Petar Jandrić
Damir Boras *Editors*

Critical Learning in Digital Networks

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Research in Networked Learning

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Editors
Petar Jandrić
Polytechnic of Zagreb
Zagreb, Croatia

Damir Boras
University of Zagreb
Zagreb, Croatia

Foreword

This second book in the Springer *Research in Networked Learning Book Series* is a very timely collection that brings to the fore the importance of critical theory and pedagogy for networked learning at this point in time. The editors of the book—Petar Jandrić and Damir Boras—have brought together a diverse range of authors who each take a critical perspective on the educational role and prospects of networked learning.

Networked learning has grown from a field that began with an interest in the 1980s in CMC (computer mediated learning) and OL (open learning) for primarily part-time postgraduate students. At that time we were interested in how the then emerging, so-called, information and communication technologies could be harnessed in the service of open learning and indeed critical pedagogy. Over the years networked learning has come to reflect so much more. Today it firmly embraces and recognizes the importance of being and learning in a world that is digitally connected and networked.

The challenges that we now face within higher and postexperience education in a neoliberal and globalized world are many and some would argue threaten the very existence of the university and higher education as we know it. Others argue that, for the university to survive and be relevant, we need to change our pedagogy and epistemology to approaches that are more critical and imbued with an ethical morality. While we would not suggest the chapters in this book offer the solution to such challenges, they do offer relevant and important critical insights for education and learning in a digital world. What is more, they help to demonstrate how the pedagogy and epistemology of networked learning has the potential to be developed and used to offer "networked revolutionary critical pedagogy which utilises digital technology in the service of humanity," an aspiration for networked learning suggested by McLaren in the final chapter of this book.

The book chapters range widely in their focus and approach, encompassing critical analysis of architecture education and the internet; the dialogical nature of the teacher–student relationship; hegemonic power structures and the subversive epistemologies; how critical thinking can be stimulated in a pedagogy, to mention a few. The content is satisfyingly uncompromising in its attention to an exploration of the

pedagogy and epistemology of networked learning. The contributions are from people in different disciplines and therefore different research and pedagogical outlooks.

The book is an attempt to foster new interdisciplinary explorations of technology in education and learning. By highlighting the need for a critical analysis of networked learning, the authors give a clear message about the need to be critical and to look beyond the given. This is a welcome perspective to take. In the *Research in Networked Learning Book Series*, we encourage and support authors to take a critical perspective when writing about their practice, to examine theory and how it may be used to illuminate and guide practice, and how new theory can be developed from this critical engagement. *Critical Learning in Digital Networks* is an exciting and challenging addition to the series, and we are sure it will, as its editors say in their Introduction, help "develop critical perspectives to important and urging problems within the field of networked learning" and, we believe, beyond.

<div align="right">

Vivien Hodgson
David McConnell

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Acknowledgments

Scotland), Constantine D. Skordoulis (National and Kapodistrian University of Athens, Greece), Hamish Macleod (University of Edinburgh, Scotland), Hrvoje Jurić (University of Zagreb, Croatia), Igor Ekštajn (University of Harvard, USA), Iva Rinčić (University of Rijeka, Croatia), Ivo Žanić (University of Zagreb, Croatia), Jadranka Lasić Lazić (University of Zagreb, Croatia), Juha Suoranta (University of Tampere, Finland), Katarina Peović Vuković (University of Rijeka, Croatia), Lydia Rose (Kent State University, USA), Peter McLaren (Chapman University, USA), Sarah Amsler (University of Lincoln, UK), Sarah Hayes (Aston University, UK), Shane J. Ralston (Pennsylvania State University, USA), Spiros Themelis (University of Middlesex, UK), Tihomir Katulić (University of Zagreb, Croatia), and Vicki Karavakou (University of Macedonia, Greece).

Some books have "special friends": people who did a lot of nonremunerated work in their production and significantly influenced their final shape and content. Special friends of *Critical Learning in Digital Networks*, and also special friends of its coeditor Petar Jandrić, are Christine Sinclair and Hamish Macleod. Without our long discussions and their practical help in all aspects of editing, this volume would be very different. Furthermore, we are especially thankful to Peter McLaren, who took the challenge to explore themes absent from his earlier work and spent almost 2 years in on-and-off e-mail discussions about networked learning. The resulting conversation provided our book with truly exclusive material and its coauthor Petar Jandrić with a unique experience of working with one of the most prominent scholars in the field of critical pedagogy—most importantly, it created a new and deep friendship.

Finally, we owe a huge debt of gratitude to our families. Petar Jandrić: I want to thank my partner in life and work, Ana Kuzmanić, for her unconditional love and support during the past 3 years—without her, this book would never happen. Sometime between the second and the third round of reviews, Ana and I were blessed with our beautiful son Toma, who witnessed creation of this book much before he learned how to speak. I often wonder, Toma, what (if anything) will remain of this work when you grow old enough to understand it? Damir Boras: I am truly grateful to my wife, Alena Boras, for her support during more than 3 years of engagement with this book. Also, I am most thankful to my daughter, Dora Boras, for putting up with my long absences from "real life" in order to complete this project.

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Contributors

Konstantinos Avramidis holds a Diploma in Architecture from the *Aristotle University of Thessaloniki* (AUTh, 2007) and an M.Sc., with distinction, in Interdisciplinary Theory and Design of Space from the *National Technical University of Athens* (NTUA, 2009). He is currently undertaking his Ph.D. in Architecture by Design at the *University of Edinburgh* (UoE, 2012), funded by the ECA. He has taught architectural design and theory at the NTUA and UoE. His design work has been built, awarded, published, and exhibited. Konstantinos has also published articles and book chapters on spatial theory and design. He has co-organized and chaired the symposium on design-led architectural research *Plenitude and Emptiness* and cofounded the academic journal *Drawing On*.

Damir Boras took his B.Sc. at the *Faculty of Electrical Engineering and Computing*, *University of Zagreb*, in 1974 and Ph.D. at the *Faculty of Humanities and Social Sciences*, *University of Zagreb*, in 1998. He is Head of the *Chair for Natural Language Processing*, *Lexicography and Encyclopaedic Science* since 2004; full-time professor at the *Faculty of Humanities and Social Sciences*, *University of Zagreb*, since 2006; Dean of the Faculty since 2009; and Rector of the University of Zagreb since 2014. He published more than 80 papers, several books, and gave more than 50 invited lectures. His recent publications include the book, coauthored with Petar Jandrić, *Critical e-Learning*: *Struggle for Power and Meaning in the Network Society* (2012).

Konstantina Drakopoulou was born in Athens where she currently lives. She received the Ph.D. degree in Art History from the *National and Kapodistrian University of Athens*. She works as an art historian for the *Hellenic Ministry of Culture and Tourism* and participates in various research programs—among them is the "Digitizing Photographs of Graffiti Art in Athens and Thessaloniki: Compilation and Internet Publication of an Electronic Archive" (*University of Athens*, *Kapodistrias Research Program* [9895]). Her research interests include contemporary art, cultural, and critical theory.

Sarah Hayes is a Lecturer in Technology Enhanced and Flexible Learning at *Aston University* in Birmingham. She holds a B.A. (Hons.) Degree in Art & Design from *Herriot Watt University* in Edinburgh, an M.Sc. in Advanced Learning Technology from *Lancaster University*, and a PG Teaching Certificate for HE. Sarah taught computing modules at the University of Worcester before moving to Aston where she completed her Ph.D. and developed new courses in *Technology and Social Theory* and *Understanding Popular Culture* for Sociology undergraduates. Sarah now teaches on the PG Teaching Certificate for HE, PG Dip, and Masters in Education in the Centre for Learning Innovation and Professional Practice (CLIPP) at Aston. Sarah's Ph.D. thesis is titled: *The Political Discourse and Material Practice of Technology Enhanced Learning*.

Maarit Jaakkola is a Lecturer in Journalism at the *School of Communication*, *Media and Theatre* (*CMT*) at the *University of Tampere*, Finland. Her research interests include the change of journalistic professionalism and pedagogy. Her work in journalism research has been published in international peer-reviewed journals. She has given numerous courses on journalistic practice, media literacy, and web pedagogy. Jaakkola is also actively involved in continuing education of teachers and journalists. She is a former upper secondary school teacher and a journalist.

Petar Jandrić has a Ph.D. and is Senior Lecturer in e-Learning at the *Polytechnic of Zagreb*, Croatia. He worked at *Croatian Academic and Research Network*, *National e-Science Centre* at the *University of Edinburgh*, *Glasgow School of Art*, and *Cass School of Education* at the *University of East London*. Petar has published extensively on inter-, trans-, and anti-disciplinarity and the relationships between critical education, technologies, arts, and society. He is involved in various program committees and advisory bodies, reviews for several journals, publishes popular science, and regularly talks in front of diverse audiences. His recent publications include the book, coauthored with Damir Boras, *Critical e-Learning*: *Struggle for Power and Meaning in the Network Society* (2012).

Hamish Macleod obtained his B.Sc. in Biological Science and his Ph.D. in physiological psychology from the *University of Edinburgh* and has spent his teaching career there, first in Psychology and now as a Senior Lecturer in Education. He teaches on the University's *M.Sc. programme in Digital Education*. He has a long-standing interest in the use of technologies, particularly communications technologies and digital games, in support of teaching and learning in higher education.

Peter McLaren is internationally recognized as one of the leading architects of critical pedagogy and known for his scholarly writings on critical literacy, the sociology of education, cultural studies, critical ethnography, and Marxist theory. He has developed a reputation for his uncompromising political analysis influenced by a Marxist humanist philosophy and a unique literary style of expression. His scholarship and political activism have taken him throughout Latin America, the Caribbean, Europe, the Middle East, and Southeast Asia. McLaren is currently

Distinguished Professor in Critical Studies, *College of Education*, *Chapman University*, and Co-Director of the *Paulo Freire Democratic Project*. He is the author and editor of 45 books and hundreds of scholarly articles and chapters. His writings have been translated into more than 20 languages.

Caroline Newton is an architect, urban planner, and political scientist. She completed her Ph.D. in social geography at the *K.U. Leuven* (Belgium). Her work and research focuses on the socio-spatial dimensions of design and critical spatial practices in Europe and the Global South. Her research interests are centered on the interrelation between societal processes and the built environment, and she has been working on informal dwelling and participatory upgrading, the challenge of design and planning in postcolonial environments, and also on the methodological and pedagogical challenges of a "designerly way of knowledge production." Caroline teaches in the *M.Sc. Building and Urban Design* in *Development at the Bartlett* in London and is a member of the editorial board of the *Journal of Housing and the Built Environment*.

Burak Pak is a postdoctoral research fellow teaching at *Leuven University Faculty of Architecture*. He holds a Ph.D. in Architecture (which is co-advised by *Istanbul Technical University* (ITU) and *Carnegie Mellon University* (CMU)) and an M.Sc. in Architectural Design Computing from ITU. He was co-affiliated with *Istanbul Technical University Faculty of Architecture* and *Institute of Informatics* for 7 years. He also worked as a Visiting Assistant Professor in *Texas A&M University Visualization Lab* and *Carnegie Mellon University Computational Design Lab* for 12 months. His research focuses on ICT-enabled participation and covers a wide range of experimental studies on design studio learning (2.0) including developing and testing strategies for integrating Networked Learning Platforms into the Architectural Education.

Shane J. Ralston is currently an Assistant Professor of Philosophy at *Pennsylvania State University*, *Hazleton*. He earned his doctorate in Philosophy at the *University of Ottawa* (Ontario, Canada). He also has graduate-level training in the disciplines of Political Science, Public Administration, and Human Resources. His research interests are mainly in the areas of educational theory, social-political philosophy, environmental communication, and normative ethics. He is the author of two monographs, *John Dewey's Great Debates—Reconstructed* (Charlotte, NC: Information Age Publishing, 2011) and *Pragmatic Environmentalism*: *Towards a Rhetoric of Eco-Justice* (Leicester, UK: Troubador, 2013), and the editor of one collection, *Philosophical Pragmatism and International Relations*: *Essays for a Bold New World* (Lanham, MD: Lexington, 2013), as well as over 30 published articles and book chapters.

Lydia Rose is a tenure-track Assistant Professor in the Department of Sociology at *Kent State University*, USA. She earned a Ph.D. in sociology from *Purdue University*.

Currently, Dr. Rose teaches courses in Family Patterns: a World Perspective and Wealth, Poverty, and Power. She has produced scholarly works in the areas of social inequality, diversity, culture, political sociology, environment, and disruptive technologies. She was selected as one of the Teaching Scholars for 2011–2012, and she is currently involved in studying emancipatory pedagogy utilizing experiential learning and service learning as social action/praxis.

Christine Sinclair has a Ph.D. from the *Open University* in the UK entitled *Students and Discourse*: *An Insider Perspective*. She retains an interest in student experience and also researches academic writing and literacy in a digital world. She is a lecturer in E-learning at the *University of Edinburgh*, in Scotland, her native country. She previously worked in educational development in three other Scottish universities. She has written two books for students: *Understanding University*: *A Guide to Another Planet* (2006) and *Grammar*: *A Friendly Approach* (2010), both published by *Open University Press*.

Katarina Peović Vuković is an Assistant Professor of Cultural Studies at *Faculty of Philosophy in Rijeka*, Croatia. She earned her doctorate at the *Faculty of Philosophy*, *University of Zagreb*, in 2010. Her research interest lies mainly in the areas of media theory and social-political philosophy. She published a study in Croatian *Ideology of Media After Decentralization* (Jesenski & Turk, Zagreb, 2012) and edited a collection of translated essays of Hakim Bey's *Autonomous Temporary Zones and Other Essays* (Jesenski & Turk, Zagreb, 2003). She is editor of the Croatian literary-theoretical magazine *Libra Libera*. She is a member of the *Croatian Writers Society* (since 2002) and the member of the *Croatian Helsinki Committee for Human Rights* (in the period from 2000 to 2005).

Part I
Introduction

Chapter 1
Introduction

Petar Jandrić and Damir Boras

People have always created and maintained networks. Family networks provide us with love and security, supply networks provide our homes with water, gas and electricity, road networks connect our cities, social networks determine our social mobility, information networks provide our access to communication, knowledge and leisure, and learning networks enable us to share skills and knowledge. Throughout the history, human networks have been maintained by languages, religions, trade, and other means of creating connections (Malkin, Constantakopoulou, & Panagopoulou, 2013). During the past few decades, however, information and communication technologies coupled with economic and cultural globalisation have brought into the fore a radically new type of network. In words of Manuel Castells,

> the Internet is the fabric of our lives. If information technology is the present-day equivalent of electricity in the industrial era, in our age the Internet could both be linked to the electrical grid and the electric engine because of its ability to distribute the power of information throughout the entire realm of human activity. (Castells, 2001, p. 1)

Learning in the contemporary society has been rapidly transformed by digital information networks, and the emerging field of networked learning aims at making sense of these transformations. While analogue networks still play various important roles in human learning, therefore, contemporary networked learning is strongly focused to information and communication technologies. On that basis, Peter Goodyear and Lucille Carvalho show that "networked learning will eventually

P. Jandrić (✉)
Polytechnic of Zagreb, Zagreb, Croatia
e-mail: pjandric@tvz.hr

D. Boras
University of Zagreb, Zagreb, Croatia
e-mail: dboras@ffzg.hr

come to be best understood as something that predates the computer age, takes on a particular character and salience in the period from about 1980 to 2020, and becomes normal and invisible thereafter" (2014, pp. 444–445).

Learning and the Network: A Critical Encounter

Inspired by rapid development of the Internet, Goodyear, Banks, Hodgson and McConnell have provided an early definition of networked learning as "learning in which information and communication technology (ICT) is used to promote connections: between one learner and other learners; between learners and tutors; between a learning community and its learning resources" (2004, p. 1).

During the past decade, this definition has been taken up by the networked learning community in numerous ways. Networks have been distinguished from communities (McConnell, 2006), machines and humans have been represented as equals (Michael, 2004; Thompson, 2014), and networked learning has been defined in terms of theory, practice and pedagogy (Hodgson, McConnell, & Dirckinck-Holmfeld, 2012, p. 291). At the abstract level of modelling, however, contemporary networked learning always relates to the same three elements: people, computers, and their mutual connections. Material connections usually refer to technical infrastructure such as wiring between remote computers, and human connections refer to exchange of information between people. While these two types of connections can be viewed separately, networked learning is primarily interested in their dialectical relationships (Goodyear & Carvalho, 2014, pp. 421–423).

As an abstract model of reality, the network is fairly politically neutral. While they inevitably carry some in-built values such as egalitarianism and horizontalism (Illich, 1973; Stallman, 2002), generic network models can provide almost equal service to various worldviews and ideologies such as neoliberalism, libertarianism, and religious fundamentalism. However, human learning is always political (Freire, 1972). In relation to this essential human activity, therefore, the (nearly) value neutral model of the network requires adequate political and ethical underpinning and guidance. Conceived within the spirit of emancipation and radicalism characteristic for early development of information and communication technologies (i.e. Himanen, 2001), the contemporary field of networked learning has been firmly interlocked with the tradition of radical education and critical theory (McConnell, Hodgson, & Dirckinck-Holmfeld, 2012, p. 15; Hodgson et al., 2012, p. 292).

Since the beginning of the twentieth century, Frankfurt School theorists and their successors have produced a significant body of research regarding the relationships between technologies, human beings and the society. They have also placed a lot of attention to various aspects of teaching and learning, which has—roughly since the English translation of Paulo Freire's *Pedagogy of the Oppressed* (1972)—developed into a strong global critical pedagogy movement. From a historical point of view, therefore, networked learning could be conceived as a trajectory of critical theory.

At an abstract level of modelling, however, learning is a generic networked process which consists of two (or more) nodes and one (or more) tie(s) (Goodyear, 2014). Following this line of argument, critical theory could be conceived as a fairly recent trajectory of networked learning.

Contemporary networked learning, therefore, is a research paradigm based on the marriage between an abstract model of the network and critical theory. Like in any chicken-and-egg problem, it is pointless to argue which theoretical framework predates the other. However, it is important to notice that contemporary networked learning is simultaneously a generic research method and a consciously chosen research paradigm, a product of nature's structure and a product of its members' ideological decisions. Networked structure of human learning is an abstract mathematical category, but one's position in that network is always a product of political choice. In their *Summary of the development of networked learning* published in the preceding book in *Research in Networked Learning Book Series*, Hodgson, McConnell & Dirckinck-Holmfeld have clearly outlined the main choices shared by networked learning community and demarcated the research area.

> Our shared view of networked learning comes from an ontological position that assumes an understanding of the world and view of the world, including learning and teaching, is socioculturally influenced and constructed. It is a view that aligns with the critical and humanistic traditions of the likes of Freire (1970), Dewey (1916) and Mead (1967), including the belief in the importance of focusing on making sense from one's own personal experiences and view of the world—or indeed one's own practice. (Hodgson et al., 2012, p. 292)

Within this theoretical framework, we shall briefly introduce chapters in this volume and identify their main contributions.

Structure of This Volume

This edited volume consists of three interlocking parts which have spontaneously arisen from contributors' response to our Call for Chapters: *In, Against and Beyond the Network*, *Virtual Worlds, Networked Realities*, and *Towards a Networked Revolutionary Praxis*. Each part contains three chapters that might easily function as stand-alone pieces. However, during 3 years of engagement in production of this edited volume, we did not merely read and write about networked learning. Instead, we did our best to embody its spirit in our everyday editorial praxis, and insisted on creating deep connections between editors, authors and reviewers. Following common academic practice, we extensively used services of external reviewers listed in the front pages and asked authors to review each other's work. Conceived in the best spirit of peer review—egalitarian, horizontal and networked—these connections are echoed in chapters which talk to each other and build on each other's ideas. While individual chapters can indeed serve as valuable stand-alone resources, therefore, their full message arrives into being only in relation to each other.

Part II: In, Against and Beyond the Network

The second chapter, *Counting on Use of Technology to Enhance Learning* by Sarah Hayes from *Aston University*, critically analyses global policy documents and reflects on the use of language in the educational technology community in terms of externality, desubjectivisation and closure (Lieras, 1996). Sarah Hayes finds out that the language of *Technology Enhanced Learning* structures a deterministic view towards technologies, thus subsuming the terms such as *Networked Learning*, and *e-Learning*. However, an impression that the use of technology, as an external application, will always yield an "exchange value" (Marx, 1867) for learning, misses out the people involved. It desubjectivises us, and closes space for critical social interactions and pathways to new knowledge about multiple understandings of technology in our lives. On that basis, Sarah Hayes proposes that the return to *Networked Learning* may more readily permit a multi-directional conversation that acknowledges the convergence (Jones, 2001) of technology, language and learning.

This chapter raises critical consciousness about the language used in our everyday practice, reveals mechanisms that perpetuate the underlying power dynamics, and places networked learning in direct relation to critical theory. It analyses linguistic construction of the position of networked learning in, against and beyond the discourse of technology-enhanced learning and offers opportunities for emancipatory critical action. While most chapters in this volume might easily function as stand-alone articles, *Counting on Use of Technology to Enhance Learning* provides a much needed point of reference for placing them in the wider context of networked learning.

The third chapter, *Free Information: Networked Learning Utopia* by Katarina Peović Vuković from the *University in Rijeka,* explores relationships between freedom of information and convivial features of peer-to-peer networks, and seeks opportunities for egalitarian, emancipatory, critical networked learning. The chapter analyses horizontal distribution of knowledge characteristic of information networks through the lens of critical theory and shows that it represents a form of "radical democratic politics". On that basis, it contrasts commodified institutionalized practices commonly defined as *e-Learning* with the notion of *Networked Learning* as the authentic alternative culture conceived in terms of social practice which insists on critical thinking and emancipation. This line of argument confirms Sarah Hayes's conclusions based on critical discourse analysis, and expands them into several important directions including politics and ideology.

The chapter reaches deep into the dialectical relationships between networked learning and critical thinking, and arrives to the conclusion that alternative modes of distributing knowledge require deconstruction of various naturalized relations such as copyright and knowledge. Analysing disturbances caused by networked learning in the common understanding of the relationships between education, technologies and profit, it shows that the paradigm of networked learning represents a form of de-territorialization and discusses the meaning of knowledge within that paradigm. However, these disturbances can easily be re-territorialized and replanted within the

existing ideological paradigms. In order to avoid hegemonic subversions, therefore, networked learning requires constant engagement with critical theory.

The last chapter in this section, *Getting It Out on the Net: Decentralized Networked Learning Through Online Pre-publication* by Shane J. Ralston from *Pennsylvania State University-Hazleton*, asks fairly similar questions using a different research methodology. Based on personal experience, Shane J. Ralston explores challenges related to online prepublication of scholarly work in the field of humanities and social science. He shows that pre-publication networks represent a bottom-up, decentralized networked learning alternative to business-modelled e-learning. In order to provide a wider perspective, Shane J. Ralston links pre-publication networks with open source and open access, thus creating an appropriate theoretical background for radical democratic politics.

In the best critical tradition of praxis, Shane J. Ralston shares two stories of own experience with pre-publishing, identifies three main reasons to pre-publish—exposure-networking, feedback-improvement and dialogue-discovery—and the associated drawbacks. In this way, the chapter offers practical networked learning alternatives to traditional academic publishing, links them to broader critical resistance against institutionalisation of learning (Illich, 1970), and identifies the key areas for further inquiry. The utilized research methodology is of particular interest, as it provides very personal insights into issues pertaining to pre-publication while maintaining the highest level of generalizability.

