. It goes without saying that all these examples in no way impose a limit in how much people should consume. On the contrary, why limit oneself to buying all these products, including getting the best education possible, if in doing so you are helping others, the environment and oneself?

Consumerism is a phenomenon that permeates all levels of society – after all, despite "social position and income levels by and large we often desire and aspire to the same things" (Patterson 2006, p. 18). It also promotes a culture of discarding, where products like food, footwear, furniture, toys, decorative accessories, bicycles, electronics, and clothes end up in the garbage sometimes before they reach the end of the expected life (Clarke 2008). (On that note, who hasn't heard of "planned obsolescence" [Guiltinan 2009]?) Therefore, consumerism not only creates pollution in the process of depleting existing natural resources for making stuff, but it also helps to sustain poverty and social injustice. For instance, 1.3 billion tonnes of food are wasted worldwide each year while thousands of children die of hunger every day (Food and Agriculute Organization of the United Nations 2009). In Canada, an estimated 27 billion dollars worth of food finds its way to landfills and composting sites annually, thus creating unnecessarily high levels of carbon and methane (Gooch, Felfel and Marenick 2010). For that reason, it becomes imperative that we change our consumerist practices if we want to reach our ideals of living sustainability in a more socially and environmentally just society (Smart 2010).

In the current scenario of contrasting abundance and wastage, ethical consumption – or the act of thinking and acting ethically while acquiring products and services – emerges as a possible response to counter the undesirable consequences of our urge to buy. However, the transformation into an ethically concerned consumer is complex – to the point where it is considered to be a myth (Devinney, Auger and Eckhardt 2010). Nevertheless, families – as important loci of economic activity and consumption (Becker 1981) – represent a rich context where young people have the opportunity to re-consider the larger implications of their buying choices to themselves and the planet. Consequently, understanding consumers' behaviour in the web of social relations of their families become very relevant for the scholarship of sociocultural aspects of youth ethical consumerism.

Based on the cultural (symbolic) meaning currently allocated to school education, it can be said that it is one of those rare examples of a commodity which exchange and use values are directly proportional to one another. The more people "use" formal education – the longer individuals spent in schools successfully accumulating certificates and diplomas – the more likely they are to secure and maintain desirable levels of success. That is, they increase their employability. In this case, the catch is that they commodify themselves in the process of consuming education-based products and services. This is so that they continuously endure physical and emotional hurdles to refresh their education credentials and prolong their market value. To complicate matters further, I cannot but wonder how relegating oneself to the weight of the system (neoliberalism) plays a role and how we might challenge other teachers to acknowledge that this may 1 day happen to them too. It will be a matter of what they decide next that will determine whether ethical youth consumerism is embraced.

In this chapter, I resorted to personal stories to approach ethical consumerism from the privileged place of my family. In sharing my narratives, I hope to inspire readers to reconsider their own family-based lived experiences with consumerism as sources of inspiration towards more sustainable and socioecological ways of living in society. While people might search far and near for inspiration and opportunities to become better versions of themselves, what they need might be already where they are. That is the message that I like to think I am getting across when I share these stories with my student teachers.

Humans are bizarre, but also storytelling animals (Gottschall 2012). People live in stories. In sharing my narratives, they become sources of knowledge that help me to make sense of consumption and consumerism as a parent, educator and immigrant. Ultimately, I hope to inspire readers to reconsider their own lived experiences as consumers as a resource to favour more sustainable socioecological ways of living/teaching/learning in society. It is a matter of what readers – be them teachers, students and parents – decide to do next that will determine whether ethical youth consumerism is embraced in their families and schools. What stories do we want to tell to younger generations?

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**Giuliano Reis** is an Associate Professor of Science Education at the Faculty of Education at the University of Ottawa (Canada). His main research interest is in the study of language in/for science and environmental education in various learning contexts. He is married to Juliana Reis and together they have two daughters: Ana-Julia and Maria-Luiza Reis.

# Chapter 14
# Commodification of Health, Disease, and Body in Science Texts: Promoting Meanings of Consumerism in the Classroom

**Sophia (Sun Kyung) Jeong, Sun Young Jeong, Mutlu Sen, and Deborah J. Tippins**

## 14.1 The Chapter's Beginning: A Reflection Upon a Missed Teachable Moment

On August 1, 2016, the Centers for Disease Control and Prevention (CDC) issued guidance for travelers and residents about the "Zika cautionary areas," also known as the "yellow areas," in South Miami due to the active Zika virus transmission. It remained in place until December of that same year. Considering that the Zika virus infection during pregnancy can cause microcephaly and severe fetal brain defects in newborn babies, the CDC advised pregnant women to consider postponing travel to or adopting measures to avoid contamination if already living in these areas. Two of the authors (Sophia Jeong and Mutlu Sen) were co–teaching a class for prospective elementary teachers at the time, and collaborated to develop a socioscientific case centered around the Zika virus. The case was called "I Love Mother Nature. But, I Want My Nephew To Live: A Debate Over the Zika Virus and the Use of Pesticides." The original intent of developing and using the Zika virus case in an elementary science teaching methods course was to engage prospective teachers in the discussion of socioscientific issues (SSIs) and the development of reasoning. Given the prevalence of news coverage on the risk of the Zika virus transmission, the outbreak hit close to home for many students, as they had friends and families or knew of someone living in Florida or areas that were close by. Some even had relatives who were pregnant living in areas prone to mosquito populations. Therefore, because of the obvious interest in learning more about the issue, we believed that the case

S. Jeong (✉) • M. Sen • D.J. Tippins
University of Georgia, Athens, GA 30602, USA
e-mail: sj33678@uga.edu; mutlusen@uga.edu; dtippins@uga.edu

S.Y. Jeong
Medical College of Wisconsin, Milwaukee, WI 53226, USA
e-mail: sjeong@mcw.edu



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would be an effective tool to develop a critical attitude towards a myriad of information as well as to teach science for citizenship and science as a social enterprise.

### *14.1.1 Realization of a Missed Teachable Moment*

The fundamental importance of citizenship in a democratic society is the notion that individuals develop the abilities to make informed decisions and promote their point of view on socioscientific issues (Kolsto 2001). Similar to the way scientists inquire about the natural world and solve complex problems through reasoning, ordinary citizens also rely on reasoning to "bring clarity to the controversial decisions they face," access socioscientific issues, and formulate positions (Sadler 2004, p. 515). For example, citizens use reasoning every day to make decisions about their health and lifestyles. Some of the important goals of science education are to help students understand how society and science are mutually dependent, develop their ability to analyze, synthesize, and evaluate information, and foster their ability to deal with moral reasoning and ethical issues (Zeidler et al. 2005). To accomplish these goals, educators have argued for developing curriculum materials that incorporate cases on specific scientific or socioscientific issues (SSIs) to teach science for "citizenship and decision making on controversial issues" (Kolsto 2001, p. 293). Thus, the course instructors (Sophia Jeong and Mutlu Sen) wanted to create a science teaching methods course in which prospective teachers would have the opportunities to grapple with socioscientific issues that were open–ended, contentious, and challenging. Through the Zika virus case, the prospective teachers were invited to confront complex issues surrounding the use of strong pesticides to control mosquito populations that are contributing to the spread of the Zika virus. In class, the course instructors expected them to consider and discuss the case through an on–line discussion forum, in–class group discussion, and through the development of individual reflection papers in terms of various aspects of the decision–making process, ethical issues of their choice as well as the impact of science and technology on society. However, upon reflecting on our experience of using the Zika virus case with prospective teachers, the course instructors together with two collaborators (Sun Young Jeong and Deborah Tippins) realized that the lesson had created an unintended artifact, which was the commodification of health, disease, and body through an educational text.

### *14.1.2 The Purpose of Our Chapter*

The purpose of this chapter is to explore the meanings of consumerism in the context of a science teaching methods course. More specifically, we reflect on how the use of our Zika virus case may have been problematic and potentially promoted the messages of consumerism in various ways.

In what follows, we provide our readers with a brief version of the Zika virus case. Then, we present three meanings of consumerism in the context of public health as a conceptual framework that helps us to think deeply about consumerism in science education. Lastly, we highlight salient points from our class discussion, prospective teachers' reflection papers, and their online discussions to analyze how we may have unintentionally and inadvertently perpetuated the messages of consumerism in our science teaching methods course.

## The Zika Virus Case

> Ms. Hope (pseudonym), a 7th grade life science teacher in a rural, Meadowfield School District (pseudonym) of Florida, was getting increasingly concerned about the spread of the Zika virus, as the number of Zika cases reported in Florida had officially exceeded 1000 cases, according to the Florida Department of Health. Ms. Hope was not surprised when several of her 7th grade students asked about the Zika virus, given the prevalence of the news media reporting on its outbreak in the neighboring areas. During a class discussion of the virus during the science period, Justine, one of the more vocal students, said, "I do not understand why we do not just spray something to kill all mosquitoes." In response, Mark shouted, "Because harsh chemicals and pesticides would harm the orange trees and bees!" Ms. Hope saw this timely issue as a wonderful hook to capture her 7th grade students' attention while teaching and learning about the basic principles of biodiversity and how one element of a complex ecosystem could provide essential components to the survival of many species of plants and animals. What could be more relevant than incorporating the current issue of health and disease into the class? "What do you all think about using chemicals and pesticides such as DDT to control the Zika virus?" Ms. Hope asked the class. As if the gate of chatter had opened up, students spoke all at once with different opinions about the use of pesticides to control the Zika virus. Ms. Hope raised her hand to calm the class down, "Okay. Let's talk about this Zika virus issue more during our next class." After giving some thought to students' comments, Ms. Hope decided to have students come up with their own questions about the virus and conduct research to investigate them. The next day, Ms. Hope showed students how to conduct Internet research. She showed them how to choose keywords and search terms, enter them into a search engine, evaluate websites, take notes and gather information. At the end of the science period, Ms. Hope informed students: "We will discuss what you have learned about the Zika virus on Friday. Be prepared to support your arguments with evidence you have learned through your research." ("I Love Mother Nature. But, I Want My Nephew To Live: A Debate Over the Zika Virus and the Use of Pesticides").

In what follows are the highlights of the arguments that Ms. Hope's students made either in favor of, or against the use of DDT to control the spread of the Zika virus.

**Ms. Hope:** Ok, class, let's get started on our discussion of whether we should bring back the use of DDT to control the Zika virus here in the U.S.

**Johnny:** I looked up articles about the Zika virus and read that experts are talking about bringing back DDT, a pesticide to control the spread of the Zika virus. I think this has been a heated topic because the U.S. government banned the use of DDT in the 70s because researchers found that the gas caused serious defects in the developments of animals exposed to the spray.

**Stacey:** I think we should bring back the use of DDT to control the Zika virus outbreak. I read an interview given by the director of the Centers for

Disease Control and Prevention (CDC), Tom Dobbes. In the interview, he admitted that the current strategy to combat the Zika virus right here in Florida is not working. Also, Dobbes said that chemicals that they've been using to kill larval mosquitoes and adult mosquitoes are not as effective as they had hoped. So, I think we should bring back DDT. I learned that Zika infections are caused by mosquito bites and experts say that nothing is as effective as DDT for the control of mosquito populations. What's really scary about the Zika virus is that the mosquitoes can breed in a pool of water as tiny as a bottle cap and they actively bite during the day. So, if you are out and about, you are at risk. Remember, we live in Florida, which is where mosquitoes are commonly found during hot weather.

**Sergio:** I would have to agree with Sally about the use of DDT. Also, did you see the statement put out by the World Health Organization (WHO)? WHO's Director–General, Margaret Chung, said that the Zika virus poses a global and international threat. Prior to 2015, the Zika virus outbreaks have occurred in Africa, Southeast Asian, and Pacific Islands. Well, in May 2015, Zika virus transmission was confirmed in Brazil and outbreaks are currently occurring in other countries as we speak. Look at this news article. The article says that while the CDC and the Environmental Protection Agency were shuffling their feet to find a solution to the Zika problem, the Zika epidemic, which has spread from Brazil to the rest of Latin America, is now raging in Puerto Rico, and it is making its way over to Florida. Did you read about what this virus can do to babies and pregnant moms? The virus is linked to the dramatic increase in the reported cases of microcephaly, which is a condition of underdeveloped brains in newborn babies! Besides, I don't know about you, but I've got family in Brazil. My aunt is pregnant and I do not want my nephew to be born with a small head! If we do not allow people to use pesticides to kill off the mosquitoes, then the Zika virus will infect many people that live in other countries too. I read somewhere that other countries are using DDT to control mosquito populations for malaria, so why can't we do the same?