Part III: Virtual Worlds, Networked Realities

In the fifth chapter, *Literally Virtual: The Reality of the Online*, Christine Sinclair and Hamish Macleod from the *University of Edinburgh* draw on own dialogues within a tutor–student dyad as well as dialogues with their students on the *M.Sc. in Digital Education* and develop the research methodology of collaborative or community autoethnography (Ellis, Adams, & Bochner, 2011, p. 279). The chapter explores why networked learning seems to be positioned as an inferior alternative to working in the real classroom, and arrives to the more fundamental review of the ways people refer to the real and the virtual both in practice and in the relevant literature. On that basis, it puts together the table which defines various forms of reality—virtual reality, artificial reality, constructed reality, simulated reality, alternate reality and augmented reality—and analyses their mutual relationships.

This chapter shows that the terms "the real" and "the virtual" have become intrinsically interconnected. While some people still hold the view that the virtual is in some ways inferior, alternative perspectives seem to be rapidly gaining ground—particularly amongst more experienced Internet users. Consequently, the chapter shows that networked learning activities are augmentations of off-line teaching practices rather than totally new roles, argues that networked learning has explored complexities in the role of teachers that have always been there, and

concludes that students, whether online or not, should come to be regarded as junior colleagues.

In the sixth chapter, *Virtuality and Critical Design Thinking: An Exploration of the Possibilities Through Critical Theory, Design Practices and Networked Learning*, Caroline Newton from *University College London* and Burak Pak from the *University of Leuven* move the spotlight of attention from individual superstar architects—creatively dubbed "Starchitects"—to their social roles. This chapter identifies imbalance between the importance of architects' social roles and the predominantly individualist design studio pedagogy as it is being employed in most schools of architecture. However, it shows that technical development offers fresh opportunities for networked learning that might provide adequate counterbalance. In order to systematize these opportunities, Caroline Newton and Burak Pak apply similar methodology as Christine Sinclair and Hamish Macleod and position various tools for networked learning in the reality–virtuality continuum.

In this way, the chapter links the social turn in architecture practice and education with networked learning, and claims that critical thinking connecting back to Schön's (1983, 1986) conceptualisations and theorized possibilities of studio-based learning can be successfully tackled using information and communication technologies. These conclusions confirm and expand on Christine Sinclair's and Hamish Macleod's insights into the relationships between the real and the virtual. However, the conducted analysis of networked learning in the fields of design and architecture brings into the fore another important conclusion: while theoretical disciplines easily shift from face-to-face to virtual learning environments and back, studio-based disciplines necessarily consist of very different dynamics between the two.

The last contribution in this section steps out of the Ivory Tower of (more or less) formal education directly into the streets of Athens, New York and Philadelphia. Free from institutional boundaries, the relationships between the real and the virtual, the tangible and the intangible, the abstract and the applied, acquire their purest forms in the field of community arts. Authored by Konstantinos Avramidis from the *University of Edinburgh* and Konstantina Drakopoulou from *Hellenic Ministry of Culture and Tourism,* the seventh chapter entitled *Moving from Urban to Virtual Space and Back: Networked Learning Through and from Signature Graffiti* explores challenges associated with networked learning in the context of signature graffiti subculture, and explores the ways various educational and communicational practices are being mediated by information and communication technologies. Here, the accent is again on horizontal, non-hierarchical connections: this time between one writer and other writers, between apprentices and mentors, and between the graffiti community and its learning resources.

The transition from the physical to the digital reveals educational and subcultural implications in three interlocked domains: interactions between individual graffitists, the graffiti media, and the city. Through mutual relationships between those domains, the chapter examines expansion of the graffiti milieu—simultaneously enabled and facilitated by the pervasive presence of the Internet—and the role of networked learning in these processes. Despite its roots in a fairly specific community gathered around signature graffiti, this chapter offers deep generic insights into

the position of community arts in virtual worlds and networked realities. On that basis, it examines practical opportunities for bottom-up, non-institutional, socially engaged, subversive networked learning, and analyses its relationships with graffit-ists' institutionalized mainstream careers.

Part IV: Towards a Networked Revolutionary Praxis

The next chapter, *Teacher Heutagogy in the Network Society: A Framework for Critical Reflection* by Maarit Jaakkola from the *University of Tampere*, examines the changing roles and competencies of networked teachers and maps the key areas of their individual expertise. Based on self-direction, autonomy, and critical theory, the chapter outlines a heutagogical approach that invites teachers and students to take ownership of their own professional and personal development. In practice, it classifies key areas of technological expertise using four dialectically intertwined roles: teacher as pedagogical user, teacher as managerial user, teacher as communicative user and teacher as social user. Finally, the chapter arrives to the conclusion that teacher autonomy in the contemporary society requires deep critical reflection coupled with decentralized networked connections between teachers, learners, professional bodies and the whole society.

In her analysis of various roles pertaining to network technologies in teacher heutagogy, Maarit Jaakkola identifies three key areas of reflective inquiry for action learning—instrumental, operational and strategic—and identifies barriers and potential tensions within each area. In this way, the chapter examines some ways to enhance development of teachers' agency in self-constructed virtual environments independent of technology and type of communication. Conceived in the conceptual framework of critical theory, however, the chapter does not claim to represent a definitive or exhaustive model of teacher heutagogy in the network society. Instead, it asks some important questions, and seeks opportunities for contextualized heutagogical professional development.

The ninth chapter, *Subversive Epistemologies in Constructing Time and Space in Virtual Environments: The Project of an Emancipatory Pedagogy* by Lydia Rose of *Kent State University*, combines critical and poetic methodology (Brown, 1977) by using the practice of articulation and speculation through "symbolic action" (Jay, 1973). The chapter compares the ways in which learning and knowing are negotiated in physical classrooms as compared to virtual environments, and shows their strong dependence on the control and construction of time, space, the body and the mind. Conceived within the framework of critical theory, it focuses to power structures and relationships to explore the complex interplay between hegemony and subversion.

The chapter analyses accreditation, monitoring and regulation in various learning environments and links the found differences to epistemology. On that basis, it shows that the structure of the network (including, but not limited to, the horizontal, de-institutionalized and non-hierarchical nature of networked connections) offers

various novel potentials for both hegemonic and subversive epistemologies. Understanding that subversive ways of knowing can easily become absorbed and co-opted by superstructures, it arrives to the need for linking subversive epistemologies to suitable networked emancipatory pedagogies. Finally, it shows that the "any-time, anywhere" construction of virtuality might limit outside hegemonic control over our space, time, body and mind, thus offering potentials for epistemic and pedagogical subversions that would result in true empowerment.

The last, tenth chapter in this edited volume, is a written conversation between Petar Jandrić from the *Polytechnic of Zagreb* and Peter McLaren from *Chapman University* entitled *The Critical Challenge of Networked Learning: Using Information Technologies in the Service of Humanity.* As Peter McLaren's first dedicated commentary on networked learning, this conversation has special historic and scientific relevance. Due to large amount of gathered material, the text is published in two complementary parts, and the other part is published in McLaren and Jandrić (2014).

This conversation assesses the current understanding of networked learning in the contemporary discourse of critical education, with an accent to common themes in Peter McLaren's work such as the relationships between the global marketplace, personal information and the state. It places networked learning in relation to some major themes in Marxist theory such as the dichotomy between capital and labour and the structure of production. It explores the role of contemporary technologies in social struggle, analyses digital cultures, and places the dichotomy between education and schooling into the context of virtual reality. Finally, it calls for a networked revolutionary critical pedagogy which utilizes digital technology in the service of humanity.

Contributions and Challenges

This book uses various approaches under the broad umbrella of critical theory to explore social, pedagogical and epistemological challenges pertaining to networked learning. The book's theme has a long history, as it concentrates on the relationships between networked learning and critical theory that have always been there. However, in the context of contemporary economic, social, and political crisis coupled with strong dominance of neoliberal ideologies, we feel that critical learning in digital networks requires as much dedicated attention as it can get. As it has increasingly become clear that contemporary educational systems tailored for during the peak of industrial society require serious reinvention, we do hope that this line of inquiry might contribute to steering theory and practice of networked learning away from ruthless paws of global neoliberal capitalism. In the last chapter of this volume, Peter McLaren says that "critical pedagogy flouts the frontier between scholarship and activism". Firmly situated within this tradition, our research efforts are located in the area of critical praxis aimed directly at social transformation.

As it usually happens in the framework of critical theory, this edited volume can be interpreted at various interlocking levels. At the one hand, its contributions are located in various specific contexts pertaining to contemporary Western-style higher

education. At the other hand, they concentrate to eternal struggles between profit and human rights, inculcation and critique, oppression and emancipation, unequal social relationships and freedom. Conceived in diverse fields including, but not limited to, community arts, architecture, philosophy and teacher education, chapters in this volume seek balance between the individual and the social, the local and the global, the particular and the general, and focus to two main tasks. First, they develop critical perspectives to important and urging problems within the field of networked learning. Second, they employ the developed perspectives to provide in-depth, often generalizable critiques of the relationships between information and communication technologies and human learning.

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Part II
In, Against and Beyond the Network

Chapter 2
Counting on Use of Technology to Enhance Learning

Sarah Hayes

In 2002 the question of where we are going with *e-learning, online learning* and *networked learning* was raised, and *e-learning* was considered a 'blanket term' for 'quick-fix' forms of provision and support (Steeples, Jones, & Goodyear, 2002, p. 323). Well over a decade later, and similar arguments might now be applied to *Technology Enhanced Learning* (TEL). Globally, as a term, TEL seems to be competing with *e-learning* to offer a blanket solution in education. Rather than a quick fix though, the suggestion is that technology has now enhanced learning, and will continue to do so, closing further argument about how this actually happens (if at all) and prompting some people to question what meaning 'enhanced' actually embodies:

> Unlike other terms such as e-Learning or on-line learning, *technology enhanced learning* implies a value judgement: the word 'enhancement' suggests an improvement or betterment some way. (Price & Kirkwood, 2010)

> There has been little critique in the literature of the assumptions embedded within the terminology of TEL: rather it has been adopted as an apparently useful, inoffensive and descriptive shorthand for what is in fact a complex and often problematic constellation of social, technological and educational change. (Bayne, 2014)

Unlike previous terminology, such as *Information and Communications Technology* (ICT), *Networked Learning* or *E-Learning*, in the phrase: TEL, a small, perhaps barely noticeable linguistic change, makes an adjustment to the disciplinary field of educational technology. The verb 'enhanced' is selected and placed in between 'technology' and 'learning', to imply (through a value judgement) that technology *has* now enhanced learning, and will continue to do so. This emphasises a simple economic gain in terms of enhancement, but at the same time takes the focus away from other forms of deeper and broader understandings of technology

S. Hayes (✉)
Aston University, Birmingham, UK
e-mail: s.hayes@aston.ac.uk

in learning contexts. In the following example, text from a European Commission report: *Educating Europe Exploiting the benefits of ICT*, published in 2009, TEL is attributed some rather extraordinary abilities:

> Technology-enhanced learning is transforming education and training to make it more effective, more attractive, more accessible and more adapted to today's contexts—personal, family, large-group, organisation, community, etc. (European Commission, 2009)

People are not transforming education here, TEL is. Furthermore, the use of 'more' four times can leave a reader in no doubt of the expectation that technology should, in all of these contexts, provide some form of 'exchange value' (Marx, 1867). However, this tends to quantify from the outset any links between technology and learning, as well as conceal a multitude of important assumptions (Hayes & Bartholomew, 2015). Drawing on the theory from Marx, technology is assumed in the quotation above to provide a measurable worth, expressed in terms of an 'exchange' for more 'effective', 'attractive' and 'accessible' learning. A simplified transactional approach both risks marginalising the human endeavours that are required in teaching and learning situations, and also treating technology as unproblematic and somehow detached from its wider political surroundings (Greener & Perriton, 2005).

In 2009 the UK's leading charity expert on digital technologies for education and research, the Joint Information Systems Committee (JISC) clearly stated a new emphasis on 'value':

> 'e-Learning' is still widely used to refer to the application of technology to learning. However, the term 'technology-enhanced learning' is gaining favour since it emphasises how technology adds value. (JISC, 2009)

Then a year later in a 2010–2012 JISC Strategy, TEL was described as a well-embedded and recognised move away from e-learning:

> The move from 'e-learning' to 'enhancing learning through the use of technology' is now well embedded and recognised. (JISC, 2010)

The embedding of the idea of 'enhancing learning through the use of technology', however, firmly structures educational technology within a framework of exchange value. It places emphasis on what technology is doing to yield a profit rather than how learning takes place as a human process (Nygaard, 2015). Whilst this may fit with a market-driven, capitalist approach, it is completely at odds with a critical pedagogical one, where learners are taught about emancipation from political constraints. In a critical pedagogy, the subjective experiences students and staff bring from their surrounding culture are emphasised as the starting point for learning rather than objective assumptions that technology, or indeed anything else, is experienced in the same way by all (Nichols & Allen-Brown, 1996). Yet an emphasis on 'added value' from technology in learning contexts seems to be widely accepted now, as demonstrated in excerpts from the USA, Australia and Europe, respectively:

> The responses of principals cited above suggest that school leaders need guidance in developing the capacity to distinguish between uses of technology for its own sake and uses of technology that add value in terms of student learning. (Bakia, Mitchell, & Yang, 2007)

> The opportunities afforded by mobile, laptop and desktop technologies to aid or add value to the learning students undertake has, and continues to be, investigated by researchers around the world. (Moyle, 2010)

> Projects that encourage individuals to share internet connectivity, to develop software, online content or virtual communities are examples of the added value of informal learning through ICT. (Commission of the European Communities, 2008)

Technology is thus positioned in global policy discourse in a role of improving the efficiency of teaching and learning. Tutors are said to 'need guidance' to develop its capacity, but this development is of a particular kind, based on a single argument that the technology, as an external solution, has been applied to learning, to yield something additional. However, to choose other routes, where 'economically useful knowledge' (Jessop, 2008, p. 4) is not the primary concern, is almost not considered a choice at all (Dahlberg, 2004). Yet, only two decades ago, in the field of educational technology, purely instrumental approaches had already been extensively questioned through semiotics, postmodern and post-structural theory (Belland, 1991; Nichols & Allen-Brown, 1996; Solomon, 2000; Yeaman, Hlynka, Anderson, Damarin, & Muffoletto, 1996). These researchers emphasised the contextual influences of what was being studied and the interrelations of technology (Luppicini, 2005, p. 106), with discourse, as meaningful for thinking and being. Now a 'trouble free' policy language seems to be 'loaded' with an economic expectation from technology in learning situations. This tends to reduce, rather than expand, how humans might understand technology more broadly, not as external to them, but as constitutive in the development of human knowledge.

Theoretically, varied language about technology in learning could provide new understandings as a 'fertile transdisciplinary ground' (Parchoma & Keefer, 2012) to inform policy. Yet terminology in policy about the connections between humans, learning and technology tends to become fixed in a less fertile position, linguistically (Hayes & Bartholomew, 2015). If we discuss technology as detached from the humans who perform tasks with it, then it simply becomes an external force acting on our behalf. This objective approach disempowers the human subject to undertake any critique, as it effectively removes them from the equation, closing down possibilities for more varied conversations across diverse networks.

Networked Learning

In university strategy documents it would seem that *Networked Learning* is not often the terminology of choice for policy makers. In an example below the assumption is that one term has subsumed another, closing conceptual space for other options:

> E-learning is starting to subsume and replace a number of previously used terms such as communications and information technologies (C&IT or ICT), information and learning technologies (ILT), networked learning, telelearning or telematics and instructional technology. (Littlejohn & Higgison, 2003)

Yet there is no real reason for one term to 'subsume' another, unless the intention is for educational technology to have a very narrow focus, rather than become a multi-directional conversation about learning. To place these arguments into context, in a book on the topic of *Networked Learning*, we might consider what an understanding of a 'network' might mean when linking this with 'learning'. Networks have been discussed more broadly in terms of social settings, without reference to technology, and applied to organisations in particular (Jones & Steeples, 2002, p. 2). Networks might be distinguished from both hierarchical forms of organisation and from the anarchy of the market (Thompson, 1991). This argument provides us with a helpful distinction that allows us to take a step back from both of these forms of economically related organisation and to consider a more organic, networked approach. If networks represent a conscious *political choice*, as an alternative to state driven, or neoliberal forms of economic organisation (and discourse), then applied in terms of learning, power shifts in favour of learner autonomy and a more critical pedagogy. How then would this link with a broader understanding of technology?

Networked learning is considered as an outcome of the convergence of telecommunications and digital computer technologies (Jones & Steeples, 2002, p. 3) and increasingly through new mobile technologies and social networks, a folding of time and space around those learning. The words 'networked' and 'learning', when combined, unlike the constituents of TEL, do not seem to presuppose a universal approach of enhancement, which orders educational technology into a restricted epistemological framework. If networked learning can reach towards the principles of critical pedagogy (Freire, 1972; Giroux, 1992; McLaren, 1995) to connect this with technology-mediated learning design and participation, it offers us a broader spectrum to link the elements which compose TEL: *technology, language* and *learning* in more varied ways than the terminology of TEL prescribes.

At this point it is worth acknowledging that the above observations are not particularly new. Yet even if we believe dominant strategy documents have shaped an approach of 'enhancement' alone, through an economically related discourse, perhaps we now need to actually confront this analytically. Simply commenting does not seem to be enough to effect change. We need tangible instances to discuss in order to notice to what extent we repeat a pattern of purely economic expectation from use of technology. Yet there is always the possibility that TEL is simply stating more honestly than other terms the clear economic links now made in higher education between introducing technology to receive some form of learning payoff in terms of performativity. As long ago as 1999 Stephen Ball argued against such an approach, stating that the strong emphasis on education's role in contributing to global economic competition was built on a set of pedagogic strategies that were ultimately self-defeating. He suggested we were putting forward an 'impoverished' view of learning based on performativity (Ball, 1999). Since then expectations on educational technology to contribute to performativity in higher education have been expressed in terms of an expected transformation.

> The 2005 HEFCE strategy outlined a number of key aims and objectives, the first of which echoes the policy context for transformation in emphasising the use of technology to transform higher education. (Higher Education Funding Council for England, 2009/12)

There are many strategy documents like this one now available to examine more closely. This allows a reflection on whether we are writing policy for educational technology that is at all meaningful to staff and students. Given that there is much emphasis now in universities on careful design of written materials for the curriculum, perhaps there should also be a closer scrutiny of how educational policy and strategy is written. This would question how strategy actually links with theory about learning and technology. After a consideration of some theoretical ideas about technology from Lieras, this chapter then draws on some empirical examples from a bank of 2.2 million words of UK policy language to question what approach this language frames for learning. The textual examples were collected for a much bigger project that sought to understand what forces have structured our understanding of educational technology during the last two decades. Though from UK policy documents, the patterns detected through CDA can be noticed more globally too and appear to be shaped by a neoliberal agenda which frequently plays out as a call for greater marketisation of higher education. As Stevenson puts it:

> The language of markets, targets and tests is not only increasingly regulating education, but is driving out the possibility of other languages and closing the educational field to other possibilities. (Stevenson, 2010, p. 342)

Through Lieras (1996) the concepts of e*xternality, desubjectivisation* and *closure* will now be examined to consider ways we conceive, and thus discuss, technology in our work. The ongoing relevance of these categories is argued for understanding why, even via new diverse online media, the problem of a narrow interpretation of educational technology seems to persist in our language. Through a corpus-based CDA some examples are then provided to illustrate how we seem to count on 'use of technology' to enhance learning in higher education. A return to discussing *Networked Learning* is considered as a first step towards a more multi-directional conversation, where we might acknowledge the convergence of *technology, language* and *learning* in people's educational technology practice. Then a reconsideration of how we write policy for educational technology is recommended, with a critical focus on how people learn, rather than on what the use of technology is assumed to enhance.

Externality, Desubjectivisation and Closure

Two decades ago Lieras (1996), writing reflectively about his experience as an engineer, sought to explore a new emancipatory approach towards technology considering the theory of Heidegger (1954). He suggested three aspects in which our modern relationship with technology in the western world is said to be pedagogically oppressive: *externality, desubjectivisation* and *closure* (Lieras, 1996). In this section I will briefly apply the theory of Lieras to the elements that constitute TEL (technology, language and learning) to discuss: *externality* in relation to how technology seems to be treated as separate from people, *desubjectivisation* in terms of effects

from our use of language about technology that emphasises what technologies (not people) are doing and *closure* in terms of how this use of language about technology seems to restrict routes for human learning.

Firstly, the experience of technology in a relationship of *externality* means certain technological formats are imposed on people. These cut off personal creativity to permit some actions, and prevent others. The rigidity of technological systems contrasts with people's cognitive and behavioural learning styles and forces the pace that people work at (Lieras, 1996, p. 334). Technology should, in theory, save people time yet they seem to work longer hours than ever. In universities virtual learning environments (VLEs) enable some things, but prevent others. In a wider society now, we neither know nor understand the internal workings of much of the technology we use (Sennett, 2006). Yet we are dependent upon it, and without alternatives to it, should it fail. Technology is working to a calculative logic, yet it mediates much of what we do by enforcing rules. Latour cites the example of speed bumps, where a technology 'acts' to intervene and we are 'obliged to oblige it' (Latour, 2002). Objects have material, and not just symbolic effects if we do not. Damage can be done, and so we adjust our behaviour accordingly. Such examples caution us not to see technology as a 'neutral' tool for added value, *external* to us, when it is politically inscribed with real consequences for human beings.

Yet in policy language for educational technology we seem to emphasise a simple productivity gain from technology. This completely misses out the critical social interactions where we question how technology might actually yield an increase in knowledge, as a process of inquiry and critique. Furthermore, in language about teaching and learning it risks missing out people altogether, crediting our labour to technologies not humans (Hayes & Bartholomew, 2015). Understanding enhancement only in terms of added value, is restrictive, if technologies can extend us (McLuhan, 2005) to overcome endless limitations:

> Human enhancement refers to any attempt to temporarily or permanently overcome the current limitations of the human body through natural or artificial means. (Wikipedia, 2009)

If this includes the human mind, as well as body, we might say 'everything is technology' (Braudel, 1985). All around us, it shapes our history, knowledge and individual lives. We in turn shape it, in multiple ways (Wajcman, 2002). 'Things' of all types form repositories of, and for, our learning, construct our social worlds (Sezneva, 2007) and contain 'traces' of us (Lash, 2002). Given these broader understandings, human pedagogical interactions with technologies are far from simply 'enhanced', irrespective of the claims of government policies. They might be envisioned, even through a pen, which has a material significance for each of us. It can run out of ink, and thus change a course of events. It is dialectical, or mutually constitutive (Wajcman, 2002), with our practices, discourses, values, institutions, virtual environments, and all forms of apparatus (Simons & Masschelein, 2008) from which we draw meaning, whilst learning. However, to move forward as humans, the real issue involves more globally the question of 'technology's integration into society' (Matthewman, 2011, p. 38), which includes how we discuss it.

In the second aspect of oppression identified by Lieras, he pinpoints the Western conception of labour since the Industrial Revolution as leading to a *desubjectivisation*, where people's earnings become the sole reason for working and the workforce is sold in terms of time and ability. Instead of labour enabling a person to feel fulfilled in a subjective process of *revealing*, as they interact with their tools (Heidegger, 1977), they find themselves locked in a state where they themselves have become a resource, an 'object-person' (Lieras, 1996, p. 334), 'reified' (Lukács, 1971) to serve as a means to an end alongside their tools. Heidegger suggests technology in this sense is 'enframing' of human beings and reduces them to a standing reserve, in a condition of calculative thinking (Heidegger, 1977). Many have argued that we now live in an age of 'neoliberalism' (Campbell & Pedersen, 2001; Chomsky, 1999; Giddens, 1998; Harvey, 2005) that primarily nurtures liberty 'for the talented and their enterprises' (Thorsen & Lie, 2006). The emergence of our modern system of free enterprise and market-based economies has a much longer history than the focus of this chapter. It is historically relevant though, to reflect that the last 200 years, inclusive of the Industrial Revolution, have shaped the free market capitalism of our current society. Adam Smith (1776/1937) suggested the route for maximum efficiency through unrestricted manufacturing. Since then a new type of economy, where the value of goods and labour can change irrespective of their effects on social cohesion, has emerged and transformed economic life across the globe. If we accept there is now no alternative, except to live under a regime of constant accumulation and enhancement, this has consequences for elements of creative and abstract thought that are not easily quantified. Areas of our lives that do not primarily operate on 'exchange value' (Marx, 1867) and can thus, not clearly prove 'value and usefulness' (Hoedemækers, Loacker, & Pedersen, 2012) in the form of 'surplus value' (Marx, 1867) become less noticeable, easily dispensed with. In our language we may refer only to the properties of technology that are perceived as providing added value, placing emphasis on contributions from 'use of technology', rather than from the labour of humans.

The third and final point Lieras makes is closely related to this. It concerns the problem of *closure* in the human relationship between thinking and being in modern capitalist society, or in other words, people's ability to relate to the world, and the world itself. This requires 'dialoguing with our form of thinking' (Lieras, 1996, p. 336), or observing it from a distance. From this critical position, other dialogues besides an *external* position might be noticed. If we think of technology as a 'use value' rather than simply 'exchange value' (Marx, 1867) then it can be acknowledged that, like discourse, the 'in use' elements are constitutive with *all* that they touch in people's lives. Rather than understanding technology as an 'extra' (Netz, 2004, pp. 228–229), as something we merely add on to enhance learning, a stronger appreciation of the embodied nature of technological learning might be sought. From this critical position we can consider not only the 'external', utilitarian logic of neoliberalism, but also 'internal' truths and different forms of knowledge. Here, turning to Schubert's interpretation of Habermas (1971), praxis informs educational technology endeavour (Hlynka & Belland, 1991). In the technical/practical/critical trichotomy below, broader dimensions of knowledge about technology are envisioned:

1. *Technical*: the dominant curriculum paradigm.
   An instrumental 'means-end' model, of efficiency, and certainty.
2. *Situational interpretive*: the practical paradigm.
   This seeks communication of meaning among people.
3. *Critical theoretic*: an incomplete paradigm.
   This looks for emancipation from hidden human assumptions.

(Hlynka & Belland, 1991, p. 43)

Though all of these dimensions may be present, policy discourse for educational technology currently seems to overlap between the *technical* and *practical* paradigms (Hlynka & Belland, 1991, p. 44). It rarely seems to move beyond these, to seek to explore the critical theory. So often, policy describes a *single* reality, in a political context. How this reality is achieved, through the ontological politics of practice, exists in the *multiple* (Barad, 2003; Law, 2002; Mol, 1999). Yet, rather than condemn and deny calculative thought altogether, which may also be creative, it is necessary to recover *all* dimensions of human thought and practice with technology that have been narrowed through the simple 'means-end' approach. Lieras concluded that an ongoing 'work-world' dialogue could lead to internal and external empowerment. I suggest that before we can seek this dialogue we need first to confront the framework of discourse within which we have currently confined educational technology.

A Corpus-Based CDA

Whilst an analysis of discourse cannot be claimed to prove or alter anything, it offers a lens through which concrete expressions of exchange value from technology might be noticed and discussed. Our discourse about technology in learning matters because it can 'mould identities' (Massey, 2013) in narrow economically based terms, which undermines the social, political and material elements for people learning in individual contexts. This may sound negative, but critically confronting these discursive structures is not a negative activity, but rather is considered empowering to enable new conversations.

Any analysis of discourse requires first an explanation of what discourse is understood to be. The approach for CDA described here follows Norman Fairclough, to acknowledge 'a dialectical view of the relationship between structure and agency, of the relationship between discourse and other elements or moments of social practices and social events' (Fairclough, 1995). Working from the premise that texts are produced and consumed to either change or reproduce a particular meaning, these interact with societal phenomena (e.g. technology, objects, people and institutions) that are therefore not all of a linguistic, discursive character (Phillips & Jorgenson, 2002, p. 61). Discourse then is not just the study of language, but is inclusive of how people 'use it' in real life, in relation to each other and material structures. Persistent, dominant discourses in higher education policy have already been extensively critiqued through CDA (Bertelsen, 1998; De Vita & Case, 2003; Fairclough, 2007;

Mautner, 2005; Mulderrig, 2011). This has revealed how ideology can communicate *one* particular meaning in the service of power (Foucault, 1984) in a 'knowledge economy' (Jessop, 2000), and marginalise others. Gramsci's notion of hegemony (1971) shows power can operate through an internalisation of values from prevailing social discourses (Mesthrie, Swann, Deumert, & Leap, 2009, p. 316). CDA hereafter, is not a 'fixed' set of research methods, but:

> a problem-oriented interdisciplinary research movement, subsuming a variety of approaches, each with different theoretical models, research methods and agenda. (Fairclough, Mulderrig, & Wodak, 2011)

In terms of particular linguistic techniques that might be adopted within a CDA approach, there are many forms of analysis a researcher might choose. What is described below is called a 'corpus-based' approach to CDA because the examples discussed are drawn from a bank of 2.2 million words of textual data written between 1997 and 2012, known as a corpus.

A corpus is a large collection of real instances of language use. By 'real' this means that the policy documents collected were written by many human beings in different contexts and also at different times. Therefore, variety amongst the documents might be anticipated over the period scrutinised. In a first step of analysis, software called *Wordsmith* was used to notice quantitative patterns emerging through corpus linguistics (Baker, 2006). *Wordsmith* supports corpus linguistic analysis through *keywords* (Scott, 1997). Keywords are words that are statistically significant when the language under scrutiny is measured against a comparison corpus, in this case, the British National Corpus. The British National Corpus was chosen because it contains 100 million words of written and spoken English from a wide range of sources for comparison purposes. Table 2.1 shows some keywords that were highlighted and the number of times they appeared in concordance lines within the corpus.

A concordance illustrates how words and phrases are ordered alongside each other in their actual context of use. Through specific searches in Wordsmith it was possible to take a closer look at words that appeared both before and after the keyword 'use'. 'Use' was chosen as a focus to examine more closely, given the emphasis placed above on 'enhancing learning through the use of technology' (JISC, 2009–2012).

In Fig. 2.1, some concordance lines from the corpus are shown. Bold text highlights instances of *the use of technology*. This phrase is often followed, or preceded, by an expectation *to enhance* or *improve* (these instances are underlined) a form of *learning* (denoted in italics).

The regularity of the patterns in Fig. 2.1 above demonstrates an assumption that in exchange for 'the use of technology' there will be enhanced forms of student learning. These example structures were often repeated in the corpus and therefore a closer analysis through CDA was undertaken. CDA provides a more qualitative way to examine, not only how language is structured across *concordance* lines of policy text, but also what sorts of values are implicit in these statements. One way to approach CDA is to look at what seems to be taken for granted grammatically in language by undertaking a *transitivity* analysis (Halliday, 1994). The idea

Table 2.1 Example
keywords from the corpus

Keyword	Number of instances
Learning	19,260
Use	8,131
Technology	6,079

5659	**the use of technology** <u>can increase</u> *accessibility and flexibility of learning*
5660	**the use of technology** <u>to create</u> *digital archives to improve practice*
5661`	**the use of technology** <u>to enhance</u> *front line productivity and management*
5665	the agenda <u>to enhance</u> *learning and teaching* through **the use of technology**
5677	produce resources and advice on **the use of technology** <u>to enhance</u> *assessment*
5680	<u>enhancing</u> their skills and confidence in **the use of technology** <u>enhanced</u> *learning*
5681	<u>to enhance</u> **the use of technology** *in learning and teaching* and to facilitate a more
5682	to share information and drive **the use of technology** <u>to enhance</u> *learning*
5683	<u>to improve</u> *the student learning experience* through **the use of technology**
5684	**the use of technology** <u>to achieve</u> *novel and effective learning experiences*
5686	support for **use of technology** <u>to enhance</u> *the learning and teaching experience*

Fig. 2.1 Concordance lines of policy text showing patterns of keywords

from Systemic Functional Linguistics that the system of language is shaped by the function it serves (Halliday, 1994) stresses the social character of texts. For Halliday (1994) language is a system of options from which writers *choose*. These choices are always significant and arguably often ideological (Simpson & Mayr, 2009, p. 65). Transitivity analysis is concerned with how meaning is represented through the use of nouns and verbs in the English language to express who is doing what to whom in particular statements. This raises the question that whilst this may be useful in English, what about in other languages? However there has been an assumption in policies across the globe that English *is* now the language of technology, for other countries to adopt if they wish to secure greater opportunities for learning (Seargeant & Erling, 2011, p. 259). For this reason alone it is necessary to pay attention to how statements in English structure our understanding of technology and to consider ways this may perhaps happen in other languages. Through transitivity analysis we can map the 'circumstances of place and time within which events occur' (Fowler, 1986, p. 156) and the *participants, processes* and *circumstances* involved (Halliday, 1994). In Table 2.2, these are shown to be realised in texts by nouns, verbs and adverbs.

Before discussing some particular structures from the corpus in more detail it is worth providing a few generic examples to demonstrate how transitivity analysis works in practice. In Table 2.3 a statement is made: *A student is learning at university.* The components of this statement are broken down and described. 'A student' is labelled as a *noun*, because this is a named participant undertaking this process. The process: 'is learning' is labelled as a *verb* and the circumstance 'at university' is acknowledged as an *adverb*. Some things to notice here are that in this sentence

Table 2.2 Transitivity elements (Halliday, 1994)

Element	Realised by
The participants (*who, whom*)	Nouns
The processes (*what*)	Verbs
The circumstances (*how, where, when*)	Adverbs

Table 2.3 An example of transitivity analysis

A student	*is learning*	*at university*
Participant (noun)	Process (verb)	Circumstance (an adverb)

Table 2.4 One way we might re-write the statement in Table 2.3

Universities	*are*	*places of learning*
Participant (noun)	Process (verb)	Participant (noun)

the participant, or the actor undertaking the process of learning is clearly stated. We know *who* is doing the learning and therefore agency is clear. Yet this activity could be rewritten less transparently, as shown in Table 2.4.

In Table 2.4 there are similar components to label, but some aspects have been missed out. For example, to reveal a human subject, more information is required. In relation to *places of learning*, to whose learning are we actually referring? The people involved in the learning are not mentioned. Following the work of Halliday (1994), to undertake a transitivity analysis, the different process types (verbs) are labelled to show what types of actions these represent. For example, a *Material* process is a physical act of labour undertaken by an *Actor* (whether human or not) to meet a *Goal*.

In Table 2.5 it is clear to see that 'Brian' is the *Actor* undertaking a *Material* process: 'is using' and the Goal is: 'the Internet'. Whilst it may seem a little strange that the *Goal* in this example is 'the Internet', it is worth adding that through the process 'is using', 'Brian' is understood to be acting upon 'the Internet'. This becomes more significant if we think of transitivity analysis as a way to reveal agency (which refers to the capacity of individuals to act independently and to make their own free choices). In this example 'Brian' is the person with agency, or capacity, to act. If, however, as in Table 2.6 we simply state that 'the internet' 'enhances' 'learning', we attribute agency, or the capacity to act, to 'the Internet', not Brian.

This form of writing is known as *Nominalisation*, or the use of nouns that represent actors and processes in ways that hide agency (Crossouard, 2004, p. 6; Fairclough, 2003, p. 220). Though common in reports and scientific documents, nominalisation has ideological consequences, when, for example, ideas about learning and technology become described as *facts*, and the labour involved is not attributed to people. Discussing some further processes that might be noticed through transitivity analysis should help to clarify the importance of these points.

A process of 'believing' would be described as a *Mental* process, but *Mental* processes are labelled slightly differently, as shown in Table 2.7.

In Table 2.7 'Brian' is the *Senser* (rather than the *Actor*) undertaking a *Mental* process: 'believes'. 'Technology enhances learning' is called the Phenomenon (rather than Goal). Here again we might consider that 'Brian' has the capacity to

Table 2.5 How a 'Material' process is labelled in transitivity analysis to show Actor and Goal

Brian	is using	the Internet
Actor	Material process	Goal

Table 2.6 The Internet is now the Actor that enhances the Goal of learning

The Internet	enhances	learning
Actor	Material process	Goal

Table 2.7 How a 'Mental' process is labelled in transitivity analysis

Brian	believes	technology enhances learning
Senser	Mental process	Phenomenon

Table 2.8 This strategy is now the senser that believes technology enhances learning

This strategy	believes	technology enhances learning
Senser	Mental process	Phenomenon

undertake this process of believing something, but it would change the meaning considerably if, as in Table 2.8, in place of 'Brian' we were to insert 'This Strategy', which would then attribute agency, or capacity to believe, to a strategy: 'This Strategy believes technology enhances learning'.

A process of 'speaking' would be described as a *Verbal* process in Halliday's method. In Table 2.9 'Sarah' is now the *Sayer* in a *Verbal* process: 'criticises' and 'the procedure' has become the *Target*. Yet to rewrite the statement in Table 2.9 as shown in Table 2.10, to replace 'Sarah' with 'This document', changes who is responsible for criticising quality control procedures.

Transitivity analysis then enables a closer look at the way our social context of educational technology in higher education is structured through the choices of words people use to write policy. In examples of nominalisation above, where statements are not attributed to people, but to 'things' such as 'this document', these ideas are not easy to argue with. Such declarations can shape human activities within a restricted world view through use of language. By looking closely at the choices people make in how they structure what they write, we can notice '*who* does *what* to *whom*' (Thompson, 2004) within policy texts. This can help to illustrate the interplay of economic, social and the political elements, in discourse about learning with technology. From here we might notice if rigid statements close rather than open conversational spaces to discuss the role of technology more broadly for learning.

Table 2.9 How a 'Verbal' process is labelled in transitivity analysis

Sarah	criticises	the procedure
Sayer	Verbal process	Target

Table 2.10 This document is now the Sayer that criticises the procedure

This document	criticises	the procedure
Sayer	Verbal process	Target

The Consumption of Space for Alternative Discourse

Now that the principles of transitivity analysis have been explained, this section explores some real examples of *Material, Mental* and *Verbal* processes from the UK corpus and then some statements from policy reports from other countries. In Table 2.11 some corpus lines from Fig. 2.1 have been analysed. Firstly, we can notice how 'the use of technology' is a *nominalisation*. In row *5659*, instead of a discussion where a human agent can be identified through a verb as *using* technology, a detached expression of 'the use of technology' takes the place of a person, or participant and becomes the Actor. We are told through a *Material* process that 'the use of technology' 'can increase' the Goal: 'accessibility and flexibility of learning'. In corpus row *5660* the same structure is repeated and this time 'the use of technology' is said 'to create digital archives to improve practice'. In row *5661* 'the use of technology' is claimed 'to enhance frontline productivity and management'.

In each of these cases 'the use of technology', is the Actor that is said to undertake a *Material* process that can 'increase', 'create' or 'enhance' the Goals shown. This is a repeated pattern where the writer assumes 'the use of technology' is something external to people that might be applied to yield each of these exchange values. Whilst nominalisation is a feature of academic writing, when overused in this fashion it has the real effect of turning active human labour into a form of commodity. If this were phrased differently, we might identify *who* is *using* technology to achieve *what*. Instead the human labour process of *using* technology becomes a noun, when stated as 'the use of technology'. This in a sense freezes and repackages the way in which the concept of technology is experienced by a reader.

In the next example in Table 2.12 a *Verbal* process: 'proposes' is enacted by 'the strategy'. Once more a great deal is being attributed to a document, including the human labour required to 'enhance the learning opportunities of all learners' and to decide on 'the appropriate use of e-learning'.

In the next two examples, *Mental* process is shown. Firstly in Table 2.13 we can notice that the Mental process shown is undertaken not by a human subject but by 'this strategy' which 'focuses on how technology can enhance learning, teaching and the overall student experience'.

Table 2.11 Transitivity analysis shows Material processes

5659				
The use of technology	can increase	accessibility and flexibility of learning		
Actor	Process: Material	Goal		
5660				
The use of technology	to create	digital archives	to improve	practice
Actor	Process: Material	Goal	Process: Material	Goal
5661				
The use of technology	to enhance	frontline productivity and management		
Actor	Process: Material	Goal		

Table 2.12 Transitivity analysis shows a Verbal process

588			
The strategy	proposes	to enhance	the learning opportunities
Sayer	Proc: Verbal	Proc: Material	Goal

of all learners	through the appropriate use of e-learning
	Circumstance

Table 2.13 Transitivity analysis shows a Mental process

5701		
This strategy	focuses	on how technology can enhance learning, teaching
Senser	Proc: Mental	Phenomenon

and the overall student experience

Next in Table 2.14 the same pattern is repeated as another *Mental* process: 'strives to' is undertaken by 'this strategy for e-learning'. It is not possible to determine who holds these views because, via *nominalisation*, this information is concealed. In both of these examples it can also be noted that any enhancement of student learning is described as 'to enhance the student experience', expressing what students encounter individually, as if it were a commodified single experience, rather than a diverse and personal one.

Though the activities described will naturally involve human labour this becomes 'reified' as if performed by 'things'. The work of people is desubjectivised. Discussed in terms of objects, the subjective, social aspects that might underline plurality, or diversity, are omitted. All eventualities have been covered and further input is not invited. Yet written differently, this might have read: 'tutors are striving to realise a vision'. The next few examples are not from the UK corpus. Firstly, from the USA, in Table 2.15.

Table 2.14 Transitivity processes=Mental, Material, Material

5224		
This strategy for e-learning	strives to	realise the following vision
Senser	Process: Mental	Phenomenon

to use	e-Learning	to enhance	the student learning experience
Process: Material	Goal	Process: Material	Goal

Table 2.15 US Department of Education, Office of Educational Technology (2010)

The use of educational technology	to improve	teaching, assessment, learning, and infrastructure
Actor	Process: Material	Goal

Table 2.16 European Commission

The use of ICT	to support	innovation and lifelong learning for all
Actor	Process: Material	Goal

The use of new multimedia technologies and the Internet	to improve	the quality of learning
Actor	Process: Material	Goal

The use of ICT to support innovation and lifelong learning for all (2008)

Table 2.17 European Commission (2009)

Technology-enhanced learning	is transforming	education and training
Actor	Process: Material	Goal

to	make it	more effective, more attractive, more accessible and more adapted to today's contexts
	Process: Material	Goal

In this statement it is 'the use of educational technology' that *acts* to undertake a *Material* process 'to improve' the *Goal* of: 'teaching, assessment, learning and infrastructure'. This expected improvement represents an exchange value for 'the use of educational technology'. In Tables 2.16 and 2.17 examples of *Material* processes from European Commission reports demonstrate similar positive expectations from 'The use of IT', 'The use of new multimedia technologies and the Internet' and, as discussed earlier, 'TEL' to support, improve and transform.

What can be noticed from these examples is just a small section of a pattern that emerges across the UK corpus and can also be found repeated in strategy documents more globally. The use of some form of technology is very often repeatedly followed by what I have referred to as an 'exchange value' in terms of learning. Use of technology, as an external force is expected to 'increase', 'create', 'enhance' and 'improve' learning. In our market-driven workplace we expect a surplus from technology for learning, but humans are rarely mentioned in this calculation. If we reflect on the theory of Marx, it is humans though, is it not, that provide labour? (Marx, 1867) Humans design and programme technologies, teach classes and study at university. Yet in our policy for learning via technology we seem not to feature, instead we seem to simply count on 'the use of technology' to enhance learning.

Discussion

Fundamentally, the transitivity examples provided above help to demonstrate how policy discourse can limit choice. These are representations of what *should* happen in learning encounters with technology, rather than what *does*. Rather than acknowledging the 'things' that are encountered by people in real, material, learning situations, technology is treated as an 'external' means to deploy for efficient processes. Yet social relations are discussed as 'things' and human agency becomes hidden from view. This is a curious reversal, where 'reification' Lukács (1971) means that human relations become traded objects, through 'commodity fetishism' (Marx, 1867). The natural activities of people learning, using technology, become separated from their original context. They are given new generalised attributes, which in reality in numerous contexts, they cannot possibly have. The paradox is that these rules dictate how we should learn using technology, and thus limit what might be envisioned. Such textual arrangements need not be intentional. However, collectively and globally, we build a 'fixed' impression of educational technology through policy of which we need to ask critical questions. If we do not, we expect students to learn in only one way, and technology to be a predictable tool that supports this.

Due to constraints of space only a few examples of policy texts, from the UK, the USA, and Europe have been examined in this chapter. In order to draw further evidence from across the globe, a much larger study would be necessary. This could classify the types of transitivity processes that can be repeatedly noticed in policy documents and build a clearer picture of how technology is frequently evaluated. This would enable a fuller consideration of the ideological presuppositions that are transmitted to construct a particular version of reality.

Emphasising a simple productivity gain from technology, through TEL, is not the only way to understand how technology and learning might be linked. If we rely on TEL to account for how learning takes place, we risk our own human interactions being omitted from this discourse. In the next section I propose another way to think about the interrelated nature of technology, language and learning.

A Technology-Language-Learning Nexus

In contrast to the discourse of TEL, which suggests there is no need for further debate about what technology achieves in learning, some have described the process of coming to 'know' through educational technology as more of an ongoing 'conversation' (Laurillard, 2002; Sharples, 2005). This suggests the active involvement of humans in a dialogic exchange where technology is not simply an external extra with the subjective social aspects omitted (Lieras, 1996). Such a conversation is contrasted with an assumption in policy language that implementing new technologies, in themselves, determines learning. Yet in the decade since 2002, we do not seem to have had the multi-directional conversation that was once envisioned through *Networked Learning*. If we do not begin to question how teachers and students are now positioned within discursive practices like TEL then we miss noticing significant, related power and knowledge relations. Networked Learning is a term that does not presuppose an exchange value from technology for learning. In this sense it makes no promises, which is perhaps a good place to start. It enables a more holistic perspective to be contemplated where human labour with technology, language and learning are integrated with social change, but there are no guarantees of simple outcomes from technology itself. Instead we might consider how, in broader society, technology intersects with political ideals, sociocultural practices, and is discussed for the purpose of learning, through discourse.

For understanding *language*, humans have developed terms to distinguish different aspects. Discourse is the 'in use' element of language and, as such, is a broad concept, because it co-evolves with all other elements it touches in society. For *technology*, there are less adequate terms for its heterogeneous and temporal qualities and our own levels of understanding. It presents a problem for *learning* though, if in language, these elements of technological knowledge cease to exist, and technology means only constant improvement.

The practical and theoretical elements of *language* and *technology* are inextricably intertwined and linked also with the human beings who write policies, provide support, teach courses or access these, in order to learn. The manipulation of educational technology is therefore an ongoing political struggle, not a linear calculation. Yet, little of the critique of modern capital can be found in post-Internet educational technology literature. This seems to have concentrated on more practical applications of technology, in terms of case studies and facilitation of practice.