**Peter:** Just to add to Stacey and Sergio's points, I want to share another report from the World Health Organization (WHO) about Zika. Did you know that there is no effective vaccine against Zika as of today? Researchers from WHO (in collaboration with UNICEF), and the National Institute of Allergy and Infectious Diseases are all working independently to develop a vaccine, but we know vaccines take years to develop. Also, Sergio has a good point. We should be aware that other countries are using DDT to control malaria. That's because they think DDT is the best way to bring down and control deadly insect–vectored diseases like malaria. Let me give you some data. Prior to using DDT, in 1946, Sri Lanka had close to 3 million cases of malaria

and 12,500 deaths. After a large–scale application of DDT, the number of reported malaria cases fell to, guess how many? One! Also, in 1945, our neighboring state, Georgia, used DDT spraying and by 1950, malaria cases were completely eliminated.

**Stacey**: I have some data about the application of DDT on malaria control, too; it's from a scientific report in the American Society of Tropical Medicine and Hygiene. When DDT was used in all of South Africa, there were only 600 cases reported from 1991 to 1992. In 1995, South Africa decided to ban the use of DDT, potentially due to the political and economic pressure from the developed nations. Afterwards, the rate of malaria infections skyrocketed. From 1999–2000, there were 40,700 cases of malaria reports. When DDT was re–introduced, the number of malaria cases dropped drastically, and, so in select parts of South Africa, DDT is currently in use, but sprayed in controlled and smaller quantities inside homes and buildings.

**Ms. Hope:** Do we have anyone who is against using DDT to control the Zika virus?

**Barbara:** Yes, I am against using DDT. I want to point out that Dr. Henry Bowman, a professor in the School of Environmental Sciences and Development at a University in South Africa, cautions the public about the use of DDT. He advocated that we should be looking for safer alternatives and if possible, DDT should be phased out without putting people at risk. I read studies where researchers have concluded that DDT presents an unacceptable risk to our environment and our health. Scientists have been reporting that DDT may have a variety of human health effects, such as birth defects and cancer. I read that DDT is a very stable compound in the environment and it takes years for it to decompose. That means, if a person is exposed to DDT, it's going to stay inside of that person for a very long time. The same is true for animals, plants, water, etc. I saw data that DDT was found in the most remote areas of the world and places where it had never been applied, 10 years after DDT was used – I think this is because wind and water transport DDT all over when sprayed as a gas. So, studies showed that DDT began to show up in birds, fish, domestic animals, and humans. DDT accumulates in fatty tissues and is passed on from mothers to their babies via breastfeeding.

**Rick:** Yep, Barb is right. Researchers like Joe Collins from the American Mosquito Control Association, warns us that, while the benefits of the pesticide can outweigh health concerns in some cases, the decision to use DDT to combat Zika would be premature and potentially very misguided. Everybody, we learned from Ms. Hope that things can develop resistance to drugs. Dr. Collins is an entomologist. That would mean that he is a bug researcher for those of you who don't know. He said that mosquitoes might become resistant to DDT. Countries in Latin America or South Africa, where Zika is rag-

ing, may want to use DDT because it works like a bullet. But, studies have shown that mosquitoes have developed resistance to the pesticide, which lasts for a long time. It's like this. Those of you who are *for* use of DDT thinks it's a good idea because you can just spray the pesticide on the walls of houses. Well, if you spray DDT inside your home today, you are going to still have DDT on your walls 20 years from now. The mosquito population continues to be exposed to the same chemical, so the resistance is going to show up in every mosquito generation that follows.

**Micah:** I agree with Rick and Barbara. I remember my dad telling me about the super bug, MRSA. It's called a super bug because it's resistant to all the major antibiotics out there. My dad is an Emergency Room doctor, so he told me that this happens when bugs start to develop resistance to drugs over time. I think that's the same idea, right Rick? I read the same article that you read, Stacey. You are correct in that selected parts in South Africa are using DDT but that's because mosquitoes have developed resistance to the insecticides that they were using in place of DDT. So, they did fall back on using DDT again, but who is to say that mosquitoes won't develop resistance to the pesticide years from now? Based on what we know from science, it seems highly likely that some mosquitoes will develop resistance to DDT pretty quickly, because their life cycle is only about 10 days, and that's not long at all.

**Michelle**: We learned from our ecology unit that there have been unintended consequences of our actions on the environment and our health. How can we know that long–term exposure to DDT won't do harm to all of us now and in the future? There is no doubt that DDT builds up in humans and remains in the environment. If its use is allowed to continue, we may get to a point of no return, where irreversible harm to our Mother Nature has already been done.

**Sergio:** Well, can I just share with the class a book called, *Silent Spring*, written by Rachel Carson in 1962? She was famous for her claims about DDT's adverse environmental consequences to wildlife, environment and human health, but she lost her credibility because people found out that she had altered her data, which is really shady, in my opinion. Also, scientists have yet to confirm the direct effect of DDT on human health; there is no evidence that DDT has ever caused harm to a single human being, or caused death.

**Michelle:** Can I remind you all to look at the scientific evidence we have about the disappearing of the ozone layers, PCB, and asbestos? What Sergio is saying is precisely my argument. My grandparents had asbestos in their homes for years without knowing its link to cancer for over 30 years. Just because we haven't found a direct, causal link, now and today between DDT and cancer, diseases, or what have you, does not mean that DDT cannot be harmful. What if we are repeating that

same error as we did with the ozone, and asbestos, by bringing back DDT? I think we should look for other ways to control Zika. Pesticides aren't or can't surely be the only answer here.

**Ms. Hope:** Class, that is all for today and we must bring our class discussion to a close. Thank you all for doing such a wonderful job with your research. Your arguments have been most enlightening and have raised important issues. I was extremely impressed with the depth of your thoughts and evidence you gathered. Don't forget to finish your research reports on what we discussed today for next class.

## 14.2 Understanding of the Meanings of Consumerism: Health, Body, and Disease

Our analysis and understanding of the meanings of consumerism by way of the commercialization of health and disease in science education is informed and conceptualized by Shaw and Aldridge (2003)'s three categories of consumerism. First, consumerism can be defined as a social movement where citizens take on the role of consumers or buyers, while the leviathan of pressure groups, which test goods and services, is considered the authority to recommend best practices as well as campaign for the rights of the consumers. Second, consumerism can be viewed as a way of life, where

> life is a series of problems; solving these problems is a personal responsibility…; every problem has a solution; these solutions can be purchased from professional experts; to live the good life we must acquire the skills necessary to identify problems, find solutions and act on them. (Shaw and Aldridge 2003, p. 35)

Lastly, consumerism can be defined as an ideology where its purpose is to legitimize the values of capitalist societies, as opposed to that of communism, or fascism, so that the needs and expectations of people to live a prosperous and comfortable life are legitimized and validated.

### *14.2.1 Health and Body*

Professionals in medicine, fitness, and the food industry promote healthy lifestyles as a broader social change, or social movement that gives rise to the particulars of consumer culture (Shaw and Aldridge 2003). In the practice of emphasizing healthy lifestyles (i.e. healthism), we see the phenomenon of the commercialization of health and, as a result, the propagation of the consumer culture to buy the related services or goods. For example, the fitness industry has successfully created a consumer culture whose drive for fitness symbolizes and represents the notion of body maintenance. In this culture, one's body becomes "a site of pleasure and a representation

of success" (Shaw and Aldridge 2003, p. 38). To accomplish such success, and ultimately to get into shape, people require exercise bikes, treadmills, and rowing machines; they need to purchase a gym membership, a particular type of clothing designed solely for exercising, food, and cosmetics, to name a few.

Another prime example is the emerging culture of self–surveillance, which requires the purchase of products such as fitness trackers that can be worn on one's wrist, so that one can constantly monitor how active one's lifestyle is (Stables 2017). Getting one's body into shape means the enhancement of one's self, which is also a symbolism of competence, self–control, and self–discipline. There is also an image of hard work propagated by popular culture (Dworkin and Wachs 2009). According to Weinstein (2010), "diseased bodies are models for bodies out of control; health represents the well–regulated body" (p. 45). It is important to acknowledge that this particular way of representing what we consider "a healthy body," thereby in contradiction alluding to how we view a "diseased body" in our society, carries deep consequences. Let us elaborate. When an individual perceives that he or she does not have that perfect image of a well–regulated body – that fit and healthy body – the consumer culture steps in to improve his/her life by poignantly highlighting what s/he is lacking in life. Dworkin and Wachs (2009) eloquently elaborate on the notion of "culture of lack" in the context of media and advertisement influences:

> some viewed the ensuing bodily self–surveillance that results from an emphasis on consumption as inevitable given that the body can be viewed as a text onto which cultural prescriptions could be overlaid. Thus, media forces in particular, and advertising specifically, conspire with more diffuse notions of power in contemporary society to simultaneously produce a "culture of lack" and an endless array of products to assuage the lack, or at least the stigma of possessing it. (p. 11)

Scholars in public health agree that staying fit and thus, for instance, maintaining a healthy diet and self–surveillance becomes a metaphor for one's socioeconomic and class status in society. In the context of understanding healthism, it may be noteworthy to keep in mind how the preferred meanings of health and images of fitness in our current culture may be not only be focusing on the need to maintain a fit body, but also alluding to the messages of gender, race, class, sexuality, and so on (Dworkin and Wachs 2009).

### *14.2.2 Health and Disease: Making It Personal*

Fully taking advantage of the consumer culture, which drives individuals towards achieving body maintenance and its related representation of success, the "new public health" (Shaw and Aldridge 2003, p. 39) movement has taken a turn to identify the upstream factors that can be attributed to the causes of one's illnesses or diseases. Some say that this is the rise of individualization, or the cult of the individual, which leads to the "expectations of self–fulfillment and heightened consciousness of minor bodily symptoms and deformities" (Greenhalgh and Wessely 2004, p. 201). In other words, the action and the social capital of an individual are increasingly

becoming the focal point to understand the causes of one's ill health, instead of addressing the potential structural inequalities of society that may underlie prevailing public health conditions (e.g. childhood obesity or the rising incidents of youth tobacco use). Consequently, this individualistic approach drives people to rely upon themselves, as the consumers of health, in the manner that they continue to seek services and goods to maintain fitness and stay healthy, as well as improve parts of their lives that seem to be lacking in just that thing they need to purchase.

## 14.3 Analysis of the Zika Case: Consumerism of Health, Body, and Disease in Science Education

We return here to the analysis of our use of the Zika virus case to illustrate how health, body, and disease can be commercialized to promote the consumer culture in science text, specifically, and in science education, in general. Weinstein (2010) states that diseases portrayed in science textbooks (i.e. cancer, schistosomiasis, and sickle–cell) are "all painfully concerned with talking about science and what it means" (p. 6). He further posits that "these deeply pedagogical texts" (Weinstein 2010, p. 6) about health and disease are positioned with the intention to instruct. But, what we should really ask ourselves is: what do these texts, through the use of these diseases, instruct? Similarly, our case on the Zika virus was designed to engage and instruct our prospective teachers in developing socioscientific reasoning and understanding socioscientific–based teaching in elementary school science. But, what else did we inadvertently and unintentionally communicate to our prospective teachers with our case?

We reflected deeply on our practice of using a disease to introduce socioscientific reasoning in our class by using Shaw and Aldridge (2003)'s three categories of consumerism as a framework. We found that we may have inadvertently created an environment of consumer culture in our science teaching methods course, and we share our analysis of this below. Subsequently, we realized how the case experience was a missed teachable moment and valuable opportunity to discuss the social, ethical, and moral aspects of teaching and learning science.