More critical pedagogical accounts of education (Freire, 1972; McLaren, 1994) do not seem to have featured prominently in educational technology literature of the new millennium. For example, Gee (2000) described the 'communities of practice' approach (Wenger, 1998), though identified with liberal approaches in education as also driven largely by businesses (Jones, 2001). Equally, more critical linguistic accounts of educational discourse (Hasan, 1998) have not necessarily pinpointed the language in which we discuss technology for learning as problematic. This leads into the paradox that, whilst humans intimately connect to technology, they may yet fail to recognise the politics and social interests that technology embodies. If the

political choices that drive agendas for technology in Higher Education are not rec-
ognised, this then makes it challenging to imagine alternative more plural visions.

Our current policy discourse seems to support a compressed version of how
students might experience technology, language and learning, confining these ele-
ments along a very narrow TEL route. To re-envision this it is necessary to under-
stand the relationship between *language* and power, which is constituent with all it
touches, including *technology* and *learning*. I therefore propose that in educational
technology there is a convergence of the elements of technology, language and
learning that can offer a fertile theoretical basis for networked learning research.
Through networked learning the *sociolinguistic* and *socio-technical* elements of
technological learning might be explored, together, with the *critical pedagogical*. I
call this an awareness of the *technology-language-learning* nexus, that is played out
through the discourse of TEL, but TEL is too narrow a concept. *Networked Learning*
provides scope for a dialogue across all of these areas. Therefore the following con-
clusions invite further research into a *technology-language-pedagogy* nexus that
appears to be played out globally through TEL.

Conclusion

Currently, in policy discourse educational technology is treated as a subdiscipline to
education, but it needs to be acknowledged by universities as much broader than
this. As a sociocultural practice, this emerging field of research is a source of aca-
demic knowledge that could develop diverse links between the socio-technical,
sociolinguistic and critical pedagogical, within what I have called the *technology-
language-learning* nexus. It is potentially disruptive, to move beyond the narrow
discourse of current policy but it may provide us with liberation from one-dimen-
sional assumptions about technology, as purely a means to an end. I have argued
that for too long the discursive construction of policy texts has shaped the way
educational technology in Higher Education has been represented. This prioritises
one narrow economically linked view of reality, but marginalises *others* (Pearce,
2004). It structures a pathway of objective goals, such as improved processes, for
productivity, redesign and transformation of our education systems. Yet, it misses
out real, subjective goals of learners and teachers in their diverse material encoun-
ters with technology through *nominalisation*. This structures important processes as
if they were undertaken by entities, not people and provides a vehicle for either
strong hierarchical, or neoliberal agendas to make simplified claims politically, in
the name of technology.

In a CDA I have demonstrated how *transitivity* analysis can reveal the linguistic
choices that position people and technologies to maintain a restricted version of our
practice. Whilst technical understanding is important, it is just one of the three forms
of cognitive interests: *technical, practical* and *emancipatory* (Habermas, 1984) con-
stitutive of knowledge. Furthermore, to focus only on the instrumental, or technical
model alone, risks assuming that there is a general route to success in enhancing
learning, through *the use of technology*. This fails to consider diverse and unequal

contextual circumstances locally, and globally. It implies there is only one model that can be repeated anywhere. Yet, any *technology* might evolve differently (Matthewman, 2011, p. 27). *Language* varies according to location, and the semiotics of each culture, which can be observed even at the level of grammar. *Learning* too, is situated, and whilst policy may refer to 'the student experience' as an objective, there are *many* student experiences, and all of these are subjective. Given these points, a critical awareness of the convergence of *technology, language* and *learning* within the interdisciplinary field of educational technology enables us to move from a one-dimensional model, towards a multi-dimensional *networked learning* approach.

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Chapter 3
Free Information: Networked Learning Utopia

Katarina Peović Vuković

This chapter analyzes the main problems with mainstream approaches to the relationships between human learning and information networks using theoretical backgrounds of critical theory, philosophy, and sociology of technology. Within that framework, social, political, and even cognitive aspects related to learning are dialectically interrelated with the society. This relationship is the focal point for classical authors, such as Foucault, who reconstructed the episteme of humanistic disciplines from sixteenth century onwards in his study *The Order of Things: An Archeology of the Human Sciences* (1994); Deleuze, who considered education as one of the pillars in the societies of control (1992); Bourdieu and Passeron, who viewed education as one of the main vehicles for social reproduction (1977, 1979).

In relation to these developments, contemporary critical theory (Giroux, 2012; Liessmann, 2008; Nussbaum, 2010; Pusser, 2002, 2006) has focused mainly towards the relationships between contemporary education and the financial crisis that endanger humanistic disciplines (Peter McLaren's conversation with Petar Jandrić in this volume (McLaren & Jandrić, 2015) presents a good case in the point.) Arising from the Frankfurt School of Social Science, however, critical theory is interested in diverse issues from learning and technologies to arts and literature. While all critical theories emphasize certain generic themes such as emancipation and social justice, they arise from different contexts and philosophies. At the intersections of learning and technologies, therefore, it is more appropriate to speak of various critical theories and traditions. During the past few decades, critical theory of education has often been linked to postmodernism. However, following recent theoretical developments offered by theorists such as Peter McLaren, Dave Hill, and Glen Rikowski, this chapter dismisses relativity advocated by critical postmodernists and enters "the Marxist-humanist trajectory" based on neo-Marxist approaches and the original works of Marx (McLaren, 2006; McLaren, McMurry, & McGuirk, 2008).

K. Peović Vuković (✉)
University of Rijeka, Rijeka, Croatia
e-mail: kpvukovic@ffri.hr

This chapter places the relationships between human learning and technology in the focus of interest in the postindustrial society. Such approach combines neo-Marxist theory of commons, educational philosophy, and history of technology. On that basis, the chapter replaces instrumentalist concepts such as e-learning and technology-enhanced learning (Fejes & Nicoll, 2008; Hayes, 2015, in this volume) with critical approaches characteristic for networked learning (McConnell, Hodgson, & Dirckinck-Holmfeld, 2012, p. 15). Its methodological aim is to step away from narrow under-standing of learning in the age of the network through the lens of technological determinism, and to place it in relation to social, political, and economic issues. In this context, it is equally important that networked learning takes place in specific eco-nomic and political context, and that it is marked by the specific technological shift (emergence of the network as the central structure of the Internet) which happened in neoliberal societies during 1980s and 1990s. Looking at various connections—"between one learner and other learners; between learners and tutors; between a learn-ing community and its learning resources" (Goodyear, Banks, Hodgson, & McConnell, 2004, p. 1)—networked learning is focused to generic features of all networks and recognizes their dialectical relationships with political economy.

Situated at the intersections between philosophy, technology, and human learning, this chapter seeks inspiration in the heritage of Ivan Illich (1971, 1973). Illich's work is important for its holistic view to scientific disciplines, and its focus to broad social uses of technology. His interest in particular tools, such as software, is always linked to the big(ger) picture: in the best tradition of critical theory, Illich always provides an adequate balance between the general and the particular. Illich's understanding of technologies reaches beyond technological determinism that often blurs the impor-tance of social determination. In this respect, Illich is close to the fundamental critique of technological determinism that starts roughly with Raymond Williams's revision of Marshall McLuhan's work (Williams, 2005), and continues to appear in works of contemporary sociologists such as Manuel Castells (2000) and Pierre Levy's (1999).

This chapter explores contemporary potentials of Ivan Illich's "tools for convivi-ality" and discusses their relevance for alternative modes of sharing in information networks. It analyzes the concept of knowledge within the context of postindustrial society, and develops a broader understanding of learning in the age of the network. It examines networked learning through the Laclau and Mouffe's concept of "radi-cal democracy" (2001). Instead of looking through narrow frameworks of educa-tional institutions, it links networked learning to practices of broad file sharing that simultaneously participate in individual and social development. Using the frame-work of peer-to-peer (peer-to-peer) networks, it relates networked learning with Karl Marx's theory of "general intellect" and his historiography of transition from capitalism to communism. On that basis, it develops opportunities to include net-worked learning into the wider notion of Utopian socialism, and identifies the accompanying dangers arising from appropriation of such visions by the capitalist machine of profit extrapolation. Finally, it utilizes the difference between alternative and oppositional cultures, established by a cultural theoretician Raymond Williams (2003, 2005), in order to stress the dangers of losing political potential of today's authentic alternative cultures.

Illich and the Problem of User Friendly Tools

Networked learning interlinks two fundamental social spheres: education and technology. Ivan Illich acknowledges importance of both spheres, recognizes their dialectical relationships, and places them amongst foundational pillars of the industrial society. Only 2 years after publishing *Deschooling Society* (1971), which discusses the role of technocratic elites in creation of knowledge, *Tools for Conviviality* (1973) applies the same line of argument to technology. Here, Illich elaborates problems that emerge from transfer of consumerist logic in the realm of education. "The individual's autonomy is intolerably reduced by a society that defines the maximum satisfaction of the maximum number as the largest consumption of industrial goods" (1973, p. 13).

Illich's formula, deliberately written in technocratic style, resembles Marx's formulas aimed at detecting specific forms of fetishism related to realms of production and consuming. Marx reconstructs relations between goods and their values; between wages, price, and profit; between profit and working hours. One of the best examples of this unnaturalization of relations is given in his article *Value, Price and Profit* (1969), which unravels the nature of prices of commodities. Like Marx's theorems, Illich's insights reveal the "hidden" character of social relations that seem natural and unproblematic. In relation to learning and technologies, he reconstructs a common understanding of links between satisfaction and consumption, and the underlying processes of limiting individual autonomy. The common, seemingly unproblematic understanding of this relationship is so interwoven in the Western thought that Illich is able to detect its traces even at the level of the language formulations. For instance, the hegemonic relationship between satisfaction and consumption modifies statements such as *I want to learn* into *I want to get an education*, and *I want to walk* to *I need transportation* (Illich, 1973, p. 102).

On such basis, Illich makes the daring proposition: the only technologies from which the society in total can profit are *tools for conviviality*. Such tools oppose the industrial logic of productivity, which defines human work, education, leisure, travel, and other needs as commodities. Crucial for this argument is Illich's definition of convivial technology, as the one that provides maximum *autonomy* for its users. In a sort of Habermasian conclusion, Illich advocates re-polarization of human control over tools, and minimization of the role of experts that are never neutral. As the ruling class of the technological society, experts cannot be expected to promote ideals of socialist justice. Therefore, the society needs "new politics" that "would aim principally to exclude the design of artefacts and rules that are obstacles to the exercise of … personal freedom" (Illich, 1973, p. 19).

In *Technology and Science as "Ideology,"* Jürgen Habermas (1968) offers a theoretical solution for technological determinism. He reflects on Herbert Marcuse's study *One-Dimensional Man* (1964), which elaborates negative aspects of technological rationalization and the resulting ideological impacts of autonomous science and technology, and concludes that science and technology cannot determine social progress. Scientific facts cannot be challenged, claims Habermas, neither technology as such can be challenged. Those are neutral agents, integrated in social order, which simply reflect relations in production, social systems, and institutional

frameworks. Habermas's concept of "scientization of politics," analyzed in detail in his essay, *The Scientization of Politics and Public Opinion* (1980), offers a novel technopolitical approach. According to Habermas, technology and science are not problems in their own right. Instead, the problem lies in "scientization of politics," or understanding science and technology as (temporary) solutions for imperfect rationalization of the society. Following this line of reasoning, traditional politics is acceptable only temporarily—until complete depolitization of normative regulations and transfer of initiative into the hands of scientists, scientific analyses, and technical planning (Habermas, 1980, p. 63). Habermas claims that such depolitization must be challenged, and that science and technology, together with the very concept of progress, must be constantly questioned in the realm of the "public sphere" (Habermas uses the term *Öffentlichkeit*)*,* which must not leave technological and scientific progress in the hands of supposedly neutral, rational politics.

In his preface to *A Contribution to a Critique of Political Economy* (1859), Marx defines social change as the change in forces of production: sources of energy, including human labor, and technology. Later theoreticians often repeat Marx's conclusion that "the hand mill gives you the feudal lord. The steam mill gives you the modern capitalist" (Marx, 1955). In 15th chapter of *Capital,* entitled *Machinery and Large-scale Industry* (1976, p. 247), Marx arrives to the techno-determinist conclusion that every technology is necessarily a capitalist. However, David Harvey, one of the most prominent contemporary followers of Marx, proposes a less determinist conclusion. Although technologies are always capitalist, we should inquire how to change capitalist technology into a socialist technology (Harvey, 2010, p. 234). According to Illich, the answer could be found in *tools for conviviality*.

Illich locates politics and ideology of technology away from abstract spheres of autonomy into the structure or grammar of technology. Here, Illich combines the best ideas offered by the two most prominent theorists related to technological determinism: Karl Marx and Marshall McLuhan. In order to emphasize the importance of media structures, McLuhan makes a revolutionary claim that "the medium is the message" (2003). However, such claim is also techno-determinist. Avoiding Marshall McLuhan's technological determinism, Illich uses media structures as agents of social change. Applied to contemporary context, Illich's work can be used to demarcate two distinctive approaches to software development. On the one hand, there are "user friendly" proprietary tools which take away many liberties from their users. On the other hand, there are "free software" tools which might represent a contemporary form of tools for conviviality (Jandrić & Boras, 2012, pp. 173–183).

Illich's definition of convivial tools clearly recognizes two fundamental differences between proprietary software and free software. First, user friendly proprietary software relates satisfaction to consumption. The promise of "friendship" between customer and company is based on the (often false) assumption that the company will deliver "intuitive" software interface that no longer requires special preparations for usage. As opposed to proprietary software, free software does not offer "services" of a similar kind but encourages its users' own learning about technology. Second, proprietary software is predefined, closed, restricted for modifying, and bounded by copyright laws. Fundamentally, the promise of "friendship" between users and technologies cannot be realized because the logic of production

and reproduction of software is sealed by copyright agreements. Free software, on the contrary, leaves source code open for change and distribution under the conditions of allowing future reuse. In sum, users of free software get two main advantages over users of proprietary software: convivial technology powering free software is not structured to mask inner workings of the machine, and users can modify free software according to their needs.

Such differentiation between "user friendly" proprietary software and free software is closely related to the opposition between formal institutionalized learning vis-à-vis peer networked learning developed in Ivan Illich's study *Deschooling Society* (1971). Convivial learning, as well as convivial tools, can only result from networked interaction between peers. The next chapter in this volume, *Getting It Out on the Net: Decentralized Networked Learning Through Online Pre-publication* (Ralston, 2015), shows an excellent example of this relationship.

Networked Learning and the Postindustrial Society

Looking at technological structures and their relationships to capitalist modes of production, Illich proposes an important theorem: the one of mutually exclusive categories of *productivity* and *knowledge*. As postindustrial society has merely redefined capitalist models of productivity and knowledge from the industrial society, industrial productivity always comes "at the expense of convivial effectiveness" (Illich, 1973, p. 18). Intrinsically linked to the postindustrial society, where the prefix "post" refers to the shift in dynamics of production and consumption, informational capitalism, or Manuel Castells's informationalism (2000), radicalizes these trends in multiple ways. In *The Coming of Post-Industrial Society* (1973), *The End of Ideology* (2000 [1960]), and *The Cultural Contradictions of Capitalism* (1972), Daniel Bell outlines a new kind of society—the postindustrial society that is information-led and service-oriented. Bell also argues that ideology has arrived to its end because Western democratic politics and capitalism have triumphed. In *The Post-Industrial Society* (1973), Alain Touraine develops this argumentation further, but disputes Bell's ideas on the end of ideology (1971). According to Castells, social power is in the hands of those in the position to manipulate information, program networks, and switch between networks (Castells, 2009). As a central social agent, information is always a derivate from or a resource of profit.

Social paradigm of the capitalist society based on the power of information has been formed, intensified, and canalized in the process of capital restructuring that started in 1980s. In The *Rise of the Network Society, The Information Age: Economy, Society and Culture* (2000), Manuel Castells lists the four main goals of capital restructuring:

1. Deepening the capitalist logic of profit-seeking in capital–labor relationships.
2. Enhancing the productivity of labor and capital.
3. Globalizing production, circulation, and markets, seizing the opportunity of the most advantageous conditions for profit-making everywhere.

4. Marshalling the state's support for productivity gains and competitiveness of national economies, often to the detriment of social protection and public interest regulations (Castells, 2000, p. 19).

Those trends are dialectically interlinked with education: its instrumentalization, redirection towards skills and application, marginalization of social sciences and humanities, and the shift away from blue-skies research in all fields. Postindustrial education is primarily focused to creating and maintaining flexible work force often depicted by the figure of learner-worker. This process is not aimed at perfection in one field and/or accumulation of knowledge and specialization. Instead, it is directed at adapting workers to turbulent labor markets. Learning outcomes are structured according to requirements of the global marketplace, but the demarcation between the center and the periphery remains as strong as ever. Last but not least, trends of industrial and postindustrial capitalism are expanding to social spheres that had been, up to recently, fairly immune to the logic of the market (Fraser, 2014).

In *Postscript on Societies of Control* (1992), Gilles Deleuze describes restructuring of the public sphere, and shows its implications for the realm of education. Starting from Foucault's analyses of eighteenth, nineteenth, and early twentieth century disciplinary societies, where prison and factory had been based on very similar models, he describes contemporary transformations towards a universal model embodied in corporations. Instead of separate spaces governed by specific rules, we are now facing inseparable variations of the same control mechanism. This principle is central to educational process as the continuous mechanism of control in the form of "perpetual training" that, ultimately, replaces the traditional school as such, and which is "delivering the school over to the corporation" (Deleuze, 1992). The best example of that process is "the modulating principle of "salary according to merit," which brings competition into the process of teaching and learning where "perpetual training tends to replace the school, and continuous control to replace the examination." Declaratively, continuous assessment is aimed at objective evaluation of student accomplishments and creation of individualized feedback. At the same time, however, it has a more malevolent task of limiting social mobility for those who fail to comply in one or another period of their lives.

In contrast to perpetual examination in neoliberal postindustrial societies, it is interesting to mention the example of former socialist Yugoslavia where social mobility had been secured by a relatively open educational model. However, the Yugoslav model had been highly criticized on the grounds of low productivity since many students never completed their schooling or took extensive periods of time to graduate. Neoliberal society defines productivity in more rigorous ways. However, the very concept of productivity inevitably outcasts some individuals: those who could not comply, or do not believe, as Illich formulated, in the value of "knowledge stock" (1973, p. 16). In context of global capitalism, the "industrially determined shape of our expectations" (1973, p. 27) forms goals of educational systems. As Bertell Ollman concludes, the real goal behind the process of continuous evaluation is not to assure social fairness, but to prepare students for discipline and speed-ups that await them at the marketplace (2011).

Utopia of Peer-to-Peer Networks

During the past decades, there has been a lot of research regarding pros and cons of learning and teaching inside and outside of classrooms. However, a lot of quality networked learning goes "under the radar" of formal educational institutions. For instance, while free distribution of information is commonly used as the base of networked learning, alternative models of distributing information, such as peer-to-peer networks, are often not provided with adequate attention. In mainstream theory, the dominant approach when examining peer-to-peer networks is copyright infringement. However, peer-to-peer networks are not only proprietary problems; they are also tools for networked learning. Two platforms, *Ifile* and *Gigapedia* (not operational from 2012) together created an open library with more than 400,000 e-books available for free, but illegal downloads (Taylor, 2012). In 2012, academic publishers including *Cambridge University Press, Elsevier* and *Pearson Education*, led by *Booksellers Association (Börsenveiren)* and the *International Publishers Association (IPA),* organized legal action against copyright infringement and brought down the sites.

If we ignore legal aspects of their action and focus only to its output, academic publishers truly acted as "the enemies of science" (Taylor, 2012). In effect, their battle against piracy resulted in destruction of horizontal networks for distribution of knowledge. Peer-to-peer networks operate under the "plenitude economy," taking advantage of digital flexibility and decentralization. Such distribution of information causes radical democratization, which places peer-to-peer networks in direct conflict with capitalism. Following the crash of welfare state, academic publishers have become owners of human knowledge. By distributing books under copyright laws, they embed the logic of profit into scientific inquiry and frame it to the dichotomy of "producing" and "consuming" knowledge. Proprietary infringement cannot be discussed separately from profit. In order to propose fundamental questions about knowledge outside of the realm of profit, therefore, it is necessary to leave aside the paradigm of intellectual property, even if only for the purpose of imagination.

The problem of imagination and re-installation of Utopias is one of the central problems in political theory of late capitalism. In his essay *The Spectre of Ideology* (1994, pp. 1–33), Slavoj Žižek attributes the sentence "it is easier to imagine the end of the world than to imagine the end of capitalism" to Fredric Jameson. Although he did not write that sentence, Jameson indeed explored the issue of political imagination and paved the way towards opportunities for new cognitive mapping (1991). In spite of various legal issues, promoters of horizontal networked learning—as agents of Utopia—can be found inside and outside of educational institutions. The concept of the network is dialectically linked to a specific definition of knowledge based on open sharing of information and knowledge. The Internet has been developed within the context of higher education, and its fast and progressive development can at least in part be attributed to traditional scientific ethos of egalitarianism. Networked learning vis peer-to-peer networks is deeply rooted in social history and technological structure of information and communication technologies. In the tradition of critical Utopia, therefore, it simultaneously maintains "a clear balance between the

imagined and hoped-for future, and the critical analysis and concrete action that [is] needed to achieve that future" (Boyd, 2007, p. 7). So, are there any useful models that might link networked learning and free sharing?

Radical Democracy

Horizontal distribution of knowledge installs radical (or direct) democratic paradigm enabled by the networked structure of the Internet into human learning. In this context, networked learning can be understood as "radical democratic praxis." Following influential collaboration between Ernesto Laclau and Chantal Mouffe on the concept of "radical democracy," the politics of the Internet can be understood as the politics of antagonism inscribed in political struggle and hegemony of particular groups. Conflicts and divisions are disturbances, "that unfortunately cannot be eliminated … because we will never be able to leave our particularities completely aside in order to act in accordance with our rational self" (Laclau & Mouffe, 1985, p. xvii). The fundamental force behind Laclau and Mouffe's shift in understanding democracy is related to the shift away from the non-essentialist views "where the aspect of de-totalization and decentering prevails and where the dispersion of subject positions is transformed into an effective separation" (Mouffe, 1993, p. 77).

Here, Laclau and Mouffe offer what Deleuze and Guattari could not offer due to non-conflict character of their philosophy. Instead of dispersion and separation, their concept of hegemonic articulation develops an alternative definition of public sphere. It is a re-definition that aims towards "a radical democratic citizenship" as the construction of a common political identity in the form of a new hegemony articulated through new egalitarian social relations, practices, and institutions. Instead of peaceful coexistence of decentralized subjects, therefore, the model of radical democracy relies on antagonism and establishment of new provisional political subjects. Networks that already act according to models of radical democracy, such as the removed *Gigapedia,* do not only propose different models of learning. Rather, such radical models act as symptoms of numerous problems within the existing democratic and capitalist models of production and consumption. The peer-to-peer networks establish new models of distribution and simultaneously oppose the existing ones. We can point at least three issues related to copyright that are seriously affected with the emergence of peer-to-peer networks: (1) the question of parasite industries, (2) the issue of commodification of knowledge, and (3) the problem of uniqueness.