### *14.3.1 First Category: Consumerism as a Social Movement*

In light of the first category of consumerism, it is important to take into account the role of the free market, which supposedly helps to empower consumers and supply them with objective information that will guide them while making rational choices (Shaw and Aldridge 2003). In our science teaching methods course, the prospective teachers were positioned as the consumers of the information pertaining to the Zika virus. Using the information they gleaned, knew, or learned, they were expected to

make rational choices about their health and the environment as well as understand the implications of their decisions not only on a personal level, but also on a global and international level. In an on–line discussion forum, class discussion, as well as in their individual reflection papers, the prospective teachers discussed the type of consumer goods that could protect themselves and their loved ones from the Zika virus. For example, one student suggested that people could purchase an outdoor bug spray to spray on their body and clothing to protect them from getting bitten by mosquitoes potentially infected with the Zika virus. Another one discussed the use of mosquito nets in the homes. Similarly, some discussed the importance of adding screen doors or screen covers on the windows of homes to prevent the mosquitoes from entering. Others suggested wearing thick, protective clothing when venturing out into the woods, and using strong pesticides to spray locally onto pools of stale water where the eggs of mosquitoes may hatch and spread the Zika virus. Some even advocated for the use of special lotion and sunscreen for those who may have sensitive skin. There was also a discussion of cleanup efforts such as getting rid of improperly disposed tires, bins and buckets near large dumpsters to prevent the creation of pools of stale water.

Furthermore, the prospective teachers sought news and media outlets to seek additional resources and information about the virus and its health risks. Not surprisingly, the impact of the Zika virus infection on pregnant women and newborn babies was frequently discussed during class meetings. The prospective teachers avidly argued how the virus was adversely affecting small babies and how horrifying that experience must be for the mothers. As they continued to discuss the effect of the Zika virus, our conversation shifted towards the distorted images of the babies born with microcephaly. They learned that the El Salvadorian government advised women to stop having children for two full years. This type of public request to halt a nation's birthrate has implications related to consumerism of goods and products, as well as messages of gender, class, and religion, among others.

First, upholding the government's advice to postpone pregnancy would potentially require the "ubiquitous use of contraception" (Ahmed 2016), meaning people are going to have to seek ways (either products or services) to prevent pregnancy. Second, it is important to note that the Zika virus transmission in this context was framed as a sexually transmitted disease (STDS), which generally carries negative and stigmatic connotations. When we pause to reflect on what we call women's issues here in the United States, they are often closely tied to the socioeconomic status of the women in need. Health care providers and organizations such as the National Family Planning and Reproductive Association call on the public to look at Zika outbreaks as the driving force to demand government support for sexual and reproductive health care. "It's really unfortunate in this country that it takes crises to draw attention," commented Clare Coleman when she was referring to the need to boost the public health infrastructure to prepare for a Zika epidemic in the U.S. (Johnson 2016). In our effort to have prospective teachers consider various aspects of the Zika virus and the relevance of science to our society, we have unintentionally objectified certain perceptions of the body, especially that of women's body. In essence, we participated in the consumer culture by commodifying diseased bodies

and health. This is demonstrated particularly by a newspaper clipping that one of our prospective teachers brought to class featuring a woman infected with Zika who transmitted the virus to her male partner. Scientists and doctors have known that Zika virus can be transmitted from a man to a woman through sex (and vice versa); however, there are often discrepancies with respect to how the media reports this information. When the Zika virus transmission occurred from male to woman the incident was reported in a formal report issued through the Centers for Disease Control and Prevention, written by research scientists and experts in various health services fields. When the Zika virus transmission occurred from a woman to a man, it was reported predominantly in the form of news headline by several news media outlets. We pause to reflect on why the latter story made the news headline but not the former. Coupled with the highly emotional discussion about the effects of the Zika virus on babies and pregnant women, the particular discussion of how this male partner contracted this disease from the woman who came back from a trip to a country with Zika outbreaks was an interesting discussion. Even though this woman in the news article did not become pregnant, the news article elaborated on how Zika can cause serious birth defects when pregnant women get infected. Furthermore, the manner in which the article discussed the transmission of the virus from this woman to her male partner was unclear. However, the article speculated that her menstrual period blood could have been a vehicle by which the virus was spread to her partner. From our prospective, this difference in the portrayal of the Zika virus transmission is problematic in that it reinforces a normative view of the male body (particularly in biology) as the standard. In this chapter, we do not intend to elaborate on how female bodies may be more objectified in science texts than males, or how they are sometimes portrayed as a vessel that carries diseases. Nevertheless, the "consumer culture is in fact constructed out of the interplay between disciplined/objectified bodies and governed/subjective bodies" (Giulianotti 2005, p. 118). In retrospect, our class discussion may have occurred without any of us realizing that we were portraying women's bodies with our own assumptions attached.

To wrap up our discussion of this first aspect of consumerism, we would like to elaborate on the second half of the assumption of consumerism: it pertains to the less–than–critical delegation of authority to pressure groups or, in our case, a large–scale public health organization to recommend best practices as well as to campaign for the rights of the consumers. During the on–line discussion forum and in–class group discussion of the Zika virus case, as well as in the individual reflection papers, the prospective teachers fully participated in demonstrating what they understood about the complex and controversial nature of the endemic of the Zika virus. Although much of the information they gleaned about the Zika virus and the use of pesticides to control the endemic was primarily from the case itself, students also researched news sources and governing agencies in public health. However, not a single prospective teacher challenged the authority or the claims of these organizations (pressure groups), despite the effort of the course instructors to help them develop a critical attitude to considering evidence and data. Science education in today's capitalist society has been harshly criticized for caving to the neoliberal

influences that work to generate a relatively small cohort of knowledge producers while keeping the rest of the citizens as unquestioning knowledge consumers (Bencze 2013). Well, other scholars agree:

> As it stands, the major purpose of education is to make the world safe for global capitalism… revolutionary educators refuse the role that global capitalism has assigned to them: to become the supplicants of corporate America and to work at the behest of the corporate bottom line" (McLaren 2000, pp. 196–197)

By not challenging our own prospective teachers' uncritical attitude of accepting scientific knowledge about the Zika virus from sources that were published in both mainstream media and scientific reports, we, as the course instructors, subconsciously, intentionally perpetuated the traditional ways of how knowledge is produced, taken up, and is serving (or not serving) the general interests of the public.

### *14.3.2 Second Category: Consumerism as a Way of Life*

In our Zika virus case, we have materialized a public health crisis (and the related microcephaly) into a problem that requires a solution that most likely would need to come (or even purchased) from professional experts. Kahn (2010) and Weinstein (2010) caution us about producing crisis and requiring an individual action to solve a particular problem. Kahn (2010) further critiques neoliberal ideologies that perpetuate the notion that the best solution to these problems and crises (e.g. climate change) is simply to spend and shop for a solution. This point is well illustrated by the notion of green consumerism, when one buys a can of coke to supposedly save the polar bears that end up drowning in the ocean because they cannot find icebergs to hunt for food and rest on. However, Kahn (2010) claims that the phenomenon of spend and shop is symptomatic evidence of the affluent society's commitment to perpetuating fundamentalist consumerism.

We would like to briefly touch upon a prime example of greenwashing by the tobacco industry. In the case of the tobacco industry, advertising was used to communicate corporate social responsibility towards the environment. This corporate social responsibility materialized as a result of the increasing pressure for corporations to be held accountable for and remedy their negative impact on society such as human rights, labor practices, and the environment (Hirschhorn 2004). To this end, tobacco companies supposedly take a stance on environmental causes such as the "Keep America Beautiful" campaign (an anti–littering campaign), or donate to organizations such as the Carolina Farm Stewardship Association, which promotes sustainable farming; all the while the tobacco industry contributes to environmental problems such as deforestation, vegetation loss, littering, among others (Eriksen et al. 2015). By promoting such social values through marketing and advertisement outlets, whether explicitly or implicitly, smokers (especially youth smokers) and the

general public are led to believe that the use of tobacco is socially acceptable. Eriksen et al. (2015) report on the high prevalence of smokeless tobacco use among youth today. In today's current consumer culture coupled with healthism, we should begin to reflect on the meanings of consumerism as we observe the latest inclination for youth towards e–cigarettes or smokeless tobacco use. At the end of the day, these perceived social values promoted by the tobacco companies only serve to protect and preserve the value of their business. Similarly, we see the same kind of environmental messaging (e.g., greenwashing) in the case of Zika virus.

In the context of our Zika virus case, green consumerism is inseparable from our discussion because Ms. Hope, the teacher from our case, wanted to include the discussion of the principles of biodiversity and complex ecosystems in her unit on ecology and the environment. Because of this context, our prospective teachers widely discussed the possible impacts of pesticides on living species, water sources, and the environment, and ways to either reduce the potential adverse effects, or seek alternative solutions to the problem of the Zika virus. Budinsky and Bryant (2013) discuss how as individuals become more aware of environmental problems, corporations have (mis)–led the general public to believing that their individual act can make a difference. Though this idea of one person making a difference in this world is not necessarily an impossible notion to hold, what we find problematic is that corporations have advanced a new ideology of green capitalism where citizens are urged (most prevalently through advertisement and media outlets) to help the environment (like the dying polar bears in Coca Cola ads) through the purchase of ostensibly eco–friendly products. What we saw in our class was a demonstration of greenwashing, which has been referred to as "the act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service" (Budinsky and Bryant 2013, p. 209).

The problem with green capitalism is that it still treats the environment as an externality – something that can "be bought and sold" (Budinsky and Bryant 2013, p. 209). As we mentioned, placing responsibility on individuals to make a change is not what we find problematic; a sense of ownership and responsibility for our environmental problems is important and appropriate in many contexts. However, this shifting of the focus away from factors (corporations) that can largely be attributed to causing the world's environmental problems is what we are challenging here. Spend and shop ignores the bigger, structural disorders that might underlie the problems that we see in our society. By focusing on the acts of individual consumer choices as a solution to a crisis, we are ignoring the larger connections to our planet's burgeoning crisis whether the crisis pertains to the environment, public health, science, etc. At the end of the Zika case experience, we came to realize that we were guilty of sending a message to "stop worrying about the big problems and to instead do one's little part for sustainability through endless repetitions of spending on behalf of the planetary good" (Kahn 2010, p. 198).

### *14.3.3 Third Category: Consumerism as Ideology*

Lastly, an aspect of the class–wide discussion as well as reflection papers of our prospective teachers highlighted their notion of consumer activism, which champions the cause and the rights of the consumers (Shaw and Aldridge 2003). When they learned that the Zika virus caused microcephaly in babies, their activist voice was expressed. The prospect of banning the use of toxic pesticides to control the spread of Zika virus became horrifying when our prospective teachers began to imagine that babies could be born with intellectual disabilities and developmental delays. On the other hand, we had a group of students who advocated for the ban on the use of toxic pesticides because of the harmful and decimating effect on bees, other animals, and the environment. We are not arguing that the Zika virus outbreak in and of itself is an ideology. Instead, regardless of which side of the argument our prospective teachers took up, we reflect on the possibility of an ideology being perpetuated in the class discussions. In order to do that, we briefly touch upon Weinstein (2010)'s argument about the transmission of ideology pertaining to race and gender when science texts discuss diseases. For example, Weinstein (2010)'s discussion of schistosomiasis symbolically represents control of biology and colonial imperative crossbreed, while the discourses pertaining to sickle–cell perpetuates messages of racial difference and a denial of racial biology simultaneously. To briefly elaborate on Weinstein (2010)'s analysis, when sickle–cell disease is presented in science texts, it almost always comes with a map of Africa, subconsciously signifying that this disease is a disease of a particular race. However, do students and teachers pause to think about such messaging? It is unlikely because underneath the representation of the disease via texts and diagrams and maps is the deeply rooted notion of scientism where students and teachers alike have become an uncritical and unchallenging consumer of scientific knowledge produced by others, somewhere else. Thus, Weinstein (2010) argues that:

> for teachers and students, readers armed with little history, institutional or social theory, there is no way through these texts to get at other constructions, to locate the politics of science education. Within these texts, there is just the voice of authority. (p. 45)

In the case of our prospective teachers, the decision to use or not use the pesticides primarily occurred for those others living in economically marginalized countries in Africa. Even though they brought in their connection to the Zika virus through their personal stories, when the time came to articulate their position on the issue of pesticide use, they deferred to the Zika virus as being a disease that was happening "over there" and "elsewhere," where things were less fortunate (and less comfortable) than where they lived in the U.S. What we observed in the class discussion was a powerful example of our prospective teachers aligning themselves with both environmental and capitalist interests, but not fully understanding the extent of their positioning. (Of course, we wouldn't expect students to realize the implications right away). The course instructors sure did not – it was only after the completion of the lesson that we realized a missed teachable opportunity about ideology of consumerism. For our reflection purpose, it is easy to see things 20/20 in retrospective,

and especially from standing above a crowd and looking in from a balcony. Thus, some of the critical questions that we as science teacher educators can ask our students include: whose interest does the use of pesticides serve? Who is the manufacturer of the pesticides, and who is forced to or required to purchase them? Whose economic interests do the potential scaling up of the pesticides use and manufacturing serve? Our prospective teachers were not in a position to ask these critical and challenging questions and we shouldn't necessarily expect that they do so in the moment. However, in moving forward, we only hope that we improve our science instruction with our future prospective teachers to explicitly address these ethical and moral aspects of science teaching as they relate to various meanings of consumerism in science education.

## 14.4 Wrapping up Our Discussion

Our intent of this chapter was to critically re–examine the use of our Zika virus case and to analyze and think about how the framing of a disease could have perpetuated the messages of consumerism. Upon reflecting, we realized that this experience was a missed teachable moment to address meanings and implications of consumerism in the context of health and disease in science education with our prospective teachers.

It is important to discuss meanings of consumerism in a science methods class because without the instructor's explicit instruction to reflect on consumerism, our prospective teachers may be exposed to embedded messages about health, disease, and body as a commodity, and these may unconsciously be passed on to their middle school students. Without such instruction and meaningful reflection, we as instructors may inadvertently be perpetuating the participation of consumer culture in our classrooms. This type of instruction with our prospective teachers is also important because research has shown that teachers play a significant role in our youth's development of attitudes, identity, and motivation towards science (Brooks et al. 2012). It is our hope that science teacher educators seriously consider the ethical and moral aspect of science teaching and learning and reflect on our praxis when working with future prospective teachers.

Greenwashing strategies effectively shift people's focus from the heart of an environmental (socioscientific) problem by creating and promoting other objectives, commitments, and accomplishments – these strategies have one goal in mind: confusion. This notion of confusion very well applies here with our prospective teachers, our youth, and science teachers, alike. Incorporating human diseases into one' science instructional unit is one of many ways a teacher can potentially make science interesting and relevant for students. However, as we continue to present our diseased bodies and use diseases as a vehicle for fostering scientific reasoning, we may be overlooking the messages of panic culture, subtle representational messages of gender and race, as well as the state of confusion about our own body and control over our own health. As Dworkin and Wachs (2009) state "body shape is a corporeal

metaphor for health" (p. 12). Furthermore, Weinstein (2010) posits that "in disease, the body breaks down and is experienced as "out of control," and it becomes a metaphor, an analogy, and an allegory for other "out of control phenomena… Danger was seen everywhere" (p. 3). In science education, there is a plethora of literature that talks about marginalization of girls from science due to the potential incompatibility of the image of their science identity with the perpetuated image of a scientist. The images that girls hold about themselves do not align with the rational, objective images of being a scientist (Haverkos 2012). While the perception of science is an enterprise of rationality, reasoning, and objectivity, science texts to which our prospective teachers and youth are exposed present science through disease and illnesses and perpetuate the messages of health, and inevitably the messages of what it means to not be healthy. Before the Zika virus was the Ebola. For a very long time, science texts and public health disciplines have been promoting messages about childhood obesity and youth tobacco use. What disease will we discuss tomorrow? Or 5 or 10 years from today? More importantly, how will we discuss these diseases in science classrooms? Upon examining our own use of the Zika virus in the case, which served as a science text in our course, it is very possible to consider that the way we are using diseases and health as a way to teach science may further be alienating our students from pursuing science. This is indeed an unintentional consequence of our science teaching.

## 14.5 Our Take–Home Message

A take–away message from our chapter is that we need to continue to be proactive in examining our school curricula such that we do not reinforce the messages of consumerism in our science classes and schools. Bencze and Carter (2011, p. 209) urge us to acknowledge that extreme consumerism, resulting from orientation towards production and consumption, is highly associated with personal, social, and environmental problems; and science education is implicated as an agent in perpetuating this "problematic hyper–economized process" (p. 1) in our society. As such, Bencze and Carter (2011) among other science education scholars posit that school science needs to educate citizens to be willing and able to contribute to the common good and promote the principles of "holism, altruism, realism, egalitarianism, and dualism" (p. 1). By persistent reflection on our pedagogical practices through a critical lens, students, teachers, science education researchers, curriculum developers, and policy makers alike should continue to engage in "conscientization (enlightenment/awareness) and praxis (critical reflective practice)" and continue to challenge the notions of globalization, neoconservatism, and neoliberalism (Bencze and Carter 2011, p. 17). Perhaps, one day we will see science education transformed to effectively serve and educate our youth in a world that values our connections to all living things and the environment, because we care.

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**Sophia (Sun Kyung) Jeong** is a Ph.D. candidate in the Department of Mathematics and Science Education at the University of Georgia. She is passionate about fostering creativity, encouraging inquisitive minds, and developing sociopolitical consciousness through science education.

**Sun Young Jeong** is a medical student at the Medical College of Wisconsin. She received a Masters of Public Health from Columbia University. Her interdisciplinary research interests focus on the issues of social and environmental justice in public health, and empowerment of vulnerable communities through quality healthcare and advocacy.

**Mutlu Sen** is a Ph.D. candidate in Learning, Design, and Technology program at the University of Georgia. Her research interests include case–based learning, teacher education, socio–scientific issue–based teaching and learning, instructional design strategies for twenty-first century classrooms, and technology–enhanced learning environments. More specifically, her dissertation research explores how does a specifically designed case–based learning environment enhance prospective teachers' conceptualization of socio–scientific issues (SSIs) and SSI–based teaching.

**Deborah J. Tippins** is currently a Professor in the Department of Mathematics and Science Education at the University of Georgia. Her scholarly work focuses on encouraging meaningful discourses around environmental justice and sociocultural issues in science education.

# Chapter 15
# Youth Consumerism: A Cultural–Historical Approach

**Wolff-Michael Roth**

> Das Bewußtsein kann nie etwas Andres sein als das bewußte Sein, und das Sein der Menschen ist ihr wirklicher Lebensprozeß [Consciousness can never be something else than conscious Being, and the Being of men is their real life process]. (Marx and Engels 1978, p. 26)

Consumerism, the increasing acquisition and use of consumer goods and associated ideology, frequently is considered a societal problem. It particularly is considered to be a problem of young people, for it leads, as some studies suggest, to a situation where "the structure of childhood is eroding and children are suffering from serious physical, emotional and social deficits directly related to consumerism" (Hill 2011, p. 347). That is, the social environment is held responsible for the developmental deficits of the children. Such studies, however, generally do not take into account the active role of young people in those relations where they first live the apparent unconstrained creation of supplemental needs and their satisfaction through the purchase of goods. These needs do not come from the outside, as if in a transfusion; but they do not come from the inside either, as if they were the mere result of individual constructions. In considering the issue of youth consumerism, the introductory quotation is simple but denotes the far–reaching consequences for life generally and for the question of dealing with youth (ethical) consumerism specifically. It tells us that being conscious about consumption and consumerism is the result of conscious being, including being a consumer. That consciousness does not precede being a consumer but being a consumer precedes the consciousness: ideas arise from and as a consequence of material praxis rather than creating and explaining it. That praxis always is praxis with other in a common world. We cannot teach and teach about (ethical) consumerism unless students first are (ethical) consumers. As Karl Marx and Friedrich Engels state, the Being[1] of humans is their real life process; and it is participation in this real life process that precedes any

[1] If used as a noun, Being is capitalized; otherwise it is used in the verb form.

W.-M. Roth (✉)
University of Victoria, Victoria, BC, Canada
e-mail: mroth@uvic.ca



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consciousness thereof (or the "knowledge" is empty). Consciousness can only follow an event of having undergone what consciousness is about. Being shows itself in the coming of consciousness (beings), in its revealing arrival in the clearing (Heidegger 2006). Being precedes beings, which include the words and constructions that are used to point to and talk about Being. In other words, we can grasp Being (e.g. event) only when it is already completed; our grasp, our consciousness of what has happened, always is too late. Taking the relation of Being and consciousness (of human beings and their relations, and conditions) differently literally means places the relation in the head and on its head (Marx and Engels 1978). But even a (constructivist) view is a "necessary sublimate of [men's] material, empirically demonstrable life process connected to material conditions" (p. 26). The authors thus note that it is life that determines consciousness rather than the other way around. In the view to be rejected, consciousness is the primary phenomenon from which learning, identity, ethics, and so forth follow; in the second view, real life and real living individuals are at the beginning, and consciousness is only their consciousness (being conscious).

This brief analysis is going to fly into the face of constructivist readers, who will claim that humans "construct" their being, and that there is always something like a psychological construct (a conception) that shapes our relation to the world. We cannot think about teaching students to be (ethical) consumers, let them "construct some identity as consumers" or "construct their reasons for consuming" and then send them out into the world thinking that they will be ethical consumers. The theoretical seeds for a psychology based on Marx and Engel's insights have already been sown. This cultural–historical, social psychology recognizes that "any higher psychological function… was a human relation first" (Vygotsky 1989, p. 56) and that personality is the ensemble of societal relations. Indeed, those psychological functions "are internalized relations of a social order, transferred to the individual personality, the basis of the social structure of the personality" (p. 58). Reading Marx and Engels (1978), Vygotsky realized that "the real intellectual richness of the individual totally depends on the richness of its real relations" (p. 37); and he realized that "individuals indeed make each other, physically and mentally, but do not make themselves" (p. 37).

The term consumerism is employed in different ways, denoting (a) advocacy and rights of consumers or (b) a doctrine of or preoccupation with increased consumption of goods. In other situations, such as in combination with the modifier "ethical," as in "ethical consumerism" or "ethical consumption," the term is used positively to refer to different forms of consumer activisms for one or another cause (poverty, environment, health, or economy). Whereas constructivist studies suggest that consumerist behaviors can be changed through instruction, cultural–historical approaches emphasize the existence of any characteristically human behavior in the concrete relations with others the ensemble of which make human society. Sociological theories often are deterministic, where responsible consumers are created by governance regimes. Constructivist epistemologies theorize development in terms of the socialization of the individual. Cultural–historical approaches on the other hand emphasize the individualization of the social. The result is that whatever we observe as behav-

iors, psychological functions, and forms of personality among youths have been forms of human relations now attributed to the individual (Vygotsky 1989). Those relations are specific to the particular productive activity, one of which indeed is consumption (Marx and Engels 1983). If there are problems with consumerism among youths, then school may not be the solution because it is part of the problem (Roth 2015). On the other hand, schools may be part of the solution if they (a) foster (critical) consciousness and action (*conscientização*) and (b) do so by creating opportunities for those societal relations that do indeed constitute the first instances where individuals actually live critical consciousness. From a cultural historical perspective, such critical consciousness leads to freedom from oppression.

In this chapter—using (a) empirical materials from interviews with 15–year olds about environmental protection and from two–day pleasure–oriented school trips with the same students and (b) auto/ethnographic materials—I develop a cultural–historical approach to the phenomenon of consumerism that affords understanding why youth consumerism is a mirror of consumerism at large. As consumption is the converse of production, consumerism is the converse of the ideology of every–increasing growth of the economy on which current conceptions of the world are based. From this theoretical basis, very different conclusions are drawn for what may be done in the contexts of schooling to curb any excessive orientation to the satisfaction and creation of ever–increasing consumption.

## 15.1 Non–Consumerist Lives: Auto/Ethnographic Accounts

In the discussions of consumption and consumerism, whether the terms are taken negatively or positively, the discourse itself remains unchallenged. Thus, whereas it has long been known that unequal distribution of wealth is the result of division of labor and the market forces associated with the exchange of goods and labor (Marx and Engels 1978), the discussion concerning the role of the poor is again framed in terms of their consumption (Giesler and Veresiu 2014). Thus, the United Nations Development Programme "aims to empower and enable the poor and disadvantaged to benefit from full participation in markets as consumers, producers and wage earners" (United Nations 2009, p. 4). It is as if one and a half centuries have passed without any impact of the critical analysis of market forces. Therefore, the contradictions in society arise from the division of labor and the resulting division into different spheres of activity, including consumption. As a result, production forces, societal conditions, and consciousness are and have to be in contradiction (Marx and Engels 1978). This is so because the division of labor leads to the distribution of intellectual and material activity, enjoyment and labor, production and consumption, fall to different people. It is only when the division of labor is abandoned that those contradictions are removed—an experience those make who "live off the grid" and meet their needs through their own labor. I know from personal experience that life becomes different when we begin living on the food from our own backyards or (rented) plots in communal gardens.