Exactly like in the case of *Gigapedia*, institutional action against piracy is usually legitimated as the struggle for authors and their rights. However, silence about the role of industries that parasite between authors and readers is more significant than arguments that are brought in the open. In the debate on piracy, cultural industries cleverly disavow the profit they make on authors. Furthermore, the concept of copyright suffers from much deeper problems. "To oppose copyright is to oppose capitalism" writes Johan Söderberg (2002), since history of capitalism and

copyright are one of the same. Economy and politics of copyright are conceived as the imperative to define every object, experience, and person in the manner of its many equivalents, because of their exchange values. Finally, the problem of uniqueness has become obvious in the new amateur culture that often ignores the matter of authorship. While the history of literature has seen authors who deliberately questioned authorship (William Burroughs and his cut-up method, Kathy Acker's pastiches, etc.), (Hayles, 2002, p. 78; Wollen, 1998, pp. 8–10) contemporary popular culture has turned playing with authorship into a widespread, common activity.

According to Marc Bousquet, texts are never unique because they are social products of a general community intellect (2003, p. 173). Sometimes, the notion of "originator-therefore-owner" masks the fact that hundreds of people had been working on the same problem, and/or arrived to almost the same solutions. Robert K. Merton asserts that the collective nature of scientific invention can be proved by the so-called multiples or multiple inventions that took place independently and simultaneously. Newton and Leibniz simultaneously discovered the differential and integral calculus; Darwin and Wallace both wrote on natural selection; and some six people independently hit upon the principle of the conservation of energy (Dusek, 2006, p. 95). In the age of digital networks, obviously, the question of uniqueness becomes more complicated than ever.

Intellectual Property in the Age of Postindustrial Reproduction

Property has always been a fundamental component of capitalism and market economy. In information-based knowledge economy, intellectual property has slowly but surely become one of its most important aspects. Contradiction between originality of author's work and the need for production of physically identical copies characterizes all capitalist modes of production and extrapolation of profit. However, common understanding of the end of the book (Coover, 1992) often masks economic dimensions of contemporary eschatology. While it is questionable whether the concept of authorship is threatened by peer-to-peer networks, it is obviously the case with copyright. Even mainstream lawyers seem to have arrived to the consensus that contemporary commercial models of intellectual rights should adapt to information and communication technologies (Samuelson & Glushko, 1991).

Capitalism is founded on the concept of originality, which dates roughly since the end of the eighteenth century (Biti, 2000, p. 22). In his lecture *What Is an Author?* Michael Foucault (1969) describes genesis of the contemporary concept of author as the original craftsman of the work (*oeuvre*), which is unable to arrive to existence before the emergence of the new discursive knowledge about the individual subject. This kind of knowledge is inducted by the development of bourgeois individualism and property, accompanied by the logic of industrial production of standardized, unified copies, and protected by copyright. Proponents of copyright tend to consider questions concerning authorship and profit together. However, the contradiction of producing identical copies, that each aim to be original, has become

obvious in the process of decentralization of media for the sake of distribution of information. Devaluation of the ideal of singularity, or originality of author's work, does not result from information and communication technologies—instead, they "only" exposed and amplified the contradiction that has always been there.

This contradiction had been noticed as early as 1936 in Walter Benjamin's essay *The Work of Art in the Age of Mechanical Reproduction* (1969, p. 223). It rests on two circumstances, writes Benjamin, both of which are related to industrial form of reproduction, "the desire of contemporary masses to bring things 'closer' spatially and humanly," and "their bent toward overcoming the uniqueness of every reality by accepting its reproduction" (1969, p. 223). At the same time, the process is proportionally reversed. While it aims at liquidation of an aura and uniqueness of cultural industries even in the era of postindustrial reproduction (where every node/user becomes producer and distributer), copyright tries to detain an illusion of uniqueness through its relationship to every physical copy. However, digital reproduction clearly indicates that physical copy is not necessarily related to authorship, and that the issue of authorship rests beyond the matter of physical reproduction.

Walter Benjamin writes about liquidation of uniqueness, distance, or aura in the age of mechanical reproduction. In his work, Benjamin mostly refers to liquidation of uniqueness of visual artwork consumed at a distance. In this respect, visual arts and literature are different. Unification of print happened much earlier than unification of visual art (photography and film). Nevertheless, at certain historical moments, all forms of art have distanced from their material forms. The conflict described by Benjamin, which has emerged in the age of mechanical reproduction, exploded in the era of the Internet. Radical democratic models of the peer-to-peer networks, and the associated problems pertaining to intellectual property, are therefore trajectories of the same historical sociotechnical evolution.

Peer-to-Peer Networks as *General Intellect*

Peer-to-peer networks oppose traditional forms of profit extrapolation from learning. As the Internet has finally lived up to Jean-François Lyotard's well-known scepticism towards metanarratives, past and present definitions of knowledge confront each other in truly dramatic ways. In his study *The Postmodern Condition: A Report on Knowledge* (1979), Lyotard addresses status of knowledge in the postmodern era, examines problems of legitimation in the era of "computerization of society" (1979, p. 7), and arrives to the conclusion that social crisis has been caused by blending knowledge with technology. The scientific knowledge, writes Lyotard, does not represent totality of knowledge, since it always existed in relation to "narrative." On the other hand, however, computerized knowledge does not need great narratives for its legitimation (1979, pp. 3–9).

It remains unanswered whether such condition results from computerization or deregulation of public sphere. Looking at the Internet as a public sphere, it seems that devaluation of grand narratives simultaneously bears positive and negative consequences. As the only medium that allows direct networked connections

between users without hierarchical mediators, the Internet radically decentralizes production and distribution of information. Alexander R. Galloway (2006) claims that the described change is not merely infrastructural, but also political. Based on decentralized structure of the medium, network technologies create initial gaps in the capitalist production. For instance, neo-Marxists argue that free software proofs Marx's thesis that "at certain stage of their development, the material productive forces come into conflict with the existing relations of production" (Žižek, 1998, pp. 33–34, in Barbrook, 2000). In order to determine whether network technologies have real potentials to stand up against capitalist modes of production, it is useful to examine how Marx initially imagined that conflict.

In the ninth chapter of *The Grundrisse,* Karl Marx introduces the concept of "general intellect" which stresses the intrinsic connection "between relative surplus value and the systematic tendency for the scientific–technical knowledge to play an increasingly important role in the production process" (Smith, 2013). As capital continuously works towards maximization of productivity, it invests in "general intellect" that is responsible for progress of scientific knowledge. Capital also allows an incremental increase in free time (which should not be mixed with leisure!) required for growth of the general intellect. However, capital allows such developments only in order to maximize profit, and the in-built contradiction between creativity and profit orientation constantly intensifies. This is the process that leads capitalism to its inevitable end and to transition from capitalism to communism. This unfulfilled prophecy has been heavily attacked by sociologists such as Anthony Giddens (1995 [1981]), while Marxists such as Paolo Virno and Carlo Vercellone claim that Marx merely misestimated the duration of the transitional historical period and that "collective appropriation of knowledges has in fact occurred" (in Smith, 2013).

Contemporary usage of general intellect for public good can be partially explained by Virno's core term "multitude" (Virno, 2004, p. 27, 2007; Vercellone, 2007), as conflicts between peer-to-peer networks and cultural industries seem to result from the conflict between creative powers of general intellect and capital's profit orientation. Based on Marx's ideas, Richard Barbrook concludes that such conflict would finally lead to "cybercommunism" and claims that American army "unintendedly" financed its creation (2000). Barbrook is not a naive postcommunist sympathizer. On the contrary, he is well aware that the Internet is not a Utopian place, but a bizarre conglomerate of nodes and ties. Its rapid progress, as well as its openness, results from initial anarchism, research ethic, market capitalism, and pure chance. As soon as capital had gone digital, however, early optimism had been replaced by scepticism. On that basis, Richard Barbrook and Andy Cameron describe the 1990s as the decade of "the Californian ideology" which consists of establishing flexible economic network models (1995).

Research into cultures that participated in early implementation of network technologies may easily lead to controversial conclusions. While it is fairly easy to imagine a neo-Marxist cybercommunist Utopia, it is even easier to imagine its direct opposition where capitalist markets could appropriate technological developments and even benefit from communist subversions. Historically, such developments are quite common, as the basic structure of capitalist entropy works through

constant perpetuation of market logic by appropriation of authentic cultures (which could, nevertheless, in the moment of their creation be subversive). Therefore, the process that might result with death of capitalism could easily turn into the process of its regeneration: fresh ideas could become new screws in the capitalist machine.

Alternative Cultures

Models existing and new, old, and progressive, neoliberal and libertarian—such oppositions are even more complex from the viewpoint of ideology. According to Marx's passage from *The German Ideology*, "the ideas of the ruling class are in every epoch the ruling ideas" (Marx & Engels, 1970, p. 64). Marx did not provide a systematic theory of ideology. However, he understands history as determined by base, forces, and relations of production. Leftist theories have repeatedly tried to solve the problem of Marx's economic determinism. Following Althusser's work on relative autonomy of superstructure (which Althusser calls "ideological state apparatuses"), Raymond Williams develops the view that superstructure is not a mere reflection of the base—instead, the result of its relative autonomy is hegemony.

In *Base and Superstructure in Marxist Cultural Theory* (2005), Raymond Williams describes that relationship in depth. The real conflict between different cultural, political, and economic groups happens through the process of complex negotiations. In general, cultures are constituted around the conflict between two large groups: residual (traditional) and emergent (alternative and oppositional) (Williams, 2005, p. 40). Conflicts between residual and emergent cultures are rather simple, and the relationships between alternative and oppositional emergent cultures are more complex. Oppositional cultures aim at overthrowing traditional models, while alternative cultures offer radically different futures.

Intellectual property and new forms of knowledge are subject to these general principles and enter into similar conflictual relationships. They are defined in various oppositional and alternative manners, many of which are far from clear and self-sustaining. E-learning is a clear case in the point. It is a non-conflict oppositional model, which is planted firmly within the ideological framework of the well-defined and established neoliberal educational paradigm. According to Williams, oppositional cultures "do not in practice go beyond the limits of the central effective and dominant definitions" (2005, pp. 39–40). Based on conceptual framework of critical theory, therefore, networked learning is an alternative model aimed at "revolutionary critical pedagogy" (McLaren, 2010; McLaren & Jandrić, 2015, this volume).

Oppositional cultures are not authentic alternatives, but driving forces for new capitalist models of production. Looking at legitimation for e-learning courses, marketing addresses future students through the discourse of novelty, thus utilizing the form of clash between traditional and emergent models of education. Classroom lectures are described as "boring," while e-learning courses are considered "engaging" (Carr, 2012). According to e-learning pioneer Bernard Luskin, the "e" in

e-learning stands not only for "electronic" but also for "exciting, energetic, engaging, extended" learning (2010). Transformation of traditional learning models legitimates itself through ideological terms such as "engaging" or "interactive." At various levels of using technologies in teaching and learning, detailed critical analysis shows how policy discourse narrows conversational space for learning (Hayes, 2015, this volume).

Commodified relationships between technology, information, and e-learning are legitimized by for-profit universities, corporations, and students who need an education in order to get a job. However, "interactive learning" does not offer a distributive subversion from the existing models of education (limited by copyright rules), but a modulated oppositional form of appropriation. In order to create a truly alternative model, networked learning creates alternative ways of making connections within the frame of the existing capitalist modes of knowledge production—in the first place, through distributive nature of the Internet. On that basis, the focus to connections characteristic for Goodyear et al.'s early definition of networked learning (2004) gets a deep political meaning.

The authentic alternative cultures in the form of networked learning supported by peer-to-peer networks offer radically different models of sharing knowledge and information. However, Williams warns that the level of conflict between emergent and traditional models varies. There is no formula that could define which culture is "truly" alternative, and which culture is "only" oppositional. Therefore, the spectrum between e-learning and networked learning contains many shades of gray.

There are several projects that do not oppose the dominant order as radically as peer-to-peer networks, but still propose new models of learning by digital network technologies. For instance, *Wikipedia* has completely pushed off the market *Microsoft Encarta* published by *Microsoft Corporation* from 1993 to 2009, because people are simply no longer willing to pay for an encyclopaedia (Cohen, 2009). Also, there are *MOOCs* (Massive Open Online Courses) that promote open access, free participation, connectivism, and open content licensing. However, the *MOOCs* do not present a radically different perspective to education, since they have not moved away from re-proletarization of teachers (according to McLaren (1998, p. 435), this is the global problem of computer-based education). Such examples provide useful illustrations for contemporary cultural conflicts. However, levels of conflict between dominant and emergent/oppositional cultures are constantly changing. Therefore, it is impossible to predict outcomes of oppositional conflicts, or even guess whether resolution will arrive in the form of capitalistic appropriation or revolution.

Networked Learning as Critical Praxis

How to define knowledge? Is there a need to protect knowledge by copyright? Critical approach to copyright is not aimed at developing final solutions, but at providing spaces for different thinking. In Heidegger's terminology, *Lichtung* does not aim to clarify by providing definitions, but to clarify—like open meadows in the

middle of the woods. Therefore, the fundamental goal of critical approach to copyright is to deconstruct seemingly natural relationships between knowledge and profit, and to create opportunities for defining knowledge, education, and information as common goods.

Such thinking is incorporated even in *The Universal Declaration of Human Rights,* adopted by the *United Nations General Assembly* since 1948. *Article 27* of the *Declaration* says: "Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits" (United Nations, 1948–2008). Nowadays, understanding culture, arts, and scientific knowledge as common goods implies proposing new models of social organization. The decentralized nature of the Internet becomes the main tool for executing the proposed distributive justice, but horizontal models of networking have not (yet) managed to remove dominant modes of knowledge production.

At a fundamental level, development of alternative models of knowledge distribution is based on deconstruction of naturalized relationships such as copyright and knowledge. In this view, downloading books from peer-to-peer networks is not an act of negating the author (such is the act of plagiarism), but an act of negating copyright as a legal mechanism for creation of profit. Mutual connections between knowledge and profit should be problematized, since they are not inherent but merely emerge from capitalist modes of production. Critical theory creates several paths towards new learning models. Besides grassroot movements related to peer-to-peer networks, dominant profit orientation of information can be opposed in less dramatic ways by publicly financed projects such as *Duolinguo* and user-financed projects such as *Wikipedia*. As can be easily seen from Jandrić's (2010) study of egalitarian educational practices on *Wikipedia*, distributed horizontal networks can offer true potentials for radical alternative learning.

"Politics and the economy," claims Foucault, "are not things that exist, or errors, or illusions, or ideologies. They are things that do not exist and yet which are inscribed in reality and fall under a regime of truth, dividing the true and the false" (2008, p. 20). Discursive knowledge implied truths, and common understandings have serious impacts on functioning of the society. Social consensus on privatization of knowledge and information is obviously powerful—since the relationship between knowledge and profit is commonly understood as "natural." Struggle against the first inevitably begins with deconstruction of the latter. Therefore, revealing ideological backgrounds of seemingly natural relationships becomes the first step in developing networked learning as critical praxis.

Territorialization of the De-territorialized

Williams's neo-Marxist analysis of various groups included in social dynamics indicates complexity and controversy of authentic ideas, thus complicating Heidegger's ideal of providing spaces for Utopian ideas or *Lichtung*. Gilles Deleuze

and Félix Guattari establish a formula for describing such controversy and analyze social dynamics in terms of territorialization, de-territorialization, and new territorialization. De-territorialization describes a process of redefining a set of prepositions and conceptual relations established in the process of territorialization. In *Anti-Oedipus: Capitalism and Schizophrenia* (2009), Deleuze and Guattari see Freud's psychoanalysis as a form of de-territorialization of the established knowledge about human psyche. Using this example, they warn about various dangers associated with the process of new territorialization: although Freud de-territorialized human psyche, he formed a new dangerous territorialization of human psyche through specific territorialization of the nucleus family triangle instantiated in the myth about Oedipus.

Progressive ideas in the realm of information and communication technologies are caught in a similar dialectic. For instance, free information movement is a form of de-territorialization because it disturbs common understanding of the relationships between information and profit. However, there is always a danger of a new territorialization of free information movement in the form of an emergent oppositional culture. Such danger must be considered, and even anticipated, since free information movement refers to a wide spectrum of theoretical analyses which co-create diverse forms of de-territorialization of information and knowledge. For instance, Richard Stallman initiated the *Free Software Foundation* and *GNU Project* that promotes free usage and modification of software for as long as it is distributed under the same conditions (Stallman, 2002). Those norms have later been applied to various cultural artifacts such as music, design, literature, and education. However, conceptual understanding of free software strongly varies.

Originally, free software was conceived as subversion within the system. Stallman strongly insisted on blending theory and practice, but many early implementers of free network protocols did not care about political aspects of the idea. It is only later that neo-Marxist theory and practice has completely politicized the movement. This differentiation causes major differences in formulation of political potentials offered by free information, which resulted in fragmentation and division between neo-Marxists and pragmatics. Even in the most advanced neo-Marxist theories, digital commons are still seen as suspicious because of their virtual, non-material character (Federici, 2010).

The concept of "commons" can be defined narrowly and broadly. In Elinor Ostrom's narrow definition, commons are exhaustible elements of the environment such as forests, rivers, and air. Education, health, public spaces, and all other social elements that cannot be exhausted by usage are defined as "public goods" (2006). However, those notions are often hard to distinguish. In a broader sense, therefore, commons can be understood as goods that are not and should not be private. Marxist theory insists on the broader definition, which is crucial for understanding political aspects of the idea of free information. However, such approach is burdened by various reservations. For instance, in *Feminism and Politics of the Commons*, Silvia Federici argues that "emphasis on knowledge and information (…) skirts the question of the reproduction of everyday life" (2010). Such scepticism towards free software movement limits its theoretical and practical opportunities. Furthermore,

it plays a dangerous role in the process of incorporating subversive ideas into the neoliberal matrix, or another territorialization of the idea.

Similarly, networked learning de-territorializes generally accepted notions of e-learning and technology-enhanced learning by disturbing their relationships to values and practices of global neoliberal capitalism. However, it can easily be re-territorialized as an emerging oppositional culture planted within the existing ideological paradigm. Up to a level, this already happens in "apolitical" areas of networked learning such as small-scale applications and design. In order to re-territorialize as an emerging alternative culture, networked learning requires constant conversation between critical theory and networked practice.

Conclusion

This chapter uses Ivan Illich's philosophy of technology as the starting point for convivial reconstruction of contemporary relationships between learning and information and communication technologies. As political aspects of tools are dialectically intertwined with their structure, open code and the resulting possibilities such as free modification and distribution of information have become crucial aspects of media democratization. On that basis, peer-to-peer sharing can be defined as an authentic alternative critical emancipatory practice. Convivial and radical democratic tools do not emerge from centralized institutions, but from peer-to-peer networked distributive models. Peer-to-peer culture is based on generic network principles that have the power to challenge fundamental notions of market economy. On that basis, it creates fertile ground for rethinking new opportunities for learning in the age of the network. New networked learning models emerge from conflicts inherent to capitalist mode of production. Therefore, they can be formulated through application of Ernesto Laclau and Chantal Mouffe's idea of "radical democracy" (2001).

In the framework created by Raymond Williams's views to complexity of hegemony in capitalist societies (2005) and Deleuze and Guattari's analyses of deterritorialization (2009), e-learning is a classic example of a non-conflict oppositional model. Based on horizontal, nonhierarchical structure of the network, however, networked learning still holds revolutionary strength and represents an authentic alternative oppositional model based on deconstruction of naturalized relationships such as copyright and knowledge. Like all Utopian ideas, this conclusion should be considered with caution. Some practical embodiments of radical alternative models may remain faithful to original ideals. However, others can easily (and often unconsciously) change sides and turn into vehicles for a new capitalist commodification. History of capitalism is packed with examples where alternative oppositional models have been (re)appropriated by market economies. In order to avoid capitalist appropriation of its authentic alternative, therefore, networked learning should constantly engage with its foundations in the realm of critical theory.

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Chapter 4
Getting It Out on the Net: Decentralized Networked Learning Through Online Pre-publication

Shane J. Ralston

One of the major trends in tertiary education is the proliferation of electronic-supported, business-modelled teaching and learning ("e-learning" or "technology-enhanced learning") platforms. According to the business model, institutions of higher learning embrace a top–down approach to pedagogy, educating large groups of students with low overhead, high tuition, and as a consequence, increased revenues (Delanty, 2001; King, 2004; Preston, 2011; Wolfe & Wolfe, 2001). However, e-learning and technology-enhanced learning on the business model are not the only so-called games in town. A bottom-up or grassroots approach has also gained momentum among graduate students and early-career faculty, especially in the Humanities and Social Sciences. An alternative to institutionalized e-learning is a networked, decentralized model of information sharing that promotes dynamic patterns of learning and collaboration in a flexible, interactive online environment. The prospect of decentralizing e-learning offers hope of eventually resolving what has been called "the most severe political problem of the digital network paradigm": namely, the increasing centralization of digital forms (Vuković, 2011).

One sign of the growing interest in the networked learning alternative to institutionalized e-learning is the proliferation of online pre-publication networks. *Academia.edu*, *ResearchDataBox*, *ResearchGate*, *PhilPapers,* and *Social Science Research Network (SSRN)* are just some of the sites offering new possibilities for networked learning in a low-cost, high-energy format. Rather than selling products or delivering lectures, these sites resemble works-in-progress meetings and informal colloquia held in department lobbies and lecture halls at colleges and universities around the world. They involve the sharing and discussion of recent scholarship between peers. Participation is typically free. The primary differences between them and their off-line equivalents are the digital environment and the timing of interaction

S.J. Ralston (✉)
Pennsylvania State University-Hazleton, Hazleton, PA, USA
e-mail: sjr21@psu.edu

(diachronic rather than synchronous). In spite of its promise, though, there are many challenges to this emerging model of networked learning. Some scholars struggle with the question of whether they should pre-publish their writing in these forums. Will others plagiarize their work? Is it reasonable for the authors submitting work to these networks to expect constructive feedback from other scholars?

This chapter begins with the presentation of a theoretical framework within which to understand why this alternative approach to networked learning is superior to the traditional top–down business model. Starting from a general overview of networked learning and its links to critical theory, the framework is inspired by Ivan Illich's alternative to dependence on schools, his vision of autonomous and anarchic learning, as well as his futuristic proposal for learning webs—all introduced in the book *Deschooling Society* (1970). Then, I offer a brief anecdote about my own experience with online pre-publication—almost entirely positive—posting works-in-progress to the *Social Science Research Network (SSRN)*. In addition, I share a second story of an earlier experience in which the core idea from a paper I wrote was creatively borrowed by an unnamed scholar reviewing it as part of a predoctoral fellowship application.

Some readers may find it surprising that after such a negative experience I would eventually pre-publish online, where the risk of such creative borrowing is even greater. Overall, pre-publication has been a therapeutic and liberating experience, allowing me to discover my own reasons for being a productive scholar in the humanities and social sciences. One of the more widely shared reasons for pre-publishing, I argue, is the desire to participate in a wider dialogue about the scholarly topics that pique our ongoing interest. In this way, online pre-publishing bodes well for the dual prospect of, at a minimum, divorcing networked learning from the business model and, in the best of all possible worlds, de-institutionalizing virtual education altogether.