In the following, I provide two examples of ways of life that are not consumerist—either because of the conditions or because of choice. The first example is from my own biography, leading from poverty to chosen frugality; the other example is constituted from observations I made during a recent trip to Vietnam. Both examples depict situations in which consumerist attitudes and behaviors are absent. They are used as a counterpoint to the account of environment and consumption observed among Swiss youths, which are a reflection of that society.

### *15.1.1 Frugality: From Condition to Choice*

I grew up in poverty. Each year, I might have had two new shirts, and these were (part of) my birthday and Christmas presents. What were my leather shorts for 2 years would be those of my brother for the two subsequent years. My mother was adding buttons to my sweaters, allowing the collars from my father's decommissioned shirts to be attached so it looked like I was wearing shirts. Meat was too expensive. We lived of fruits and vegetables from the garden, and purchased at-cost milk and other products from local farmers. My parents never spent what they did not have, so if there was no money, then nothing was to be had. Our basic needs were met, and anything else was taken like icing on the cake. Perhaps more importantly, as children we were not really aware of the poverty as such; we never felt there was something missing that we had to have. I was not really aware even though already at the age of nine and ten I was working on farms for a dinner with homemade rye bread, plenty of sausage, and apple cider. I worked for food because the farmers would not have had money to pay. We did not complain. In fact, nobody in the village seemed to be complaining, even though in most homes there was no indoor plumbing, and thus no baths or toilets (outhouses literally were houses outside the house). There were no tractors. Everything was done by means of oxen, pulling plows or carts with steel–rimmed wooden wheels. In the late fall, there was a week of school vacations—which was not really a holiday in the present–day sense because the students went into the fields with their parents to harvest potatoes (thus the nick name "potato holidays").

Although living in what I now know to have been poverty constituted a constraint in some sense, it also meant a lot of freedom because we did not become slaves to artificially created needs. Our basic needs (food, clothing, roof) were met; and because we only spent money that we actually had, there were no additional needs that we could have met. As my parents only spent the money they actually had, they did not have loans to pay off. Later, in our lives none of my parents' four children fell prey to consumerism. We stuck to buying what we needed, and if we did not have the means then we did not have the need either.

Today I continue leading a frugal life. Like most of my siblings, we have adopted a vegetarian lifestyle—to a great extent because of its contribution to sustainability. On my small suburban lot in a working class neighborhood, I organically grow all the vegetables and herbs my wife and I consume, and most of the

fruit as well. In the wintertime, there are therefore winter vegetables on the table (crops from the *brassica* family, leek, Jerusalem artichoke, radicchio, etc.); and a few things we blanch, if necessary, and freeze (green beans, broad beans, tomatoes). Doing so has taught us a lot about how much of out–of–season fruit and vegetables are imported. Some things I dry or season, and these things keep this way in the basement for the winter months (Squash, garlic, onions). We freeze many berries (blueberry, raspberry, blackberry), figs, and fruit or make sauces (apple, quince). I keep bees, and on and off I keep chicken for the eggs. Some of the honey and eggs we sell, covering associated costs (e.g. equipment, organic food supplements for the chicken). I see this as a power over my needs (our relation in family), and, therefore, my power as a citizen in a world where consumption has become outrageous—especially visible in the over–consumption of food in the industrialized world (cf. overweight and obesity rates), where in addition a lot of the food is thrown away while millions are starving. We do not spent money for all the trucking, shipping, and airfreighting to get those things that we have during some parts of the year at times when they are not seasonal. Instead, we relish the times we have those vegetables, and are looking forward to the following year when we can eat them again (e.g. asparagus, artichokes). Even the most colorful of displays of strawberries in our local and organic supermarkets cannot make us buy the fruit when it is wintery outside just because the sight of them is supposed to generate the need. I abandoned using a car in 2008, after having consumed no more than two tanks full of gas per annum during the three preceding years. I now do virtually everything with my bicycles (e.g. doing the annual haul of the garbage can, getting gardening supplies, or riding to university).

### *15.1.2 Frugality and Resilience: Observations in Vietnam*

During a recent visit to Asia, I was reminded about my early years growing up in a village of postwar Germany; and I was seeing personally that my own life is not extraordinary at all and that there are many people (in other countries) producing enough for their dietary needs. In 2010, my wife and I went to Vietnam for about 3 weeks. The tour operator is a French–Vietnamese company that practices eco–, responsible, sustainable, and solidary tourism, for example, by actively involving local villagers. During the entire 20–day stay in Vietnam, very little time was spent in cities, allowing us to see and live with local people. One word impressed itself in my mind, returning over and over again: resilience. On our trip we repeatedly discussed the fact that this people, apparently living contently a simple life, staved off the horrendous attacks of the American army during the Vietnam War. In the villages, the houses have one or two rooms (Figs. 15.1 and 15.2). During the day, the bedding materials and blankets were rolled up and put away thereby making space for seating. Food was prepared outside or in a lean–on; there is no indoor plumbing. In one village where we stayed, the only toilet and very simple shower facility was installed by the family where we lived so the owner was able to receive tourists—it

**Fig. 15.1** Scenes from Vietnam 1 (clockwise from *top right*). A Muong village. A Muong elder cutting up some firewood. Housing along (in) the Mekong. Children playing in a market place in Hoi An

**Fig. 15.2** Scenes from Vietnam 2 (clockwise from *top right*). Subsistence fishing in the Mekong. A Muong woman collects plants for dinner. Selling surplus vegetables in the local market. Muong children at play

was a condition on the part of the tour operator (Fig. 15.1). There was a fireplace in the house, with a sand basin to prevent the wooden house to catch fire; dried wood from the forest, or surplus wood from crates or buildings are cut up (Fig. 15.1) and used to heat the pots. Just below the village, there were rice fields. Around the houses, vegetables were grown. In another small town, we were invited to a wedding. There was nothing fancy, no splashing of money and gifts. There was no show–off of designer clothing, just everyday jeans, shirts, and blouses. But there was plenty of food, drinks, and happiness.

Surrounding the houses and in ditches, food grew wild or was grown (Fig. 15.2). Whatever families harvested over and above what they needed for themselves was sold at local markets. The stalls in the market place were not fancy. Instead, the vegetables were simply spread on the ground or on a piece of heavy canvas (Fig. 15.2). On the Mekong River, we saw men up to their chins in the water, either tending to small fishing nets or harvesting plants; others were fishing for sustenance from the boats below their shacks built on stilts (Fig. 15.2). We were astonished seeing them do so despite the fact that garbage and feces were dumped into the river from the houses along its banks.

The children and young people we saw did not appear to be unhappy in any way. They organized their play with what they had: their "toys" could be as simple as a few bricks on a low wall, a few leaves, and a milk container (Fig. 15.2). Others played around the market stalls where their parents were selling goods (Fig. 15.1). Older children, young adults still going to school, participated in the same activities as the older family members, which might be collecting food or participating in the fashioning of wood for making of matches.

### *15.1.3 Analytic Reflections*

In the preceding two subsections, sketches were provided of frugal ways of life. Leading such lives may be the result of existing conditions, such as poverty, or choice. My childhood was marked by poverty, though at the time I did not realize it as such. Indeed, as a child I felt that ours was the best family because our parents cared in ways that other parents did not appear to do. We even got to travel with our parents, on a shoestring budget without question, whereas our more–well–to–do cousins did not. In my own upbringing, the hardships for my parents were also my hardships, their relation to consumer goods were my relations as well; and our reflection to each other reflected the relation with the world of goods. I am sure that the frugality and resilience that characterized my early life is of the same kind that I observed in Vietnam; both are the results of the cultural–historical situation of the country and its society–which, in the case of Vietnam, included Soviet–style communism and the decades–lasting wars with the colonial powers (France) and the U.S. invaders that succeeded them. In this example, the lives of the adults reflect themselves in the lives of the children, and the lives of the children are reflected in the lives of adults.

I made similar observations while living in a small fishing village, where most inhabitants lived from small–scale commercial fishery (using small 27–ft boats) and the subsistence fishing and hunting for the remainder of the year. Having been adopted into one of the families, I know they did not complain. Indeed, those who left the village to make money generally returned for a harsher life nevertheless marked by freedom. The Vietnamese I saw, my own family, and the fishing villagers, though living with little, still had more than those starving millions living in different parts of the world. The materials from my current life show that it is possible to choose living a non–consumerist life marked by happiness and freedom.

It is easy to show that consumerist life and wealth comes at the cost of others; and the costs of environmental degradation that arise with wealth tend to be borne by those who also are exploited economically. Every cheap garlic bulb from China, every bargain meal of shrimp from South–East Asia, and every low–priced cotton t–shirt from Bangladesh entails economic exploitation and environmental degradation. Moreover, purchasing cheap goods produced by exploiting the poor in foreign countries also comes at costs to local economies. There is little recognition on the part of those complaining about the loss of local jobs that their own bargain hunting contributes to this loss. Every Chinese garlic bulb purchased in the local (super–) market means one garlic bulb less from a local farmer. On a grander scale, this means a loss of producers no longer able to make a living. But those selling the Chinese garlic still earn. A differentiation into haves and have–nots ensues. Such local differentiation into haves and have–nots indeed reproduces the global differentiation into countries that have (industrialized societies) and those that have not ("Third World" societies). Marx and Engels (1978) note that the contradictions of an inequitable society can be removed only if the division of labor is sublated, because this also removes the inequitable accumulation of goods and riches. They also write about the estrangement that occurs when producers are separated from what they produce. That estrangement can be observed in society today, when many people do not know where the food they eat comes from, and when, consistent with the consumption logic, everything is (available) whenever someone feels the need rather than when it actually grows in the surrounding fields. For those who practice urban permaculture, this food–related estrangement is overcome, and a very different relationship to food develops. This food literally is in our hands, from the sowing of the seed, to tending (weeding, watering), to harvesting, and to the ultimate transformation into meals. It is and remains in our hands, which thereby constitutes liberation from the market forces.

Some scholars are suggesting that young people "are receiving an endless barrage of material messages encouraging purchasing behavior and consumption that impacts the self–image" (Hill 2011, p. 347). But simple explanatory mechanisms are not going to do the trick. Even though my siblings and I were living in a society where others were well off, this did not impact our self–image or make us become or desire consumption–oriented adults. Instead, as grown–ups with considerably more financial resources at our hands we chose to live frugal lives. I have seen the people from the fishing village, who chose the frugal life over a more consumption–driven one that a continuation of their work in the oil fields of Alberta would have

allowed them. Marx and Engels (1978) definitely were correct in their realization that (a) we are not simply subject and subjected to conditions but also agential subjects who produce their conditions and (b) consciousness is the result of conscious Being. We made the conscious decision to live frugal lives: the fishermen who had worked in the oil fields and returned to a frugal life in an isolated village and I. They as I refuse to individualize consumerist needs, which would require them to work (more) to meet these needs; now, because they do not have and feel theses needs, they do not have to work to satisfy them. We thereby create the conditions for leading happy lives because we are not subject to consumerism (which entails more work to meet the needs), though we continue to consume to meet basic needs.

## 15.2 Consumption and Environmental Protection in the Talk and Praxis of Swiss Youths

In this section, I provide accounts of (a) the Swiss curriculum for students in seventh through ninth grade, (b) students' declared commitments to the environment, (c) students' talk about environment (environmental protection) and consumption of ninth–grade students as evidenced in their science lessons and individual interviews, and (d) observations of these students while on two–day school trips designed for their enjoyment and general educational value ("Bildung"). The text of the curriculum document is taken as the manifestation of a discourse typical for the educational circles responsible for education. Students' discourse (topic, resources) and their actions together are taken here as constituting the phenomenon of consumerism, that is, an ideology together with the practical actions.

### *15.2.1 The Science Curriculum*

The Swiss curriculum recognizes that the environment has to be a central aspect of school science in addition to the traditional concerns for scientific reasoning and the human relation to nature (IEDK 1997). In the face of recent natural and technological developments, discussions about the environment are increasingly important, including the contradictory role that the techno–sciences play in contributing to environmental problems (e.g. pesticides, herbicides, genetically modified organisms, nuclear energy, and industrial pollution). The curriculum must not leave out those questions that concern science and the environment. More specifically, the curriculum recognizes that students have to ask themselves about the responsibility the current generation has for designing the future of society, environment, and their relation. It is designed to "provide youths with help to find *their own viewpoint* in the field of contradictory opinions" (p. 3, emphasis added). Thus, the curriculum offers integrated units in addition to the more traditional subject–specific and is

intended to provide students with some foundational knowledge and skills for the purpose of engaging with questions arising from their mundane lives, the environment, and society. It thereby aims to foster the consciousness for responsibly acting in the environment and coping with everyday life situations in addition to the traditional focus on the development of the capacity to reasoning scientifically. Concerning the ability to act responsibly, the curriculum document states the following six goals:

> The students gain insights into the environment and connections therein; construct a personal orientation to deal sensibly with nature; grabble with local, national and global environmental problems; are ready to work actively toward the preservation of natural spaces and responsible design of the environment; consume by protecting the environment and live in an environmentally friendly manner; [and] show consideration for nature in their sport and leisure activities. (IEDK 1997, p. 4)

From seventh grade onward, integrated curriculum units focus on an understanding of the environment, which students are to gain by investigating real ecosystems in their neighborhood. Students also study the impact human–produced changes are having, such as the role of changes in the course of streams, water pollution, reforestation, monocultures, municipal dumpsites, or clear cutting for roads and ski slopes. They learn the importance of water to human and natural life; and they investigate the interconnected cause–effect relations of at least one real ecosystem. For instance, there is a unit in ninth grade that is concerned with communication, designed for students to learn explaining, understanding, and coping with the natural and technical environments that surround them.

### *15.2.2 Youths' Declared Environmental Commitments and Conditions*

As part of a teacher education program for the middle grades (Secondary I, 15–years of age), preservice teachers enrolled in a teachers' college in central Switzerland conducted a survey in 47 classes of teachers hosting the preservice teachers during their practicum. Through these surveys, they were to gain an understanding of the students' discourses about the environment and environmental protection. The results showed an overwhelming commitment to the environment (Zeyer and Roth 2009). More than 90% were committed to the environment, 80% regularly thought about the topic, and 62% declared to be very knowledgeable about environmental issues. With respect to actions, one half of the students suggested that the environment was an important part of their curriculum; one third and two–fifths of the students indicated applying environmental knowledge in their school and home lives, respectively.

The students' responses were consistent with other declarations in favor of the environment. The teachers emphasized their commitment to the science curriculum and its emphasis on environmental issues. Moreover, most teachers thought about

themselves as role models with respect to environmental protection. The school culture also appeared to be geared toward environmental issues, including the environmental design surrounding (hedges for creating protection, ponds) and inside the schools (light and climate management).

### *15.2.3 Youths' Talk About Environment and Consumption*

The compiled results from the surveys were taken into three of the 47 participating classes, two of which had decidedly more, the third decidedly less pro–environmental inclinations than the average of all classes. In each of the three classes, its results were shown together with the results of the study as a whole. Students were invited to participate in whole–class discussions, in which they were enabled to present and justify their viewpoints. Each one of these 45–minute discussions was videotaped. In addition, 12 students and the three teachers were interviewed individually using a semi–structured protocol. The research originally was designed to identify the viewpoints of students; but I suggested instead focusing on the discourse generally and on the interpretive repertoires more specifically. The advantage of this approach over others is that the research is less concerned with questions of veracity and individual knowledge and more with the unquestioned discursive resources that are mobilized in defense of one or another commitment. As my own previous work had suggested, the same discursive repertoires were used in support of opposing points of view—e.g. constructivist versus realist conceptions of the nature of scientific knowledge (Roth and Lucas 1997). Thus, for example, when students refer to Albert Einstein or Max Planck to justify a point of view, then they draw on the authoritative repertoire; on the other hand, when they support a claim by making reference to religion or some deity, then they draw on the religious repertoire.

In the analysis of the classroom talk and interviews, we identified two discursive repertoires each of which had two parts: the commonsense (folk science, folk psychology) and agential (pragmatist, control) repertoires (Zeyer and Roth 2009). These repertoires provided the students with resources for supporting claims related to ten positions that turned out to be constitutive of a post–ecological discourse characteristic of modern Swiss society (Zeyer and Roth 2013). These positions included (a) a conservative acceptance of the environmental crisis; (b) a decentering from a individualistic to a systemic, innovation– and change–oriented perspective; (c) consumption–oriented identity formation; (d) a loss of power through participation in a market–driven development of society; (e) a diminished emphasis on environment relative to employment, economic growth, and personal security; (f) an increasing role of experts and institutions; (g) constitution of environmental problems as science, society, and management issues; (h) a demise of positive visions of the future; (i) the rejection of ecological ideals; and (j) viewing eco–activisms as forms of terrorism. That is, both the themes and the discursive resources for constituting them were not merely specific to society or youths. Instead, the youths' discourse was a reflection and reproduction of societal discourse. Even though my

colleague had started his research with the idea that there is something particular about the ideas that youths construct for themselves, our research actually showed (unsurprisingly for the cultural–historical analyst) that the discursive resources were indeed mirroring those of society as a whole: the discourses of youths are microcosms of the discourses within the society at large (Roth 2013). The locus of the two, in the different studies I conducted particularly in the context of Swiss society, occurs in the relations between youths and their teachers and between youths and the researcher. In both types of cases, the language used by one, because of its use is designed for recipients, inherently is intelligible to the other. The talk belongs to all parties in the exchanges.

Something assumed to be known by every reasonable person belongs to common sense. Indeed, it is unreasonable to question something that is common sense. Any related discourse thus belongs to the commonsense repertoire. Sometimes the repertoire concerns commonsense knowledge about humans and psychological characteristics (folk psychology); and at other times, it concerns commonsense understandings and models of the world (folk science). One of the folk models pertains to the simple machine, where each form of input (cause) brings about a specific kind of output (effect). For example, weather might be talked about as if it were a machine. Thus, talk about climate change might include statements such as: "When the weather is so extreme, it shows you a bit about what one should have done, and what one should still do… Take floods, for example. I think that if we had done things differently, would there be the same results?" The talk builds on the folk science repertoire, in which simple cause–effect relations bring about the climate changes. The folk psychological repertoire includes, among others, commonsense (stereotypical) differences between different groups, such as men and women. For example, a claim that women are more pro–environment and exhibit more pro–environmental behavior might draw on discourse from the folk psychological repertoire for support: "Men always have other things on their minds. Men also like cars. They are more playful. Women, at least most of them, want to have a home and children. So they are restricted in some ways."

The agential repertoire includes talk involving the human capacity to act, which allows them to change the world, on the one hand, but which may be limited by outside forces, on the other hand. The pragmatist aspect of the repertoire includes all those forms of talk juxtaposing actions taken in an ideal world with those that make more sense in the real world. In the context of talk about consumption, it may be effectively deployed for making the case for the continued use of cars: "For sure we destroy our world with our consumerism: by driving cars and so on. But it is necessary because otherwise there would be no more work. If we didn't drive cars, then there would be problems with jobs." Everyone needs clothing; and when it gets old or used, it has to be replaced. A similar case may be made for utility vehicles, such as tractors and combined harvesters, without which modern food production would not exist. Whereas work is possible without modern tools, ideally, convenience and productivity in the real world require the use of equipment that is also destructive to the environment. The discourse belongs to the control–aspect of the agential repertoire when it draws on the opposition between individual self and collective

other. This kind of talk may be employed to absolve individuals from their responsibilities to act because their actions either do not matter in the big picture of things or because their actions cannot bring about changes in large interconnected systems. In this case, the locus of control is placed outside of the individual, and others generally are depicted in opposition to the individual.

It turns out that those two repertoires suffice to justify the viewpoints that make a post–ecological discourse of Swiss society generally and those aspects concerned with unconstrained consumerism specifically.

In the Swiss media, consumerism—as the associated issues of economic growth and globalization—frequently is depicted as a root cause of environmental degradation and global warming. The media report on the rampant consumerism among the youth. The underlying system of ideas and beliefs is that the sense and fulfillment of human life (happiness) lie in the consumption (possession) of goods. Consumption is the behavior that goes with the ideology of consumerism. Studies tend to show that only 20% of Swiss youths feel that they have less money than they need; they may spend between 1000–5000 Swiss Francs per annum on clothing. Three quarters suggest that they practically never had to go without a thing they wanted, thanks to their parents they are not in any kind of need (Jacobs Foundation 2014).

When youths talk about their consumption related behaviors and thoughts, they generally state not to take the environment into consideration. The discourse goes like this:

> When I go shopping, I don't think about anything. I never consider how I could recycle it afterwards. This only happens when I want to get rid of the product. When thinking about and planning holidays, I don't consider environmental issues either. The same is the case when I buy clothing. I just think shopping is okay. It is part of life.

Allusions to ideas concerning trading off technology for more nature were accompanied by assertions that such changes should not compromise a consumption–oriented life style. Such allusions therefore cannot be considered realistic options. That is, the pragmatist repertoire is used to justify the rejection of any argument for a decreased use of technology.

One of the dimensions of the post–ecological discourse pertains to neo–materialist and consumptive behaviors. Here, Swiss youths often draw on the folk psychological repertoire to justify positions taken with respect to consumerism and environmental protection. We may hear a student, quite reflexively, normalize consumerism at the expense of the environment: "Our generation does not really care. Everything is cheap. You can buy low–prized clothes. You don't think about environmental protection. You notice that it is cheap and you buy it." The statement, "Simply [Ger. *einfach*] speaking, this is how it is today. You just [*einfach*] do it: You buy the cheap clothes and you don't think about it any further," summarizes the position. Here, the impersonal construction with the generic "you [Ger. *man*]" as the subject generalizes the behavior to a generic everybody. This extension therefore covers a whole generation, which does not care about the impact that consumerism has on the environment; that behavior as characteristic of a generation also resonates in the summarizing truth that things are as described. The single criterion for

making a purchase is the prize of the goods. The unproblematic nature of acting in this manner is captured adverbially (simply, just). This adverb constitutes a simple action of purchasing that does not require a second thought. Consumerism is normalized because everyone is doing it. It is a psychological fact that characterizes not merely individual people but indeed is a mass psychological fact in that it characterizes a whole generation.

Not all positions are stated in simple terms, that is, such that they can be defended by drawing on one of the discursive resources. Consider the following statement, which begins with a phrase that marks the existence of alternatives, "It depends …."

> It depends on what you buy. Human beings have some basic needs. If they were confining themselves to those needs, then it would work and it would be good. However, there is a problem: If we want to go on with technology, then we have to invest. You have to pay researchers, instruments, and development. Everything is just so expensive. I mean to say, you can't simply halt progress.

In this statement, the possibility of an alternative is marked. That alternative is between an ideal situation where humans confine themselves to their basic needs and the reality of technology, which requires continuous development. This opposition between ideal behavior and what reality requires is part of the pragmatist repertoire, which also has a ring of common sense in drawing on the allied opposition of theory and practice. The demarcation between the ideal and the real is further strengthened by the deployment of talk from the folk science repertoire. The need for progress and technological development is taken as a commonsense fact, which therefore does not require further justification. However, progress and technological development require financial resources. Researchers need to be paid, and natural resources are required. Because progress is constituted as a natural event, which the generic subject ("you") cannot halt, consumption itself cannot be stopped. That is, whereas the construction of the statement might lead to the assumption that unrestrained consumerism is the real problem, the joint mobilization of the pragmatist and folk science repertoires justifies consumption: It constitutes investments that support continued societal–cultural progress and the associated technological advancement.