Many graduate and postgraduate students as well as early-career academics experience anxiety at the prospect of pre-publishing their scholarly work online. They fear that students will download their papers and turn them in for class assignments. They also fear that other scholars will stealthily plagiarize their papers, either outright stealing the core idea or creatively borrowing a novel insight. What I will not consider are the legal ramifications of plagiarism, stealing, and creative borrowing, other than to gesture at the possibility of copyrighting pre-published work through *Creative Commons*. Instead, the primary concern I have is with the motivations graduate and postgraduate students might have for participating in these forums. Should they take the initial leap of faith and share their scholarly work as part of an online pre-publication network? If they decide to, will pre-publishing reap sufficient rewards to offset the associated risks?

In the first section, I sketch the theoretical framework for the project, conceptualizing pre-publishing networked learning as a bottom-up alternative to institutionalized e-learning on the order of Ivan Illich's learning webs. Then I address the question often asked by scholars unaware of this avenue: What is pre-publication? The third section relates two stories, one positive and the other negative, about the dangers of sharing unpublished work with other scholars and, potentially,

undergraduate students in an open-access environment. In the fourth section, I offer three strong reasons to pre-publish despite the risk of creative borrowing. Finally, the piece concludes by raising some further questions about the possibilities and dangers that pre-publishing one's work could have for a humanities scholar wishing to have a long and productive academic career.

A Brief Literature Review

The extant literature on online pre-publication is extremely limited. Most of what has been written on the topic falls under the more general heading of *digital scholarship*. Digital scholarship encompasses not only pre-publication, but also scholarly work found on independent websites, blogs, and electronic media (PowerPoint presentations, CD-ROMs, and reality simulations). Deborah Lines Andersen's (2003) *Digital Scholarship in the Tenure, Promotion, and Review Process* assembles a series of scholarly articles addressing how this new form of scholarship should be evaluated by tenure and promotion committees. Another major work on the topic is Christine L. Borgman's (2007) *Scholarship in the Digital Age: Information, Infrastructure, and the Internet*. She investigates the bounty of digital research resources now available for scholars in multiple disciplines, including the mass of stored data—what she calls the "data deluge"—now available for scientists and social scientists.

A more recent contribution to the literature is Pearce, Weller, Scanlon, and Kinsley's article *Digital Scholarship Considered: How New Technologies Could Transform Academic Work*. The authors explain how digital scholarship is revolutionizing higher education, making it more than "a pure content industry," integrating knowledge across distinct disciplinary spaces, and challenging the "fundamental conservatism" of its institutions (2011, p. 1). One of its primary achievements is the unleashing of "unprecedented amounts of data" for use in scientific inquiries—a conclusion shared with Borgman (2007) and facilitated by pre-publication networks, such as *Academia. edu*, *ResearchGate,* and *ResearchDataBox*. While the present project focuses on writing in the humanities and social sciences, it should be noted that these networks contribute significantly to the creation and dissemination of data within the hard sciences and other communities of scholarly inquiry.

Theoretical Framework

In 2014, Lucila Carvalho and Peter Goodyear developed an "architectural perspective on learning networks" built on an activity-centered approach to analysis and design of networked learning. They "focus on *what it is that people are actually doing*, and the tools and resources and social interactions that become bound up in their activity" (2014, pp. 1615–1616, emphasis from the original). Carvalho and Goodyear recognize "three main dimensions for analysis and design—the

epistemic, the set and the social" (2014, pp. 1799–1800). The epistemic dimension refers to construction of knowledge, the set dimension refers to various material and nonmaterial aspects of teaching and learning, and the social dimension refers to the relationships between learning and the society. While top–down approaches such as e-learning and technology-enhanced learning are primarily interested in the set dimension, Carvalho and Goodyear recognize that the most interesting things in networked learning happen at the intersections between all three dimensions.

This chapter is focused on the relationships between the set dimension (i.e., what people do in pre-publication networks) and the social dimension (i.e., the relationships between these activities and the society). Up to an extent, general issues within the epistemic dimension have been explored previously (Vuković, 2011)—however, their application to pre-publication networks requires further inquiry. Locating a theoretical framework for this project is not an easy task. Most pedagogical theories lend their support to the top–down management of educational resources within both traditional and nontraditional bureaucratic structures, whether schools, colleges, universities, or e-learning tools developed on the business model. The search for more unorthodox, even revolutionary, alternatives to traditional theoretic frameworks, lands networked learning firmly within the framework of critical theory (McConnell, Hodgson, & Dirckinck-Holmfeld, 2012, p. 15). However, this rich tradition starting from the Frankfurt School of Social Science spans through 100 years and all five continents—therefore, it is more accurate to speak of multiple critical theories and methodological frameworks. The one that I believe is most compatible with a defense of bottom-up, decentralized networked learning is Ivan Illich's model of autonomous and anarchic learning.

In *Deschooling Society*, Illich launches a devastating critique of institutionalized education, including the "modern university," which he claims

> has forfeited its chance to provide a simple setting for encounters which are both autonomous and anarchic, focused yet unplanned and ebullient, and has chosen instead to manage the process by which so-called research and instruction are produced. (Illich, 1970, p. 36)

Autonomy is, of course, the freedom to choose how, when, and where to learn. Anarchy is the freedom to interact with one's peers and express oneself with limited or no constraints from above—more specifically, without having one's research and writing micromanaged by others. It could be argued that graduate students lack both autonomy and anarchy in their studies since the terms on which they learn and the course of their research an often subject to tedious supervision and direction.

However, micromanaged graduate studies reflect only one style of adviser–advisee mentorship, usually the most repressive and least liberating kind, the outcome of which is often less than ideal: a scholar with limited ability to independently imagine, plan, and execute her research agenda. While close supervision might prove helpful in the early stages of graduate studies, a graduate student's learning and research should become progressively liberated from the confines of her adviser's direction, so that she may eventually transform into a self-motivated, early-career scholar. In this way, Illich's notion of autonomous and anarchic learning clearly applies to graduate studies, especially the later stages.

Illich's main argument in *Descbooling Society* seems to be that in order to realize personal autonomy traditional methods of educational delivery must be deinstitutionalized. "In school," Illich (1970, p. 39) explains, "we are taught that valuable learning is the result of attendance; that the value of learning increases with the amount of input; and, finally, that this value can be measured and documented by grades and certificates." For Illich, educational institutions distort the true objectives of learning: freedom to choose (autonomy) and express oneself through interaction with peers (anarchy). Instead of advancing freedom, the school perpetuates social dysfunctions, "adds prejudice and guilt to the discrimination which society practices against some of its members and compounds the privilege of others with a new title to condescend to the majority" (Illich, 1970, p. 33).

Students learn best by freely exploring and engaging with fellow learners and objects in their environment, not by being taught. "Most learning is not the result of instruction," Illich (1970, p. 39) notes, but is the outcome "of unhampered participation in a meaningful setting." He continues: "[Y]et school makes them identify their personal, cognitive growth with elaborate planning and manipulation" (Illich, 1970, p. 39). As a result, students become increasingly dependent on educational institutions, identifying their self-worth with teacher approval and official credentials. But did Illich want all schools abolished? In other words, did he indiscriminately advocate for educational deinstitutionalization?

A quarter of a century after *Descbooling Society* was published, Illich clarified his earlier views on the matter. In a foreword to Matt Hern's *Descbooling Our Lives*, he partially recanted his original position, noting that he had "called for the disestablishment of schools for the sake of improving education" but then "began to fear that the disestablishment of the educational church would lead to a fanatical revival of many forms of degraded, all-encompassing education, making the world into a universal classroom, a global schoolhouse" (Illich, 1998, cited in Stuchul, 2009, p. 18). So, Illich's argument was not that all educational institutions should be razed and replaced with a totalizing alternative. Instead, he was concerned with abolishing a specific type of schooling:

> Education then becomes an economic commodity which one consumes, or, to use common language, which one 'gets.' Scarcity emerges both from our perceptions, which are massaged by education professionals who are in the business of imputing educational needs, and from actual societal arrangements that make access to tools and to skilled, knowledgeable people hard to come by—that is, scarce. (Illich, 1998, cited in Stuchul, 2009, p. 19)

Likewise, leaders and administrators of many of today's higher education institutions must ensure that the services they offer remain scarce commodities and, thus, reliable revenue-generators. They sell education to students *qua* consumers, making career success or failure increasingly dependent on institutional products, such as grades, attendance records, certifi cates, diplomas, and job preparation services. In addition, the performance of these institutions is measured in productivity, cost-effectiveness, retention of customers (students), and return on investment, not in terms of how the curriculum fosters learner initiative and independence. In this way, Illich saw education becoming a certain kind of institution—a business—and it was these commercialized educational ventures that he ardently sought to deinstitutionalize.

Although the Internet did not exist in Illich's day, extending his critique of educational institutions to top–down, business-modelled, institutionalized e-learning is a natural next step. In colleges and universities, students and faculty often challenge practices and policies—for instance, tuition increases, tenure denials, and the introduction of new instructional technologies—for reasons that stay safely within the bounds of institutional norms. Their complaints are couched with mistaken assumptions (resembling Marxian *false consciousness*) that only assist the commercial enterprise of institutionalized education: "The students and faculty who question the legitimacy of the university, and do so at high personal cost, certainly do not feel that they are setting consumer standards or abetting a production system" (Illich, 1970, p. 37).

Critics of e-learning, too, often complain that its methods and curricula threaten traditional pedagogical models. According to this critique, e-learning is impersonal, ineffective, preserves privilege, and reinforces passive learning styles. However, these gripes do not address the root problem—the same problem Illich identifies—namely, that educational institutions transform students into dependent consumers, not autonomous learners. What the critics fail to question is how e-learning products are packaged, marketed, sold, and delivered to customers (students), and justified to internal stakeholders (faculty, staff, and administrators) as low-cost profit centers.

Once e-learning's proponents gain the upper-hand (for example, by persuading the majority that these tools complement rather than supplant brick-and-mortar classroom pedagogy), the critics are usually quieted and begin to march to the drum-beat of—in Illich's (1970, pp. 34–35) words—"ritualized progress." In sum, educational institutions that adopt e-learning on the business model alienate and exploit faculty and students; and the only way to escape the state of alienation and exploitation, Illich (1970, pp. 46–48) argues, is to acknowledge that "learning requires no teaching" and, then, design alternative approaches to educate in the absence of institutions.

In the sixth chapter of *Deschooling Society*, Illich proposes a series of educational innovations that he collectively refers to as *learning or opportunity webs*—in many ways anticipating the advent of online pre-publication networks. According to Illich (1970, p. 75), a "good educational system" should have three objectives: (1) offer "access to available resources at any time," (2) "empower all who want to share what they know," and (3) provide "all who want to present an issue to the public the opportunity to make their challenge known." Learning webs satisfy all three objectives. They increase access, empower learners, and publicize issues, without commodifying (or in Marxian language, *fetishizing*) the learning process.

Although learning web was not synonymous with the "worldwide web" (the web-browser accessible system of interconnected hypertext documents would not dawn until 1991), there is an undeniable similarity between Illich's innovations and what we nowadays call the *web* or *Internet* (Hart, 2001; Vuković, 2011). Illich (1970, p. 76) prefers *web* to *network* because, according to him, the latter suggests a medium to indoctrinate, whereas the former connects "individuals who want to send messages to one another." As alternatives to schooling, learning webs empower individuals to discover new ideas and projects, interact with peers, acquire new skills, exercise initiative, and grow as a scholar in the absence of teaching and its institutional paraphernalia (e.g., tuition, certificates, and grades).

Learning webs encompass four innovations: (1) "Reference Services to Educational Objects" (or free outlets to access special educational things, such as machines and books), (2) "Skill Exchanges" (or the equivalent of personal ads notifying others of technical competencies that skilled individuals can model), (3) "Peer-Matching" (or networked communications between individuals seeking collaborators in shared investigations or processes of discovery), and (4) "Reference Services to Educators-at-Large" (or directories of professionals who might agree to serve as mentors or take on apprentices under specified conditions) (Illich, 1970, pp. 78–79). The point of these innovations is to remove teaching from the equation, replacing pedagogical institutions with a web (or network) of self-motivated, autonomous learners. In describing the mechanics of a peer-matching network, Illich comes close to describing what we would nowadays call an *electronic network*:

> The user would identify himself by name and address and describe the activity for which he sought a peer. A computer would send him back names and addresses of all those who had inserted the same description. It is amazing that such a simple utility has never been used on a broad scale for publicly valued activity. (1970, p. 93)

Of the four learning web innovations, "Reference Services to Educational Objects" and "Peer-Matching" come closest to capturing the spirit of a more recent bottom-up networked learning tool: the online pre-publication network. Similar to reference services, pre-publication networks permit individuals to access educational objects, particularly the writings of fellow scholars. In addition, these networks facilitate communications between scholars with shared interests, similar to services that match peers based on their desire to inquire about the same topic. Moreover, access to these networks does not simply facilitate communication and learning, but because access is for all intents and purposes free, it also enables social cohesion—a goal shared with the open-source code and free software movement (Lessig, 1999, 2006; Stallman, 2004, pp. 121–128). Next, I turn to consider the nature and operation of online pre-publication networks.

A Primer on Pre-publication Networks

Besides the brief comparison with Illich's learning webs, online pre-publication networks merit a more extensive overview. This overview or primer explains what scholarly pre-publication is not, what it is and, finally, offers a brief summary of the steps by which a scholar posts and distributes his or her work to a standard pre-publishing network.

What Online Pre-publication Is Not

Online pre-publication is not about publishing work in an online or open-access journal. It is not even about publishing work in a print journal with an online teaser or excerpt for web surfers to read and decide whether to purchase access to the entire

article. It is certainly not a paper mill, or a business that sells unpublished work to students. It also does not involve placing copies of unpublished work on a personal website or even another scholar's website. Although the risks associated with posting work to a personal website or having it appropriated by a paper mill are similar, the key difference is that online pre-publication allows for the more efficient distribution of work to scholars in the author's field or those scholars outside that field who work on similar topics and issues. In this way, pre-publication networks resemble peer-matching networks, one innovation in Illich's learning webs proposal.

What Online Pre-publication Is

Online pre-publication involves publishing scholarly work in an organized online network which allows the author to post, publish and then distributes work to other members who subscribe to the areas within which the author posts and publisher. Pre-publication sites such as *Academia.edu* and *ResearchDataBox*, both modelled after social networking model of *Facebook*, have experienced a recent surge in popularity. Two examples of more established pre-publication networks are *Social Science Research Network (SSRN)* and *PhilPapers*. The founders of *SSRN* describe the network as follows: "*Social Science Research Network (SSRN)* is devoted to the rapid worldwide dissemination of social science research and is composed of a number of *specialized research networks* in each of the social sciences" (my emphasis) (Bourget & Chalmers, 2009). The designers of *PhilPapers* state the purpose of the forum in these terms:

> *PhilPapers* is a comprehensive *directory of online philosophy articles and books* by academic philosophers. We monitor journals in many areas of philosophy, as well as archives and personal pages. We also accept articles directly from users, who can provide links or upload copies. (Fama et al., 2009)

While the opportunities for networking are abundant, this site is not the same as a social network. Instead of a "place" to exchange social pleasantries, it is an outlet for uploading and posting abstracts of published and unpublished papers (and in the case of *PhilPapers*, also books), as well as the papers themselves, so that other scholars within the network have instant access to the products of one's research. Also, the author has instant access to the work of other scholars, including searchable abstracts and papers, which they have also posted and uploaded to the network. If the abstract has been posted, but no paper has been uploaded, it is also possible for an inquiring scholar to contact the author and request the paper through electronic or snail mail.

The Process: Posting, Publishing, and Distributing

While there are many outlets for pre-publishing one's work in the humanities and social sciences, the one that I will focus on here for the purpose of explaining the mechanics of the pre-publication process is the *Social Science Research Network (SSRN). SSRN* offers

a relatively hassle-free registration process and secure platform for posting abstracts to their site. Abstract posting involves assigning the paper a title, copying the abstract into a field, providing key terms, and classifying the work in predesignated topical categories or letting *SSRN* classify the work by itself. Posting abstracts based on conference proposals has the dual benefit of (1) giving the author a sense of commitment to the project (even if the proposal has not been accepted yet) and (2) announcing to other scholars that the author is working on the project. Of course, one need not finish the project. Many scholars use the posting function as a way of measuring interest in the topic. If other scholars contact the author once the abstract is published and distributed, then one has some evidence that it might be a worthwhile project!

Posted abstracts and uploaded papers must first be approved by *SSRN* administrators before they can be published on the site, and then forwarded to the area editors for distribution to other scholars in the network. Abstracts and papers are placed under one of four categories: (1) "In Process Papers," (2) "Publicly Available Papers," (3) "Privately Available Papers" and (4) "Inactive Papers." Initial submissions of abstracts and uploaded papers are automatically classified as in process papers. Once the *SSRN* staff approves them, which can take from 12 to 48 h, the abstract or paper is reclassified as publicly available. Only publicly available papers are freely accessible by network members. Also, only publicly available papers are forwarded to the area editors who then distribute them in weekly e-mail announcements to the network members subscribed to the area feeds. These e-mail announcements consist of 1–5 paper titles, author names, and abstracts.

Paper titles and abstracts can be accessed by interested scholars through links to the author's *SSRN* home-page. Authors of abstracts and papers can elect to move their own papers to the other two categories, either before or after publication and distribution. Privately available papers are displayed on the author's home-page, but can only be accessed by interested scholars at the author's discretion. Inactive papers are not displayed on the author web-page, though they can be accessed by the author. In this way, archiving abstracts and papers under the category of inactive papers is one way to backup work that could become lost if stored on a personal hard-drive.

While establishing an *SSRN* account and having work published and distributed is free, subscribing to major feeds requires that the user pay a fee. Still, pre-publication provides the opportunity to share one's research projects with other scholars who share one's interests, gauge the level of interest among the scholarly community in one's work, and discover what others are treating as cutting-edge topics in their research and writing.

Open Source and Open Access

Are pre-publication networks similar to open-source code or free software, insofar as they can inspire resistance to the proprietary, top–down managed, business-modelled paradigm? While the connection between pre-publication and the open-source code/free software movement has already been alluded to, additional similarities should be noted. The open-source code/free software movement might even serve as a model for

a similar movement in online pre-publication. Consider, for instance, Richard Stallman's four essential freedoms, as outlined in his GNU Manifesto:

1. The freedom to run the program, for any purpose.
2. The freedom to study how the program works, and change it so it does your computing as you wish. Access to the source code is a precondition for this.
3. The freedom to redistribute copies so you can help your neighbor.
4. The freedom to distribute copies of your modified versions to others. By doing this you can give the whole community a chance to benefit from your changes. Access to the course code is a precondition for this (Stallman, 2004).

Perhaps pre-publication network-users need a similar manifesto, containing a declaration of the basic freedoms of pre-publishers. While the pre-publication sites are proprietary, their use is, for the most part, free. Positions as subject-matter editors at *SSRN*, however, are delegated, not elected. Norms of fair use could also be articulated in a pre-publication manifesto.

Beyond open source, pre-publication has a more direct relationship with open access in academic publishing. By way of background, academic publishing can be divided into two distinct models: (1) traditional or print and (2) the new or open access. Traditional publishing occurs in physical books, articles, and bound theses, most of which are subject to quality control in the form of peer review. Open access pertains to scholarly work posted online, which is sometimes, though not always, subject to lower selectivity standards. Open access is subdivided into (a) open-access publishing and (b) open-access self-archiving. Open-access publishing involves journals and book publishers making a part or the whole of their content available for free online.

Some countries require that publicly funded research is published in an open-access format (Suber, 2013). Some open-access publishers will charge the author or his or her institution (funding agency) a fee in order to subsidize the costs of production (e.g., copy editing and typesetting), which would otherwise be paid for through journal subscriptions or book sales in the traditional model. Scholars typically publish in an open-access format because they want their article or book to have a wider readership and greater impact (Swan & Brown, 2004).

Open-access self-archiving is closest to what has so far been referred to as "pre-publication." It involves authors making their work, published or unpublished, available online for free. However, self-archiving also extends beyond pre-publication to self-publication on an author's personal or professional website. Pre-publication networks are third-party sites that facilitate the sharing of scholarly work, so that archiving or storing that work is not usually the primary aim of users.

Two Anecdotes

In this section, I share two stories—one positive and the other negative—regarding my own experience with pre-publication. Technically, the negative story is not about pre-publishing, though it is germane to a primary concern that a humanities or social

sciences scholar might have in pre-publishing their work: namely, that a fellow scholar might creatively borrow the author's paper or idea prior to it being published in a journal or book format.

Positive

For the past 4 years, I have avidly pre-published my scholarly work with little or no expectations except that pre-publication will provide a means for me to archive my work products and measure my own progress as a scholar. As many graduate students in the humanities and social sciences soon discover, a small percentage of one's work will eventually be published. This could be for a variety for reasons, some having to do with the uneven quality of one's own work and others with the selective biases of journal editors and referees. Nevertheless, the desire to share one's scholarly work cannot be denied. The motivation for pre-publishing one's work could be an aspiration to publish it in the future, which often requires vital feedback from fellow scholars.

In my case, I already have a small group of mentors and fellow scholars who I usually distribute my work to for the sake of receiving feedback. However, as I became an interdisciplinary scholar, writing on far-flung topics that crossed the boundaries of several academic disciplines, I realized that the expertise of this circle of scholars was limited to my initial research interests (mainly those cultivated during the writing of my dissertation) and sought to expand the group of scholars exposed to my work. Likewise, I have become more interested in finding out what scholars in other fields are working on, just in case it bears on my research or could be an avenue for expanding my research agenda in the future.

Since embarking on the odyssey of pre-publication, several scholars have contacted me expressing interest in reading a paper that I only posted an abstract for. In most cases, I had not yet completed the research and writing for the paper. So, I notified the interested party of this fact and estimated a date of completion, at which time I would send this person a copy of the paper. Although the scholar's request was not fully met, the initial contact provided the opportunity (as mentioned before) to measure interest in the project as well as to motivate me to complete the project in hopes that I might receive valuable feedback. Of course, one also feels a sense of satisfaction that other scholars have an interest in one's work.

Admittedly, it can prove difficult, especially in the dissertation writing stage, to network with other scholars unless one meets them at conferences. Consequently, the experience of writing one's dissertation and trying to publish a few papers in preparation for entry to the job market can be a lonely one. Other than the comments one receives from one's advisor and dissertation committee members, feedback on the quality and direction of one's scholarly work can be minimal and often delayed until the end of the doctoral program. So, pre-publication is an alternate way to solicit feedback from scholars who have a range of interests, many of which mirror one's own, throughout the course of one's own studies and thereafter. In my case,

the outcome of pre-publishing was that several of my papers were turned into published articles prior to graduation, which helped me to secure a postdoctoral appointment—not to mention the pride of realizing that my work had an audience.

Negative

My negative story is not about an instance of pre-publication. Still, it illustrates one of the main worries that graduate students have when deliberating about whether to pre-publish their work: Will other scholars creatively borrow the author's research and ideas? Of course, the answer is "yes." But creative borrowing is not the same as plagiarism. An author can be inspired to write about a topic after she has read an article by another scholar on the same topic. An author might even identify a lacuna in the article or the literature as a whole that she wishes to fill by making her own novel contribution. Writing on a related topic is not the same as copying a passage without quoting or citing the author and source. Still, there are borderline cases in which a paper bears a striking resemblance to a previously published paper on the topic, but the author does not cite the published article. On the one hand, one would expect that academic integrity demands citing the article. On the other, it is quite possible that the author was unaware of the previously published article (though one might argue that the author has a responsibility to conduct adequate research to become aware of it).

In my story, I submitted an unpublished paper as part of a competition for a predoctoral fellowship. It could have been submitted to a pre-publication network, such as *SSRN*, but it was not. Still, the story bears repeating because what one fears could happen in pre-publishing occurred in what would expect to be an even safer context. When one submits an unpublished paper to an institute, one expects that it will only be read for the sake of assessing one's candidacy for the position applied for. I did receive a phone interview and curiously all of the questions by the two interviewers concerned the paper, how I conducted the research, and what plans I had for it. I thought nothing of it then, but several years later, after the paper had been published in a journal, while conducting my dissertation research, I found a paper by another author that bore a remarkable resemblance to my published paper, but was published a year prior to mine and only a year after my interview with the institute.

Our two papers focused on the same central theme, had similar theses, analyzed the identical debates, and generally reached the same conclusions. No passages were exactly copied, though several select quotes employed by the author were identical to those I had selected. I conducted some background research on the author and discovered that this person had been employed as an analyst at the same institute I had applied for the predoctoral fellowship during the period while my application and writing sample were being reviewed. Since there is a remote possibility that the similarities between our papers could be coincidental, I shared the two works with two other scholars who quickly confirmed that it was highly unlikely that this person had never read or creatively borrowed from my paper in the process of writing their own.

The Moral of These Stories

While the moral of the negative story might appear to be that one should not submit unpublished work for predoctoral fellowship competitions, this would be an ill-advised rule-of-thumb given how rare such incidents are. The more prevalent phenomenon is probably the creative borrowing of material by scholars in pre-publication networks. One reason for this is that it is more difficult to trace the source. A kidnapper (the meaning of the Latin root *plagiarius*) can be relatively confident that the piece is not yet published in a journal or edited collection, so the challenge is simply to beat the original author to publication. So, it might be concluded that if it can happen in what would one would expect to be such a safe context (an institute under an obligation only to use the material for evaluation purposes), then it is surely to happen in the more risky context (an online pre-publication network).

However, when the original author posts an abstract and uploads a paper, he or she does have some evidence, a time-date stamp, to certify that the material submitted is his or her original work. Indeed, *SSRN* requests that the author certify that it is his or her original work in the process of submitting. Still, the risk of creative borrowing in this context is readily apparent, and the legal issue remains moot. Creative borrowing is not identical to plagiarism. So, the question arises: Should one tempt other scholars to creatively borrow one's scholarly research and writing by pre-publishing or forgo the risk by avoiding pre-publication altogether?

Reasons to Pre-publish

One way to answer this last question is to identify and evaluate some plausible reasons for pre-publishing work in these third-party networks. Open-content licensing could relieve some of the fears and anxieties faced by pre-publishers. *Creative Commons*, a nonprofit organization, issues copyright licenses to authors and artists, giving them a range of options for permitting public use of their creations. These licenses are not just taken out by individual scholars, but also by record labels and groups concerned to protect their artistic products from imitation or theft. A *Creative Commons* licensing option might be one way to minimize acts of plagiarism and creative borrowing in pre-publication networks.

Illich's model of autonomous and anarchic learning is also relevant to the decision to pre-publish, since genuine education is liberated from institutionalized contexts. It takes place through independent learning and peer interaction, not through participation in commercialized ventures. Likewise, pre-publication is best when it occurs for reasons that free the learner from the capitalist cycle of marketing, production, and sales, offering open access to new ideas and opportunities to form enriching extra-institutional relationships. Following Illich's model could therefore mean abandoning the option of purchasing a *Creative Commons* license.

Ultimately, if the risk associated with pre-publishing is so palpable and threatening that it undermines one or more of the following reasons, then the deci-

sion is clear: Do not pre-publish. Otherwise, if the reasons for—and, by implication, the benefits of—pre-publication outweigh the associated risks, then a scholar is sure to take the opposite path: Go ahead and pre-publish.

First Reason: Exposure-Networking

One reason to pre-publish, as I have already noted, is that it increases peer exposure to an author's scholarly work. As a graduate student, attending and presenting at conferences is essential for accomplishing the same goal. At conferences, one develops networks of fellow scholars that can help in one's further professional development. However, the cost of attending more than one or two conferences a year can be prohibitive for the average graduate student. So, pre-publication permits the developing scholar and writer to gain greater exposure for his or her work without expending limited resources to attend and present at multiple conferences. Of course, attending conferences is still essential for networking and professional development. Pre-publication can rarely substitute for the quality of face-to-face interaction that can be had with fellow scholars at such events. Still, pre-publication nicely complements conferencing and enlarges one's professional network to an extent that conference-going alone probably cannot.

Second Reason: Feedback-Improvement

Another reason to pre-publish online is that it offers a way to solicit feedback on one's research and writing from other scholars, both inside and outside of one's discipline. A wide variety of feedback from multiple sources, as almost any scholar will attest, tends to improve one's own research and writing. According to Robert Boice, a well-respected scholar in the psychology of writing, "most writing is, after all, a social act" and the best writers tend to "build social networks" (Boice, 1990 cited in Shields, 2003, p. 11). Some scholars find mentors in pre-publication networks just as they would in real-life. Others will develop relationships with colleagues at a distance, who may serve as outside evaluators on their dissertation committee and, quite possibly, tenure reviewers later in their career. Yet another possibility is that by receiving feedback from scholars in multiple disciplines, the author will transform into an interdisciplinary scholar, capable of crossing disciplinary boundaries and providing the invaluable service of translator or liaison in the Academy (Ralston, 2009, 2011). Most disciplines are dominated by experts in ever-narrowing areas of specialization, but in the larger scheme of things, there is a growing need for those scholars who can articulate connections and build bridges between diverse disciplinary perspectives on particular themes and problems.

Third Reason: Dialogue-Discovery

Finally, pre-publishing one's scholarly work on a network such as *SSRN* can also provide an opportunity to participate in an ongoing dialogue with fellow scholars. The exchange of ideas is not a transaction, an exchange, or a matter of buying and selling a commodity. Rather it is a give-and-take process of communication, of learning, and of discovery (MacDonald, 1994; Sanders, 2001). If a scholar has ever authored policy analysis papers, grant proposals, how-to manuals or books for a fee or salary, then he or she knows that the experience of writing can be quite different. It is writing conceived as delivery, i.e., to satisfy a boss or an agent, not writing conceived as discovery, i.e., meant to communicate and learn.

Since most scholars write for a small (and quite specific) audience, receiving little or no remuneration for their work (with the exception of major scholars and textbook writers), the writing process has a certain purity, making it closer to the ideal of writing as a discovery, not a delivery, process. The beauty of pre-publication, or getting one's work out on the net, is that it also does not resemble a process of transaction or delivery, but one of dialogue and discovery. Indeed, pre-publication as a discovery process expresses the autonomous and anarchic model of learning that Illich believed should displace traditional schooling. In their mechanics, pre-publication networks also resemble, as mentioned earlier, Illich's two learning web innovations: reference services and peer-matching.

Personal Reflections

In my experience, the last of these three reasons was decisive in overcoming my negative experience of submitting an unpublished paper to a predoctoral fellowship competition and it being creatively borrowed. Having my work published and distributed on *SSRN* has been a form of therapy, permitting me to move beyond the negative experience, as well as a form of liberation, permitting me to explore how the process of writing becomes one of discovery, not delivery. For the graduate student or early-career faculty member in the humanities or social sciences, writing can become a chore, especially in the dissertation writing and editing phases. A way to renew one's enthusiasm for writing, even for topics outside the scope of one's dissertation project, is to pre-publish online, sharing one's work without the sometimes overwhelming pressure of writing for a specific audience. I believe that this is a low-cost and high-energy networked learning alternative to the institutionalized e-learning approach.

Online pre-publication based on the decentralized networked learning approach should be bottom-up, not top–down, and modelled after distributed learning networks, not for-profit businesses. Eventually, a scholar's pre-published work can be turned into journal articles, chapters in edited collections or chapters in their own forthcoming book. However, experiencing the freedom of researching, writing, and

sharing one's written work on pre-publication networks does not need to occur with these objectives in mind. Researching and writing as a form of discovery is valuable-in-itself, not only for the products it delivers, but also for its ability to spawn and nourish a scholarly community.

Are pre-publication networks a secret weapon for deinstitutionalizing e-learning? Some might see pre-publishing network-users as the perfect partners in a grassroots networked movement against using information and communication technologies for the commodification of learning. However, as in most collective action situations, the prospect of coordinating a movement with so many far-flung actors evokes complex questions about public goods, motivation, incentive, group cohesion, and the perceived chances of success (Olson, 1965; Vuković, 2011). Perhaps the better way to proceed is to spread the "gospel" of networked learning through online pre-publication with the expectation of gradually overcoming top–down e-learning on the business model—a potentially transformational strategy motivated by what Peter McLaren (1997) calls "radical hope" and "utopian militancy." To some extent, this strategy is already in play: The converted network-users persuade graduate students, postgraduates, and other early-career academics to join these pre-publication networks and thus to become the autonomous and anarchic networked learners that Illich imagined, rather than pawns and architects of institutionalized e-learning.

Opportunities for Further Research

Given the limitations of the present project—a methodology confined to normative-theoretical analysis, a small sample case study based on my own personal and professional experiences and conclusions that are hardly generalizable (or externally valid)—there is, admittedly, ample possibility for additional research. The set dimension (what people do in pre-publication networks) and the social dimension (links between their actions and the society) should be linked to the epistemic dimension (reflections of the set dimension and the social dimension to structure of knowledge) (Carvalho & Goodyear, 2014, pp. 1799–1800). Also, further inquiries could explore the empirical connection between networked learning and pre-publication networks, using diverse metrics and variables, such as time spent on the network, quantity of submissions, regularity of submission, research productivity, level of feedback, perceived research quality, impact factor, and learning outcomes. Besides quantitative studies, researchers could also conduct interviews of network-users and even virtual focus groups. In any further research, though, what should be kept in mind is that the kind of networked learning that, by hypothesis, occurs in pre-publication networks is for the sake of discovery, not delivery, personal and professional growth, not commercial interest and profit. In this way, pre-publication networks will continue to represent a genuine alternative to top–down, business-modelled e-learning.

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Part III
Virtual Worlds, Networked Realities

Chapter 5
Literally Virtual: The Reality of the Online Teacher

Christine Sinclair and Hamish Macleod

Teachers new—and not so new—to online teaching inevitably relate their experiences to those from the physical classroom, drawing on an existing repertoire of pedagogical practices. In creating comparisons, they are likely to invoke the idea of the real course, or what happens in the real world. We still hear teachers and students talking about taught versions of courses versus online versions, as though the latter were not taught. We have also heard people observe that there are problems with online courses because teachers do not have the visual cues available in the real one and might not even know whether their students are who they claim to be. This kind of deficit statement immediately positions anything happening online as naturally inferior to the real-world classroom, implying also that such problems of relatedness do not arise in the face-to-face situation. There seems to be a default assumption in some literature that online learning is an isolated (and possibly isolating) experience for students. This may stem from frequently-cited studies suggesting that Internet use can lead to loneliness and depression (Kraut, Patterson, Lundmark, Kiesler, & Mukopadhyay, 1998) revisited and reassessed subsequently in Kraut et al. (2002).

Such a negative view of the virtual does not accord with our own experiences and attitudes to online courses, either as teachers or students. We are more persuaded by the view that the nature of the Internet is primarily social and driven by the need to communicate rather than provide content (Joinson, 2003). However, we have been involved in online courses for some years. We do understand the concerns: we even

C. Sinclair (✉) • H. Macleod
University of Edinburgh, Edinburgh, UK
e-mail: christine.sinclair@ed.ac.uk; H.A.Macleod@ed.ac.uk

have some recorded evidence of our own initial resistance to newer forms of practice that we have eventually adopted for daily use. For some teachers, though, there are deeper problems in accepting that technology has had an impact on education as well as other aspects of their lives. The associated thinking about the real and the virtual has intrigued us.

The problem may be partly attributable to terminology. The notion of *networked learning* may be more generative for thinking about practice than, for example, *online learning*. Networked learning goes beyond an emphasis on the technology and embodies connections among learners, tutors, community and resources (Goodyear, Banks, Hodgson, & McConnell, 2004)—as long as this is the definition that is associated with the term. There is an even further move from the technology emphasis in the idea of *connectivism* perhaps (Siemens, 2005); however, this has yet to catch on for teachers who have just come to terms with online courses or virtual learning environments (VLEs). For many teachers the meaning and implications of networked learning are likely to be just as difficult and limited as online learning, at least when they first encounter it. While we use the term here to support our explorations of why teachers think that online may not be the real thing, we acknowledge that networked learning is itself a threshold concept to many of our colleagues—that is, a portal to a new kind of understanding (Boon & Sinclair, 2011, p. 275).

The study here uses collaborative or community autoethnography (Ellis, Adams, & Bochner, 2011, p. 279), though we did not set out to think of it in such terms. We focus on higher education students and their teachers—a group to which we both belong in complex ways. We draw on biographical writing generated by both of us, online text-based conversations, and also on a recorded and transcribed conversation between us. These data and reflections were collected for a variety of purposes—and not originally for this exercise—but we feel that they provide some insights into our shared and emergent perspective on the virtual and the real. We unfold in this Introduction what we have been trying to do and why, who we are, and how we have gone about our study. In the process, we do expose some theoretical influences, especially to do with the nature of memory and experience, as well as dialogue and critical theory in relation to networked learning.

We have often discussed the idea that the virtual seems to be regarded by some university colleagues as inferior, and we thought it could be useful to explore the origins of this notion as well as its implications. Our deliberations began in 2009 at a time when one of us (Christine) was a student on the *MSc in E-learning* at the *University of Edinburgh* and was taught by the other (Hamish). Because of our topic here, we are deliberately bringing to the surface the teaching component of this relationship, contrary to a current tendency of commentators to self-consciously speak about learning and teaching and to downplay the role of the teacher. We write, then, in the spirit of those who seek to resist such a tendency (for example, Bayne, 2014; Biesta, 2013).

It might be argued that we did not form a typical teacher–student dyad (if indeed there is such a relationship). We are the same age and we share some biographical

background in educational development. We did not know each other before the course began, though we did have a few friends and colleagues in common. We share roots in the north east of Scotland, where the word 'learn' refers to *both* the act of learning and the act of teaching, a conjunction that may be apparent in our dialogues! We also share some ideals about the importance of teacher–student dialogue. In other words, as one reviewer of an early draft of this chapter astutely observed, our findings may be more related to our own characteristics than to any effects that might be attributed to networked learning as opposed to the traditional classroom. While conceding that this might be so—in the sense that lack of generalisability would be the case in any selected teacher–student dyad—we do feel that our networked relationship has afforded increased opportunities for rich and protracted conversations, making collaborative autoethnography an appropriate label for what we have been doing. We are now conveniently in a position to revisit these conversations, along with some others, both to provide content (and consider the processes) for our argument that online teaching is real and important, and that the notion of networked learning does not supplant teaching, even though it does support our analysis here. Content and process thus merge in our account of our views on why people may see the online as inferior and why we reject this view.

We are now colleagues on that same programme (the *MSc in E-learning* recently renamed *MSc in Digital Education*) and we both value our dialogues with our students as well as our *blended memory* (Fawns, 2012) of our own previous tutor–student interactions. Blended memory draws on external sources (such as writing, discussion, digital resources) as well as biological internal memory. Fawns uses the term blended memory to point out that, although we have always depended on external memory, the rapid changes brought about by the digital may be creating new types of memory bias (Fawns, 2012). We are using Fawns' term here to highlight the positive aspects of blended memory which Fawns also takes pains to draw out; however, his warning that over-reliance on new ways of sharing memories may lead to not forgetting, distortion or distraction is also relevant to our thesis here. In particular, we are persuaded (and thereby slightly constrained) by his statement "Constructing our memories to suit our identity and view of the world allows us to forget those experiences that hinder our evolution as people" (Fawns, 2012). If we retain too many (digital) reminders of those experiences, we may risk stuckness: forgetting is sometimes a bonus (Mayer-Schonberber, 2009; Schacter, 2001).

Blended memory, though, is particularly useful for capturing a process before it has turned into fossilised behaviour (Vygotsky, 1978, pp. 63–64), or become inaccessible to view. Blended memory is thus valuable for research. We have records of dialogues in an audio recording, from online discussion forums and from a course-related student blog. The dialogues are part of our method here, but are also relevant for our findings, and especially our interpretation of what it means to be a scholar in networked learning environments. Our blended memory is able to draw on the records of the experiencing self (Kahneman, 2011) from the time. This is especially important because our relationship has changed from tutor/student to colleague/

colleague. It is the tutor/student relationship as experienced at the time that we specifically want to recall for the current study. We have discovered that without these records our remembering selves would re-interpret the way we came to understand our current positions. This adds yet another dimension to our exploration of the real and the virtual.

However, in looking back from our new position as colleagues, we do realise that our enactment of teacher/student does not seem to be marked out as fundamentally different from the relationship that we now enjoy. The roles are indeed different, but the elements of the engagement where we are co-creators of understanding have remained largely unchanged. This is not, of course, the way that all student/tutor relationships develop—but our experience does suggest that this is possible and we both aspire to it with our current students. Co-creation of understanding is both fundamental to our claim that the virtual experience is not axiomatically inferior and to suggesting ways forward for others who are engaging with online communications. It also resonates with the values of networked learning (Hodgson, McConnell, & Dirckinck-Holmfeld, 2012, p. 295).

What we have just described might merit the label *subversive epistemology* used by another author in this volume (Rose, this volume). She was also a reviewer of earlier drafts of this chapter and her dialogue with us has augmented our co-creation of understanding about teaching online. We see this as a valuable additional voice in our dialogue, which has forced us to articulate further our understanding of both Fawns' (2012) term blended memory and our use of Vygotsky's notion of a fossilised process. We reproduce her annotation on the word fossilised below (with her permission):

> This seems like a good term for your concept list. Do I have this right? It seems there are some data that are fossilised (audio recordings, online discussions, and student blogs) and then other data that are not yet fossilised (your experiences and memories of those experiences). Are you saying that when you engage in a dialogue to create a blended memory and tape the dialogue, you are then 'fossilising' the blended memory? If so, that is an awesome process. I would emphasise your blending memory for this study as part of the autoethnographic methodology.

After discussing this together extensively (and visiting associated ideas from a variety of authors) we consider what we are doing is a form of *crystallisation* rather than fossilisation. Vygotsky (1978) was talking about automated or mechanised cognitive processes, or psychological behaviour, which are now difficult to access. We want to capture the processes *before* that happens—and the metaphor in cognitive

crystallisation helps us to think about the way teachers are constantly examining ideas in a fluid state. By manifesting cognition through real-world artefacts such as written and recorded dialogue, the cognition becomes communication. The result still goes into the world independent of our intentions as authors, but it animates and activates other communications, whether they are face-to-face, online or in another artefact such as the chapter of a book. We are crystallising understanding as a way of working with it further. We are very grateful to Lydia Rose for her support in making us aware of this. The analysis here, then, draws on dialogues between ourselves, and with our students, in conjunction with literature exploring aspects of real and virtual practices and identity. Our engagement with this literature and desire to add to it are also manifestations of the dialogic nature of educational research and of education itself, which is arguably increasingly prevalent in the digital age (Wegerif, 2013). When we look at dialogues, we seek sections that illustrate the potential for "interanimating relationships with new contexts" (Bakhtin, 1981, pp. 345–346)—as exemplified in our discussion of fossilisation/crystallisation above.

We have sought both to explain and to counter the negative assumptions associated with the virtual, and have found that we are subsequently able to revisit the role of a teacher in a way that yields constructive implications for both online and classroom practices. For example, we shall illustrate later that helping students to deal with unfamiliar spaces involves leaving some room for them to do some necessary work in familiarising themselves with these spaces. This applies whether the spaces are conceptual, physical, online/virtual or a combination of these.

Each of the three sections of our findings from this collaborative and autoethnographic inquiry begins with an illustrative extract from a dialogue—our cognitive crystallisation. This then provides the basis for our further review and interpretation on meanings of reality and virtuality, their permeation of each other and the implications for teaching and teachers.

Existence, Reality and Virtuality

The extract below is taken from a recorded spoken dialogue undertaken when Christine was a student of Hamish's. This is from fairly early on in an hour-long dialogue that formed part of her dissertation work. The dialogue illustrates how Hamish helped Christine to see an explanation for a phenomenon she had observed: that some people want to replicate traditional activities online and produce online versions of courses. The dialogue also helped Hamish to see the significance of a particular piece of research, thus providing a good example of collaborative meaning-making. In addition, it provides a concept—existence bias—that we could reuse with confidence several times later in the dialogue and subsequently.

Hamish: I came across something just yesterday actually, a paper in *The Journal of Personality and Social Psychology*. And the title of the paper was *The Existence Bias*, which I thought was an interesting title! And so I had a look at it and basically what they were saying was, "There is evidence that people value things because of their mere existence". That is something which *is*, is better than something which *might be* …

Christine: Ah

Hamish: … and it's valued more. So which immediately has an impact on how we experience the new. And the existence bias would suggest that the new experience is always inferior to the extant. So I think that's what we're up against all the time. So, for example, online distance learning is inferior to face-to-face. That's axiomatic for many people. And I mean …

Christine: It's certainly not my experience!

Hamish: … I mean it's not our espoused position in any sense, but you come across it time and time again.

Christine: Yes, but I do think it's different.

Hamish: Yes, but I suppose I'm making a slightly separate point here. Yes I think it's different, I think it's different in interesting ways. But for people who haven't encountered it, it will be, as I say, axiomatically inferior. And starting with that assumption you then begin to catalogue the ways in which it is inferior. You don't examine whether, you catalogue *how*. And I think that's what one is up against all the time.

Our collaborative meaning-making provided our starting point for further exploration on this topic. It is not difficult to think of examples that might be catalogued by people who have not encountered or engaged in online teaching: absence of visual cues, lack of immediacy and (physical) presence, inability for students to participate in certain types of activity, questions about who is actually doing the work. All of these might lead to a view of the online version as an approximation to the real one, but with deficits: aspects of the course that do not exist.

The authors of the journal article referred to in our dialogue (Eidelman, Crandall, & Pattershall, 2009) demonstrate through a range of studies across different kinds of practice that an existing state is evaluated more highly than an alternative. They claim that a heuristic for dealing with something new is to consider it inferior. This has implications for online courses:

- Until an online course exists, it is not likely to be highly regarded. Thus a planned online course will not be valued. This would, of course, also be true of other planned but not yet existing courses.
- If an online course is regarded as an online version of an existing course, the fact that certain aspects of that course cannot exist means that it is inevitable that the version has deficits and is therefore inferior

- Lack of direct experience of the additional affordances that networked learning does offer will give differential access to insights about the ways in which it is deficient—that is, if the deficiencies are remedied, the detractor is probably unable to recognise this.

Along with other cognitive biases (Kahneman & Slovic, 1982)—for example, confirmation bias, self-serving bias—the existence bias has perhaps performed a useful evolutionary function in drawing us to the tried and tested, but may be hindering us in the context of rapid technological advance by anchoring us in the past. In this sense, it provides an example of something our blended memory (Fawns, 2012) prevents us from forgetting. Moreover, in a subsequent paper (Eidelman, Pattershall, & Crandall, 2010), the authors show that the longer something has existed the more favoured it is likely to be, even though their participants were not aware that longevity was affecting their positive judgement. It follows that a heuristic for dealing with something with a long existence is to consider it as likely to be superior to something more recent, leading to a possible bias towards longevity. The ability to stand the test of the time has both an intuitive appeal to the layperson, and the phenomenon has a well-established scientific basis for psychologists and theorists who posit a deep evolutionary advantage in a tendency towards a fear of the new and unknown.