In the preceding analyses, the folk psychological repertoire was used to justify consumerism because it has been normalized into collectivized form of individual behavior. We may gloss the position in this way: there is nothing wrong with my consumerism because everyone else is behaving in the same way. When the talk turns to environmental protection, the reverse form of argumentation is used. This position may be glossed in this way: There is no use for me to act because individual actions do not make a difference in the face of population size and complexity of modern society. Here, the agential repertoire is a convenient resource to draw from. The individual is juxtaposed to the collective: "If only one person makes an effort, then acting is useless. It is difficult." "When I do something alone, it is of no use." "The individual does not succeed. But when I do something and you do the same, and others also do something, then together we can do something." In this situation, agency may be deferred to technology or institutions as the proper units that can bring about change. This manifests itself discursively in statements such as "If I

alone were to separate my garbage and have solar panels on my roof, this would not be enough. We need technology. We need the economy. And we need state funding." "If you want to achieve something, then you have to advertise or something like it so that others also start to reflect." The mobilization the agential repertoire with its opposition between a (powerless) self and the collective other affords the individual to justify not acting in an environment–friendly manner. Indeed, it allows the individual not to think about the environment at all. Others generally, market forces or the government, are tasked with the challenge to turn things around.

### *15.2.4 The School Trip*

In Switzerland, as in Germany and some other countries, an annual "school trip [Schulreise, Wandertag]" is an integral part of the school year. The intention of these trips is to be educational in the widest sense, related to having experiences from which students learn for life without the habitual attention to specific curricular topics (e.g. Weber 2001). In most instances, the trip may be for the day. Sometimes it extends over two days, but may last for a week—such as when a class decides to go skiing. The homeroom teacher and students decide on the destination and purposes of the trip. Thus, the motivation may include a trip to a more distant art gallery or exhibition; or it may be to go camping and hiking. Although organized as a school activity, there is no explicit curriculum to be taught or experiences to be had to enhance specific curriculum topics. My colleague had already interviewed students and also participated in the whole–class discussion on the environment. We were also interested in how the students from these same classes would relate to each other, the environment, and to other aspects of Swiss society that they encounter outside of schools. He therefore accompanied two of the classes on their two–day school trip. One of the two classes went to Lugano, a city in the Italian–speaking part of the country on a lake surrounded by mountains. Attracting celebrities of all sorts, it sometimes is nicknamed "Monte Carlo of Switzerland." The class and their chaperoning teachers stayed on a campground near the lake. The other class went to Interlaken, a town in the Bernese Highlands situated in the German speaking part of the country. Offering easy access to numerous sites of interests in its vicinity, Interlaken attracts many tourists; it also is a destination for backpackers. The class stayed in one of the local hostels. The program for both classes includes walks, swimming, have some free time to go shopping; one class attends the performance of a world–famous Swiss play.

Our many discussions revealed that my colleague was aghast. Over the course of the two days with each class, he considered students of both classes to have been mostly passive. They exhibited interest in going shopping for clothing, hanging out in shopping malls, or eating out in a MacDonald's restaurant. Apart from these activities, they sometimes appeared just to wait for the end of the trip. One the one hand, my colleague was astonished about the total absence of talk about environmental issues. As stated above, the environment had been an integral part of

the curriculum since seventh grade; and it had constituted one of the central ideas of the entire science curriculum. In this context, my colleague was stunned to observe that the students' principal orientation was toward consumption.

The young men were mostly fooling around and sometimes playing tricks on the women. If they talked at all, their topics were limited to cars and motorbikes and their engines. They occasionally called each other's attention to fancy cars while hiking or shopping. One student had brought a cylinder and piston from a motorcycle. The young men not only extensively discussed the device but also took it apart and assembled in very knowledgeable and skillful ways. Even the girls talked cars—e.g. when seeing several brand new SUVs in front of an expensive villa—as desirable objects in the ideal futures that they fancied for themselves. My colleague was baffled that in all this car–related interest there was no talk about the impact that gasoline engines have on the environment, especially the gas–guzzling engines of the SUVs.

The young women talked about movies, solved crossword puzzles, or chatted about horseback riding. A lot of their time was spent on issues of appearance. Their talk manifested the desire to be fashionable and stylish and their talk was concerned with the gadgets they wore, including fancy leather belts or custom jewelry. Many wore designer clothing. Some of the young women brought sufficient clothing with them to change several times during a single day. Even though they were camping, they were perfectly styled from head to toes during the entire trip. At one point, it rained. My colleague noted that the young women were more afraid of spoiling their designer shoes then of getting wet. Those who had gone to Lugano were disappointed because the shops there, despite its glamorous reputation, were the same as the stores in the city where they normally shopped; and they noted their preference if the trip had been to Zurich where they anticipated shops to be fancier. The young women were delighted when passing a beautiful villa with a view onto the lake. They marveled at the swimming pool, the vast garden behind the house, and the fancy cars in front. They reveled in talking about the luxury, and about the riches they desired for their futures.

The students did not talk about the environment even where my colleague had seen clear occasions for doing so. For example, at the camping site where one of the two classes stayed, the water of the lake was polluted. Plastic bags galore were floating in the water; and litter abounded. When the meals were prepared, students employed paper plates and plastic spoons and knives; and my colleague observed a wasteful use of paper napkins are extensively. When students were done, they discarded everything without a single comment. None of the students appeared to notice either the pollution or their own wasteful behavior.

The students appeared to be reticent to talk to the researcher. But during one of the walks, he struck up a conversation with one of the young ladies, the contents of which he could not forget. She explained to him that most people—young as much as older generations—only pay lip service to environmental protection. In their daily lives, they do not care about it in the least. There is no consideration, she explained, how much energy and material waste actually comes with the new communication technologies that pervade society as a whole. Nevertheless, she admitted, she is

using modern communication technology and quite skilful at it. Those involved in green movements, on the other hand, are contradictory: They extensively use computers and mobile phones, which, to top things off, they do not turn off. Despite all verbally articulated good will, she concluded, the world is going down the drain and humanity thus is doomed to disappear. However she also frankly admits being an enthusiastic and skilled user of modern communication technology.

Observing the young people, listening to their conversation, and talking to them was a discouraging experience for my colleague. He described his experience of having witnessed a world of consumerism and lifestyle as a singular (obsessive) object/motive orienting these youths. The men admired fashionable motorbikes and cars as the objects that were of most importance to them and thereby constituted their world; and the women articulated a world of fashionable clothes, houses, and cars. In all of this, there were no considerations for the environment. They hardly talked at all about environmental issues even when environmental degradation and pollution was quite evident in the very setting that they currently inhabit. If the environment became the topic, then it was only in terms of an inevitable bleak future. Hedonism and pessimism combined to exhibit the face that environmental depression takes in the post–ecologist discourse. In the end, he was shocked. Despite talking in classroom extensively about the environment, nobody spoke about it on the school trip. Indeed, my colleague was appalled by the distance between (a) the contents of the lessons that had been prepared for the students and some of their talk that showed awareness for consumerism and the environment and (b) the behavior and talk that these same students displayed during their two–day school trips.

### *15.2.5 Analytic Reflections*

When my colleague and I first talked about analyzing the data, he expressed how shocked he was by the contradictions between their talk in the classroom and actions in the field. He was especially shocked given the curricular concentration on environmental protection and conservation, which provided a stark contrast to the materialist–hedonistic ways of defining the quality of life. He concluded that students took and understood consumerism as a source of pleasure and satisfaction. Technological innovation and progress generally were part of prosperity and economical growth. Although this led to potential environmental conflicts, environmental issues generally have to be respected. However, students say, any environment–friendly decision must not endanger economical growth and progress—or wealth and prosperity would be compromised.

After having completed, a first pass through the analysis, and established the working of the discursive repertoires across a variety of topics discussed in the classroom, my colleague was able to overcome some of his consternation. He realized that in the light of (a) the post–ecologist discourse in his native Swiss culture and (b) our discourse analysis of the whole–class conversations and interviews, the results of the participant observation were quite consistent. Our analyses showed

the young people in a world that they discursively described and justified by drawing on the available interpretive repertoires. These repertoires are cultural rather than individual features. The repertoires are their tools for making sense. At the time of our initial analyses, we observed a change in the use of the repertoires that actually made sense. During the interviews, we could observe links between the commonsense and agency repertoires, which provided for the explanatory resources that supported the stance taken by the post–ecological discourse characteristic of Swiss society. During the school trips, on the other hand, the commonsense repertoire was the main discursive resource whereas the agential repertoire was hardly used.

## 15.3 Cultural–Historical Considerations

When my colleague and I analyzed the data, he was aghast of the apparent contradictions between a largely ecological stance shown in the survey and supported in the interviews and the consumerist non–environmentally conscious behavior exhibited during the school trip. Those contradictions were especially stark given the fact that the students have had a science curriculum in which the environment played a significant role; and it explicitly intended students to become judicious consumers, who consider the impact that their behavior has on the environment. Indeed, the questionnaire results and some of the interviews were consistent with the curriculum document, as were many of the claims stated in the whole–class discussions. From a cultural–historical activity theoretic perspective, it makes sense that in the context of school science, a greater degree of consistency might be observable. The starkest contrast existed between the discourses about consumption and the environment and the actual behaviors and mundane talk in a different form of activity even though it also belonged to the aegis of schooling. Understanding and coming to grips with his initial perceptions were among the object/motives for engaging in the analyses.

In the description of the plan for this book, which was circulated as part of the invitation to write this chapter, the editors asked the question, “What is the role of (school) science, media and technology in youth’s consumerism practices?” The question has one type of answer in the findings, where the folk science and psychology repertoires are mobilized in support of claims that economic growth, technical advance (development), and therefore consumption are inevitable. Another answer also is apparent with respect to the role of school science: There is no effect that the science curriculum has on the consumerist and environment–related practices. The Swiss students, all the while frequently taking a pro–environment stance and the associated discourse, consume in ways that increase the load to be borne by the environment. This indeed is an answer to another question raised in the invitational abstract, “How do youths consume?” It also provides a partial answer to the question why students consume. They do so because everyone does it and because it is an integral and constitutive part of progress. As shown, this justifying discourse fits within a small number of repertoires suffices to justify not only consumptive

behaviors but also the passivity with respect to the protection of the environment and the participation in practices that diminish the environmental load.

My colleague originally assumed that the youths themselves were contradictory; and he had taken an individualist perspective with respect to beliefs and behaviors. He did not realize that what appear to be contradictions of individual students are reflections of the contradictions of society as a whole. Those contradictions are the necessary result and byproduct of the division of labor that allows generalized production and satisfaction of needs (Marx and Engels 1978). These authors also state that the essence of being human exists in the ensemble of societal relations. This position is taken up by approaches to social psychology in the cultural–historical tradition, which states that personality is the ensemble of societal relations; and every higher psychological function *was* a social relation first (Vygotsky 1989). Because each individual participates in specific productive societal activities (i.e. units that preserve all the characteristics of society)—being a grocery shopper, an athlete, a student, a worker, or parent—some of "its" psychological functions and personality existed in the relations with others characteristic of these activities. In their participation, individuals contribute to the realization of the societal object/motives. Personality therefore constitutes an individual–specific hierarchy knotted together from individualized *societal* (i.e. collective) object/motives (Leont'ev 1978); and the discourses that constitute the interpersonal relations (communicative exchanges), because they are shared or there would not be relations (exchanges), also become resources when speaking with individuals in the context of other activities.

This sketch of an cultural–historical approach suffices for understanding that the discourses (its position and resources) and behaviors identified among the youths do indeed mirror Swiss society as a whole. This is so because the youths participate in all those activities that constitute Swiss society. Their relations with other humans reflect the relations to the social and natural environments. Their discourses, which constitute the forms of consciousness that exists in practice for other people and thus for the self (Marx and Engels 1978; Vygotsky 1987), reflect both relations with others and relation with nature. If students exhibit consumerist behavior, then this first was a relation with others that has been individualized. Indeed, there are multiple levels of relations in which consumerism first is experienced: relations with parents with sufficient purchasing powers and youth–parent relations in relation to salespersons standing in for shop owners. As seen in the simplest of exchanges at the supermarket checkout, where the fitful screaming of the child is at the origin of a chocolate or candy purchase, the relation of the parent to the surrounding social world is part of the (instant) gratification of a felt need; and this felt need is itself of the relation between the child and the environment. This mechanism becomes clearly apparent when compared to situations and societies where the relations between family members and between family and the natural and social environment differ (my early childhood, the fishing village, Vietnam). In such instances, we observe very different developmental trajectories, those that are not characterized by consumerist behaviors.

Although a full analysis remains to be conducted, observations that can be made in my local neighborhood provide some clues about where to look for understanding consumerism and its individualization. I live in a working–class neighborhood, where a large proportion of people are European immigrants and a smaller portion of the population came from Asia (Vietnam, India, China). In every instance, families only spend when they have the required resources; and other than the mortgage, they never spend borrowed money. They also have a particular relation to hard work, which they recognize to be the condition for escaping poverty and living in relative ease. The children from these families tend to be equally judicious as consumers. The opposite is the case in many "old–stock" Canadian families, where spending beyond existing resources is normal and normalized—e.g. in the talk about "maxing out the credit card."

It would be illusory to assume that the creation of new needs could simply be abandoned. Human history is characterized by the production of needs beyond the fundamental one: sustenance of life through eating and drinking. Indeed, the production of new needs was the first *historical* act (Marx and Engels 1978). But this first historical production also led to the creation of means for the satisfaction of needs. That is, the origin of history exists in a dual nature of the first historical deed: the production of means to satisfy needs and the production of new needs are the result of the same act. The production of new needs, therefore, is an integral aspect of the cultural–historical nature of society. Denying the continuous creation of new needs would therefore be a denial of the nature of society. But this does not mean that we have to individualize all existing needs, which we then satisfy through consumption. Indeed, we can learn from ecological systems that there are limits to growth. Human life, including human economy, cannot expand forever. There will be a point—which some consider already has been passed—when an exponentially increasing population suddenly plummets because resources are lacking (e.g. think deer on the Kaibab Plateau after the culling of its predators). It is possible to make choices; and there are those who do indeed make such choices. However, it would be equally naïve to assume that judicious consumption could be the result of teaching oriented toward individuals or the result of institutionalized conditions (forces) intended to make people act in some rather than other ways.

## 15.4 The Way to Freedom

> The concept of affect is an active state and is freedom:
>
> Freedom: affect in concept.
>
> The central problem of all psychology is freedom. (Vygotsky 2010, p. 92, original underline)

The editors of this volume asked me to end the chapter with considerations of the questions for future research and practice, in and outside of schools. Before I even got to read that part of the editors' invitation, I had completed much of this section that began with this introductory quotation. The quotation captures not only the conclusions I am drawing from the preceding case materials and their analyses, but

also what I consider to be the orientation that future work needs to take. Thus, freedom not only is the central problem of psychology but also the central problem of (science) education. We have yet to develop a psychology of freedom—much of (motivational) psychology historically has been concerned with increasing the productivity in factories and making students subject to the regimes of knowledge/power; and we have yet to develop an education (pedagogy) of freedom—too much of education still is concerned with making students fit to existing ideologies. The most important work to be done, therefore, relates to freedom.

### *15.4.1 Psychological Perspectives*

The Swiss youth talked a lot about necessity and being subject to conditions that they cannot control drawing on the agential and folk psychological repertoires for supporting their positions. It is apparent that their narratives are not about freedom, that is, the freedom to choose otherwise. The talk—a mirror of the Swiss post–ecological discourse—paints the future in a dark way, doom and gloom, where the only positive aspect is that this future will come after the end of their lives. In the analysis of the autobiographic materials above I point out the freedom that comes with the choice of not having to have the latest consumer good and with the decision to focus on the essentials as the basis for the sense of and happiness in life. As the introductory quotation of this section shows, Lev Vygotsky, in the months before he died, considered freedom as the central problem of all psychology. He hints at where to start with the theoretical considerations: affect in concept, that is, in the unity/identity of affect and intellect. The quotation comes from a set of personal notes scribbled on small sheets or narrow strips of paper, the first line of which reads "The lightning bolts of Spinoza's thoughts." A vision for developmental psychology is sketched: "The grand picture of development of personality: the path to freedom. Bring Spinozism to life in Marxist psychology" (Vygotsky 2010, pp. 92–93). The psychology Vygotsky envisioned would allow humans to make "the leap from the kingdom of necessity into the kingdom of freedom," which "inevitably puts the question of the mastery of our own being, of its subjection to the self, on the agenda" (Vygotsky 1997a, p. 342).

In his holistic approach to the human person, Baruch Spinoza describes human bondage in terms of the strength of affects and human freedom as deriving from the power of thought. Vygotsky intends building a theory of the psyche based on but further developing a Spinozist vision according to which "destiny becomes a conscious part of the personality" (Vygotsky, as cited in Zavershneva 2010, p. 65). He states that Spinoza has not yet articulated a peak psychology, so that the "power of reason and freedom from slavery are not yet the highest. It is *amor fati*" (p. 65). Amor fati is the Latin expression for "love of fate." It names the disposition to life where everything, including suffering, loss, and happiness are inherent and necessary (constitutive) parts. Vygotsky understood Spinoza to be about will, a form of affect, and about freedom, which comes from the mastery of passions. In a paradoxical way, therefore, freedom, the mastery of the passions, derives from the pas-

sions that subject the human subject. Humans distinguish themselves from animals in the fact that they can choose what to yield to—a situation that Vygotsky repeatedly describes in terms of the story of the Buridan's ass or dogs in the Buridan situation, who (in a situation where they have to decide between food or drink) die incapable of making the choice (e.g. Vygotsky 1997b). What is it that allows humans to make such choices? Vygotsky is unequivocal. It is consciousness, which "is a problem that is broader, more profound, and still more extraordinary than the problem of thinking" (Vygotsky 1987, p. 285). The psychologist never got to work on that problem, having come to its threshold where he felt like Moses who had seen the Promised Land but was not allowed to enter it.

### *15.4.2 Pedagogical Perspectives: Conscientização*

Feeling that one has to have the latest consumer good, a need that is a societal product, and giving in to this feeling are a form of oppression. In the examples from my personal life or that of the Vietnamese families this form of oppression does not exist. This is a positive framing of what Janis Joplin says in her song Me and Bobby McGee: "Freedom's just another word for nothing left to lose." Freedom also means recognizing and working toward overcoming the oppression. Overcoming such oppression takes a "pedagogy of the oppressed" (Freire 2005). Such pedagogy begins with the understanding that "to surmount the situation of oppression, people must first critically recognize its causes, so that through transforming action they can create a new situation" (p. 47). Critical recognition and becoming critically aware is *conscientização*, critical consciousness. It means not only understanding the world, as philosophers (and many scientists) do, but essentially the motive of transforming it (Marx and Engels 1978). For teachers, the challenge is to allow students wanting to become conscious, wanting *conscientização*. Freire recognized that this is not easy—and readers will have recognized that the discursive resources supporting the post–ecological discourse will make the task challenging. This is so because "the oppressed, who have adapted to the structure of domination in which they are immersed, and have become resigned to it, are inhibited from waging the struggle for freedom" (Freire 2005, p. 47). They are inhibited from waging the struggle "so long as they feel incapable of running the risks it requires" (p. 47). Indeed, science teachers themselves may not recognize that their teaching geared toward developing scientific reasoning and literacy does not provide their students with opportunities for *conscientização*. I close this chapter with the story of one teacher, Leandro (Erika Germanos told it to me).

Leandro had taught social studies for many years. Beginning his career in a college preparatory school, he had developed ways of teaching that helped students pass the entrance examinations. Over the year, even though he had eventually shifted to teach in the public school system, he had further refined his concept–focused self–contained lesson modules. He continuously improved his approach and was successful at it by all accounts. His peers recognized his dedication and the students liked him very much. Eventually he signed up to participate in a research group,

where the other members included a science teacher, several preservice teachers, and a doctoral student whose thesis was to be about this research intervention.

Among other things, the group discussed articles they read. One evening, the discussion concerned an article "Poop on the beach, no!" The author of this text was a teacher, who, inspired by the work of Freire, had made it possible for his students to participate in a locally organized movement against a government project. The project was to construct an outfall that would release raw sewage into the ocean just off the low–income favela where the students lived. Reading the article, Leandro was deeply disturbed. His unease was deepened during the discussion in the group. He was becoming aware that he had done nothing to help students become critical citizens even though he always had had the well being of his students in mind. In the process, Leandro underwent a developmental process of consciousness not only pertaining to his own ways of being but also for the social conditions that reproduce the phenomena (student failure, unemployment) that these same conditions are supposedly designed to overcome. It was a process known as *conscientização*, which consists of and allows for the critical consciousness of societal (political) contradictions; and out of this process, he was able to engage students in ways to foster *conscientização* in them.

Most instructional approaches today are grounded in a (radical, social) constructivist epistemology. This epistemology is problematic, in particular because it does not recognize the *sociogenetic* origins of higher psychological functions and personality. The constructivist epistemology considers the individual as the unit of analysis, focusing on how s/he "constructs" knowledge, identity, beliefs, and so on—recognizing that this often occurs within social configuration with teachers, peers, or parents. The basic assumption of social (sociohistorical) constructivism is that individuals construct something *in* relations with others and then interiorize this. The cultural–historical epistemology is radically different in that it recognizes the relation itself as manifestation of everything that is specifically human: higher psychological functions and personality. The upshot is that any behavior that we might eventually attribute to our students will have been real (concrete) relations with other people. They will thus live *conscientização* first *as* relation before we may attribute *conscientização* to them. They will first live new relations to consumer goods before we may attribute this relation to them.

My wife and I have developed *conscientização*. For example, when we buy the occasional tropical fruit, we look at the country of origin. We make political, ecological, and ecojustice–related decisions by supporting fair trade and organic production and by not supporting countries where despicable political powers are in place. In this, we are constantly confronted with contradictions, and it is precisely freedom that allows us to choose. Thus, an organic orange from California (only 1500 km south of where we live, but in the US) is better than an orange from Italy (half a world away) or Israel (half a world away and despicable politics); and sometimes the choice is no orange at all. This freedom itself feels like a greater quality of life than the ability to buy anything anywhere at any time. As Freire showed, *conscientização* also is what allows people in poverty and adverse political conditions to engage in the struggle to overcome their conditions; *conscientização* is that struggle with the conditions. For my parents, getting an education was an important step out

of poverty; but it was not enough because much of present–day education is part of the problem of inequitable society (Roth 2015). If the Vietnamese who I encountered and talked to want to change their lives, it also will be through *conscientização*. The concept thereby highlights the two themes in Marx and Engel's stipulation of the human condition: to be agential subject producing the conditions to which they are subject and subjected. It thereby also highlights the concept and condition of freedom: We are free to make the conditions to which we are subject and subjected, or more precisely, to which we subject ourselves. Allowing students to realize that they do not have to be fearful of this freedom possibly is the most important goal of a truly democratic education. This requires constant and responsible work, for "freedom is acquired by conquest, not by gift" (Freire 2005, p. 47); and the required pedagogy of the oppressed "must be forged *with*, not *for*, the oppressed" (p. 48).

One of the first observations that can be anticipated will be a change in how students draw on the currently available repertoires. This is so because *conscientização* allows "perceiving the reality of oppression not as a closed world from which there is no exist, but as a limiting situation which they can transform" (Freire 2005, p. 49). They can also transform their discourses together with the conditions. The solution to the problem, therefore, is not caught in the opposition of the pragmatist repertoire ideal and the real, but in the recognition of the power to act and transform the reigning conditions. That power is increased in the recognition that the contribution to the collective control over conditions also expands the person's control over individually relevant conditions. The analyses of the Swiss post–ecological discourse shows that the ideal | real and individual | collective oppositions are used to account for non–action. That is, those drawing on these discursive repertoires do recognize contradictions; and yet this recognition does not lead to a freedom from consumerism. Freire suggests: "the oppressed can overcome the contradiction in which they are caught only when this perception enlists them in the struggle to free themselves" (p. 49). Our highest goal as teachers should be working with students so that they can move from simply being aware of contradictions toward overcoming them, becoming free in the sense of Vygotsky's *amor fati*.

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**Wolff–Michael Roth** is Lansdowne Professor of Applied Cognitive Science at the University of Victoria. He has obtained an MSc in physics (University of Würzburg, Germany), a PhD on mathematical reasoning in adults (College of Science and Technology, University of Southern Mississippi, Hattiesburg), and an honorary doctorate from the University of Ioannina (Greece). His multidisciplinary research focuses on knowing and learning across the life span, in formal education, workplace, and leisure settings; and his research methods span the spectrum from quantitative–inferential to qualitative–descriptive studies. He published over 60 books, over 460 peer–reviewed journal articles, and over 210 book chapters.

# Index





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