Eidelman et al. (2009) acknowledge potential opposite effects may emerge from distaste for what seems to be out of date, or from a preference for novelty, but they cite studies showing that the evaluation of novelty is enhanced when it is combined with conditions that promote familiarity, comfort and security. There are several terms associated with this tendency in education. For example, the expression *provisional stabilities* is used (Saunders, Charlier, & Bonamy, 2005) to suggest the useful transitional work that evaluation can do in a time of change. *Transitional objects* (Cousin, 2005) could include forms of VLE that carry over symbolic meanings (such as files and folders) from the more familiar learning environment until we are more accustomed to VLEs. There is frequent evidence of the use of metaphors which allow people to carry practices from one environment to another, for example online discussion. Such metaphors help us convey understanding, but risk tethering us to an old understanding, rather than fully emancipating the new affordances.

There may then be a tension between the advantages of promoting an online course as a version of an existing one to provide some familiarity, and the fact that it is inevitably seen as a deficit version of the long-established real course because of the lack of existence of certain characteristics.

The theory of existence bias may offer some explanation for why a real course is preferred, but the situation is complex. Reality can also be harsh and negative. When people say, "Welcome to the real world", they are not invoking familiarity, comfort and security—but rather the opposite. The desert of the real (Baudrillard, 1984; Žižek, 2002 and many others) is bleak as well as illusory and paradoxical. There are many cultural references to the superior person's preference for reality at all costs: from Plato's allegory of the cave (*The Republic*) through to popular films such as

The Truman Show (1998) and *The Matrix* (1999). The nature of reality in such examples is revealed through a contrast with an alternative form of reality, which might be caused by restricted or distorted perception as in Plato's allegory—or deliberately constructed or simulated as in dystopian films. Even if the real turns out to be bleaker and less comfortable than the simulation, it is still more favoured. And that stands as something close to a moral principle. For example, the character (Cypher) in *The Matrix* who chooses the simulated over the real is clearly presented as weak and corrupt.

But reality as a concept is also starting to change. The story in *The Truman Show* depicts an extreme version of reality television, where the protagonist's entire life is captured on camera and shown to the world, manipulated to maximise advertising revenue. It is one of the ironies of "reality TV" that what is presented as reality has been constructed, manipulated and edited by the producers of the programme. The word reality is thus being used to suggest a relationship with something that actually exists, but is then stretched to such an extent that many people see reality TV as not real at all—and *The Truman Show* has helped to reinforce this. There is an added complication: there is now an acknowledged psychotic condition associated with the movie in which sufferers experience the delusional belief that they are actually being filmed as part of a reality TV show (Gold & Gold, 2012).

Simulated reality, as seen in *The Matrix*, is reminiscent of the philosopher Descartes' postulation of an evil genius or malicious demon: "all external things are merely the delusions of dreams which he has devised to ensnare my judgement" (Descartes, 1986) Descartes' *Meditations on First Philosophy* was written in 1641, further evidence that questions about reality have antecedents that long predate the digital age. However, the latter has created a need to find new terminology that accounts for differing representations or states of reality.

Examples of expressions relating to reality that have emerged in recent years are shown in Table 5.1. We begin with virtual reality—an expression attributed to Jaron Lanier referring to the development of headsets and datagloves in the 1980s that provide total immersion for an individual. This was described by Howard Rheingold, for example, with great enthusiasm and expectation in the early 1990s (Rheingold, 1991). Younger readers may use the term more broadly, and we note some recent developments. Rheingold himself moved rapidly in his thinking to more social interpretations of the virtual: the virtual community (Rheingold, 1993 & 2003).

The different requirements for technology to support forms of reality have led some writers to suggest that there should be a reality–virtuality continuum (Milgram, Takemura, Utsumi, & Kishino, 1994), with mixed reality having various forms between the extremes of a real environment and a virtual environment. See also the chapter by Pak and Newton in this volume.

This exploration of reality may seem to take us a long way from the idea of the real course, but it has been useful to consider the ways in which we contrast what happens online with what happens offline. In addition, the associations and contrasts with the virtual may be part of the alienating factor for those coming later to technology use in education. As in reality TV becoming a new form of entertainment, the use of the

Table 5.1 Different versions of reality

Form of reality	Definition	Exemplified in …
Virtual reality	A computer-based environment where physical presence is simulated—often visually but sometimes using equipment that allows full immersion	Many scientific, military, therapeutic and training applications
		Individual immersion is often associated with body suits and was a pervasive idea in the early 1990s
	A distinction has been drawn between individual immersion and consensual hallucination (Gibson, 1984). The term has also been used more generally	VR was a central theme in the film *The Lawnmower Man* (1992)
		Visual displays allowing consensual hallucination can be seen in virtual worlds such as *World of Warcraft* or *Second Life*
		The recent acquisition of the Oculus Rift headset by Facebook has been taken to suggest that virtual reality will not be about gaming so much as to provide the next stage in the development of social networking, reminiscent of the *metaverse* in Neil Stephenson's book *Snow Crash* (1993)
Artificial reality	A term coined by Myron Krueger 1983) to describe unencumbered immersive environments, emphasising space. The term has also been used more generally	VIDEOPLACE—a lab developed by Krueger in from the 1970s combining video and computer technology, and now on permanent display at the University of Connecticut. The technology tends to be associated with artworks
Constructed reality	Usually refers to TV programmes that mix real people and situations with constructed storylines	Various reality shows, such as the UK show *I'm a celebrity—get me out of here*
Simulated reality	A world that is simulated (nowadays usually using technology) but where its participants are likely to believe that it is real	The reality for human beings in the film *The Matrix* (1999)
Alternate reality	1. Synonym for parallel universe	Alternate reality games (ARGS) e.g. *The Beast,* a game designed to promote the Steven Spielberg film: *A.I.: Artificial Intelligence* in 2001
	2. The real world as a platform for interactive storytelling	A mantra in *The Beast* and other ARGS is "This is not a game" (Szulborski, 2005)
Augmented reality	The integration of a virtual scene into the real world, providing the possibility of adding information	Google glass—a wearable computer in the form of spectacle frames containing a head-mounted display that displays information and responds to commands (Wikipedia, 2013)
		Augmented reality can also be activated through scanning bar codes and other triggers, as in the following example:
		I'm a poem, scan me
		http://www.littledropsofpoetry.com/2012/10/04/im-a-poem-scan-me/
		Reproduced with permission from Lee Frankel-Goldwater

real is possibly becoming a means to acceptance of new forms of educational practice. An early adopter of online environments, Howard Rheingold, comments:

> The phrase 'in real life' pops up so often in virtual communities that regulars abbreviate it to IRL (Rheingold, 1993).

By feeling the need to abbreviate the expression, the regulars in virtual communities at the time contributed to reinforcing the contrast between the virtual world and the real world. It was not long after this, though, that Sherry Turkle reported the observation, "RL is just one more window" (1995), an alienating idea for many readers but one that simultaneously managed to reinforce the distinction and start to blur it.

Sometimes the contrast is made through reference to flesh and blood bodies and laws of physics. Thus a real (world) course takes place where bodies are co-present in the same physical space. When the word virtual is used frequently, there is another reinforcement of the contrast: for example, in educational contexts, Virtual Learning Environment, virtual world, virtual university and virtual community. Elements from the real are thereby metaphorically taken into the virtual.

The word *virtual* has been subtly shifting its connotation and especially its application. Frequently it is seen as an antonym to *real*—but some writers (Deleuze & Parnet, 2007; Evans, 2000) prefer to contrast it to *actual*. Even then, contrast may be the wrong word—the virtual and actual turn out to be difficult to separate: "Actualization belongs to the virtual" (Deleuze & Parnet, 2007, p. 149). Evans' use of the Internet to bracket off the actual world reveals that "voices have a 'virtual' as well as an 'actual' dimension" (Evans, 2008, p. 6). Using actual as opposed to real as the antonym brings out the notion of the *potential* or *capacity* of the virtual, an idea inherent in the etymology of the word and indeed carried forward into its newer applications. We shall return to these ideas in the next section.

In relation to technology, the changing application of the word is helpfully summarised in a usage note in an online dictionary

> When *virtual* was first introduced in the computational sense, it applied to things simulated by the computer, like *virtual memory*—that is, memory that is not actually built into the processor. Over time, though, the adjective has been applied to things that really exist and are created or carried on by means of computers. (Houghton-Mifflin, 2009)

If the word virtual includes things that really exist, this may supersede the existence bias for those who understand this. For others, it may be doing some intermediary work by creating a transitional object (Cousin, 2005) as in the idea of a VLE and its comforting associations with an earlier academic world. The shifting perspectives of virtuality and reality are suggesting that they are going to be more difficult to separate in the future. Howard Rheingold makes it clear from the start that his virtual communities have been colonising his real life (Rheingold, 1993). As our sense of what counts as actual and real broadens to include virtual aspects, then there will less of a need to talk about online versions. The virtual is starting to permeate the real and vice versa—and there are real courses, born digital, which may demonstrate that this can be done successfully. We use students from one of our own courses to explore this further.

The Virtual Permeating the Real

We asked students on the introductory course of our fully online *MSc in Digital Education* what virtual means to them. We posted the following question on their *Moodle* site, during a section of their course when they were considering different kinds of online space for education.

The word 'virtual' used to be contrasted with 'real' or 'actual', but now its meaning seems to be shifting. But is there still a sense that some people still see the virtual as an inferior version of what's real? What do you think?

The answers we received suggest that the students also see the virtual as permeating the real, but there are some nuanced responses.

- The actual and virtual are certainly intermingling more and I think many things that may once have been seen as virtual are now just normal every day things. … I remember when my parents would separate out my 'real' friends from my 'virtual online' friends. As if the basis of friendship was being in the same physical space. You don't tend to hear that as much anymore.

Thomas

- Been thinking about this, searching for a different feeling but I just can't. I really do think I feel 'me' wherever I am. … Just dipped into *Second Life*. [The virtual world they would be using the following week.] That felt very different and on reflection maybe it did feel more 'virtual'. … So familiarity may be the differentiator for me, not online and offline.

Andrew

- Moving 'Sidney' through *Second Life* still feels as unreal as driving a wobbly golf cart so she does not feel like a virtual 'me'.

Beverley

What used to be virtual for Thomas has now just become the norm. Andrew suddenly recognises that something unfamiliar might seem to be virtual, a stance that we connect with both the existence bias and the actualisation potential of the virtual. Beverley would expect a virtual self to have a form associated in some way with a more conventional reality. All three students indicate that identity is something they think about with respect to the virtual: there is something about their own identity that is preserved or represented online; there are questions about different forms of self.

The fact that the relationship between the virtual and the real raises questions about identity may contribute to the continued stigmatisation (by some) of the virtual in higher education. Stories in the press about teaching in *Second Life* are

presented in conjunction with journalists' comments on various forms of identity experimentation in virtual environments, tapping into fears of the uncanny (Bayne, 2008) and of the loss of real connection (Turkle, 2011). Yet there is a parallel strand of positive responses from the opportunity to experiment with online identity or identities (Turkle, 1995): some people claim to find the real me or true self (as opposed to actual self) online (Bargh, McKenna, & Fitzsimons, 2002), because of the lack of some of the constraints of the physical social sphere. Far from being just some kind of replacement for the real world, the Internet provides an important opportunity to support people to cope with their social phobias (Amichai-Hamburger, Weinapel, & Fox, 2002). The virtual has often been used by those who are physically disabled or constrained in some way, and who feel that the online releases them from this physical constraint, that they see to be not what is fundamental about them (Winder, 2008). Virtual environments, then, may present augmentations and novel opportunities as well as replications. In such a case, it is the real or, more accurately, the actual that has deficits. With respect to identity, the virtual taps into a different kind of reality, and this would be true for all three of our students.

Recognising that the virtual is another form of reality and should be considered in its relationship to the actual opens up a more philosophical understanding of the terms. This is notably the domain of the critical theorist Gilles Deleuze (1925–1995) and his distinctions have been taken up to challenge problematic conceptions of the virtual and the real classroom (see, for example, Drohan, 2013). For Deleuze, education is always steeped in the virtual—based on an apprenticeship in the signs used by the teacher. The implication of accepting a Deleuzian view of virtuality in education is that a teacher says "do with me" not "do as I do" (Bogue, 2013, p. 27; Deleuze, 1994). This feels a particularly appropriate philosophy for networked learning; yet it does depend on being clear that virtual does not simply mean using technology and resisting an impoverished view of the relationship between the two.

Our students' slightly differing observations on identity online suggest that it will be necessary to be cautious about any assumptions we might make about a whole cohort's response to the idea of the virtual. Studies already mentioned in this chapter claim that the impact of the Internet will be different for different personality types (Amichai-Hamburger et al., 2002; Kraut et al., 2002). Interestingly, the former predicts better outcomes for introverts and the latter worse. While it is beyond the scope of this chapter to explore this paradox, it is useful to note that both papers make the point that the virtual will be experienced differently by everyone, much as the real is. Thus the corollary of RL being just one more window is that the virtual is just one more reality.

Evans (2000) takes advantage of the ambiguities and flexibilities around the word virtual to propose that the Internet acts as an *epoché*—a term used by phenomenologists to mean a placing within brackets of our day-to-day beliefs about the world. The disruptive influence of a new way of looking at things—making the familiar strange and even uncomfortable (Kaomea, 2003)—allows us to gain access to some

otherwise hidden aspects of our lives. Citing Rheingold's (1993) view of the Internet as a virtual community, based on written linguistic exchanges, Evans claims:

> the Internet puts into relief what is also true of the actual world—that we exist as participants in a dialogue (Evans, 2000, p. 4).

Voice is an important concept for Evans with respect to the Internet. When our bodies are not present, our identity is established through a voice in dialogue—or our *identities* are established through voices (Spector, 2007). Evans points to the use of the term avatar to refer to an individual voice coming from a single source. Although an avatar is anchored to a real-world identity through an account, what is most important about it online is usually the content of messages associated with it. This establishes the avatar's identity in relationship to the other voices in the context. When Evans was writing, that was particularly through text—and while avatars may now more be multimodal in their expression, there remains a strong sense of establishing identity online through the content of messages. The difficulties that some students experience with seeing the image-based avatar as representative of their identity, means that there can be some associated problems of finding or using a voice (as in the case of Beverley above), but do not mean that no voice will emerge at all.

And key to the voice is the content, meaning and function of the message articulated by it: this is what establishes individual identity on the Internet. There is simultaneously a virtual dimension to the identity and an actual articulation (associated with an account or specific person). This may even be an anxious student, concerned about her *Second Life* identity. "It is a source that cannot be separated from what it produces, a voice that would disappear without its articulations" (Evans, 2000, p. 4). In this sense, though he does not make the connection himself, Evans' view echoes that of Deleuze when he says: "Every actual surrounds itself with a cloud of virtual images" (Deleuze & Parnet, 2007, p. 148). When Evans returns to the real world—removing the brackets of the epoché—he says we can recognise that we "are also voices with both a virtual and actual dimension", because we are dialogical beings, addressing or responding to other beings (even when just thinking on our own).

Another way of thinking about this can be seen in a famous text from pre-Internet days, *The Presentation of Self in Everyday Life* (Goffman, 1990/1959).

> For if the individual's activity is to become significant to others, he must mobilize his activity so that it will express *during the interaction* what he wishes to convey (Goffman, 1990, p. 40, emphasis in original).

Avatars and other representations of online identity frequently evoke Goffman's perspective on performance in everyday life and what may be going on backstage (or virtually) as well as at the front during the interaction (or actually).

Evan's point about the virtual permeating the real is echoed by a virtual ethnographer, Tom Boellstorff: "virtual worlds show us how, under our very noses, our 'real' lives have been 'virtual' all along" (Boellstorff, 2008, p. 4–5), though Boellstorff uses the prism of culture as mediating our experience of life where Evans uses our dialogical nature. We are not following up the similarities and differences of these

mediating factors here: rather we are highlighting another way of "(c)onstructing our memories to suit our identity and view of the world" (Fawns, 2012, p. 137) already featured in our discussion on blended memory. Our students' differential experiences of the virtual interact with the way they experience the actual. In some cases, the digital traces and anchors in the actual world may render a new construction difficult.

Like Evans, we see an opportunity in the idea of the virtual to look again at interactions "without the real world distractions that usually accompany and obscure them" (Evans, 2000, p. 4). While he applied the epoché to revealing what underpins democracy, we are attempting to apply it to the practice of teaching—looking at networked interactions between teachers and students when they are not in a physical setting.

Teachers and Students in (Online) Dialogue

Students on the *MSc in Digital Education* tend to have professional roles relating to teaching, training or in the supporting or resourcing of learners, and are encouraged to reflect on this as well as their student experiences in the blogs they maintain. The following is an extract from Christine's blog during the course *An Introduction to Digital Game-based Learning*. It is followed by a comment from Hamish.

Conclusion of blog post (Christine)
Now that I'm struggling through strange environments myself again, I am conscious of the need for persistence that will not happen if we make things too easy. It's another of my tensions—if it's so impossible that people can't get in, then that's not right, but if it's overscaffolded so that each stage is clear then that's not right either. We need to find ways to be welcoming and challenging simultaneously (which this current course does very well!)

Comment (Hamish)
I was interested in these comments about 'persistence'. I take your point about 'over helping'. But there is a real dilemma here. Helping input has to be optimal—not too much, and not too little—and timed at just the right point. Too much too soon, and the learner is deprived of a learning opportunity. Too little too late, and disillusionment and loss of trust result. Complicated by the fact that different people have to be handled differently, depending on personality, current circumstances and the learning content.

This is another 'probing' thing perhaps [a reference to Gee (2003), discussed below]. That the tutor has to insert probes into the situation, to try to determine some of these unknown parameters. What might these probes be? How do they relate to the substantive content of the course material?

The above exchange prompted several more musings in later entries about the probing that a teacher might do, though in fact Gee (2003) was referring to a learner's act of probing the world. Both of us recognised (and continue to recognise) this learning principle as a teaching one too. Crucially, we also recognise it as something that *applies equally in face-to-face classrooms*. It can be seen in: a teacher's (non-trivial) questioning; prompts that generate discussion; setting of appropriate problems, especially ill-structured ones (Savin-Baden, 2002) and any other activities that move the student on to a higher stage of conceptual understanding with the specific domain.

We have selected the above extract for both its form and its content. It provides another illustration of the use of a shared concept (probing) derived from reading that becomes a point of reference for later blog entries and further discussion. Its theme of the complexity of what an online teacher has to do is the topic for our final discussion here. We shall argue that, though their work may involve additions to their repertoire, the new (and not-so-new) online teacher is still engaged in the "orchestrated immersion of the learner in multiple, complex, authentic experience" (Caine & Caine, 1994). We say still engaged because this idea is also something that *applies equally in face-to-face classrooms*.

In the dialogues between teachers and students shown in this chapter, there is already evidence of the teacher inserting probes into the situation and also being engaged in some orchestration of experience—even when the dialogue has been instigated by the student. We shall return to the notion of orchestration in our discussion section: what we mean by the expression is that the teacher has deliberately created or exploited experiences likely to stimulate student inquiry and understanding. The dialogue is in any case an aspect of the context established by the teacher(s) and their colleagues—a wider dialogue in which the teacher's and student's individual voices have their virtual and actual dimensions.

The content of the dialogue above, from the student blog and tutor comments, captures a dilemma faced by teachers of both face-to-face and online students. Hamish and another colleague have written about the same dilemma elsewhere (Macleod & Ross, 2011):

> The online tutor is required to be so explicit and so prepared to have the first word that he or she may forget to leave spaces for the necessary work of the learner in constructing his or her understanding of the material (Macleod & Ross, 2011, p. 22).

This quotation does highlight one of the differences faced by the online teacher: because of the lack of visual cues, there needs to be a mental walk-through of what experiences have to be put in place to ensure that the students (who, as we have seen, all respond differently to the environment) are able to engage appropriately. There is a need to be explicit because of the environment: however, the fact that there is less need to do this in advance in a face-to-face classroom should not rule it out as useful there too. (We both have anecdotes about unfortunate experiences from our classroom teaching days that illustrate the value of being appropriately explicit.)

Here we want to highlight the distinction between technology used for information and technology used for communication (Joinson, 2003). While the former is indeed

important, we are keen that it does not overemphasise the information dissemination aspect of a teacher's role at the expense of the communicative function. What is most important in the quote from Macleod and Ross is that a teacher should allow "spaces for the necessary work of the learner". Responding to the potential deficit of the lack of visual cues can provide an extra clarity in the information element of the online course. The real danger emerges—in both the online and face-to-face course—if helpful clarification displaces the essential function of leaving spaces for learner activity.

The spaces for the necessary work of the learner are, of course, not just determined by the teacher but also by the capacity of the learner to recognise their needs to work in these spaces and also to recognise what actually has to be done. A teacher can help by acknowledging and alerting students to different learning needs, but ultimately the students will be doing something themselves in those networked spaces. (We prefer to think about variable learning needs rather than labelling students with a learning style.) In a one-to-one dialogue online, the spaces and actions within them may be more visible to the experienced teacher, though this is open to question.

Leaving spaces for the student is a difficult teacher-based action to define—it is an example of not-doing rather than doing. In dialogue terms, it relates to silence rather than utterances—and indeed knowing when to be silent is an important use of voice and communication, and again there are differences in networked spaces. But leaving the student to do the work may seem to be in keeping with a current trend to see the role of the teacher as a facilitator (e.g. Jolliffe, Ritter & Stevens, 2001). Like Macleod and Ross (2011), we would like to challenge this rhetoric because of its spurious attempts to create an equal relationship between teachers and students, despite the power differential that arises, not least, from the teacher's role in assessment and other institutional conditions. As Brown and Duguid observed of the university over a decade ago:

> In complex institutional ways, it warrants its faculty, its courses, and its degree for the learner (Brown & Duguid, 2002, p. 216).

Faculty/teachers warranted this way—and themselves charged with warranting students—are doing more than facilitating learning. By virtue of their institutional role, they are engaged in the presentation and management and accreditation of certain kinds of educational experience, and that applies equally in networked learning spaces.

It might be argued that students should be able to find and manage their own relevant experience. Facilitation as a principal role of the teacher goes alongside the idea of the student as an empowered autonomous self-regulated learner (Nicol, 2009) which has been a parallel development with the rise in online learning. It is an idea that has considerable appeal, and we are not against the aspiration behind it. Yet, as the example of dialogue illustrating this section indicates, a great deal of judgement is required to avoid the too much/too soon versus too little/too late extremes of intervention and facilitation. For students engaged in their first exposure to a concept, they are by definition not in a position to make that judgement. And if they have never been exposed to a particular concept, they may not even be aware that it is appropriate to consider it. Furthermore, some concepts are so inherently troublesome (Perkins, 2006) that very few novices could be expected to grasp them

without expert support. This construction of the teaching role is again reminiscent of Deleuze's philosophical use of the virtual to highlight the role of the teacher who "as emitter of signs does not provide apprentices with answers, but guides them in the art of discovering problems" (Bogue, 2013).

But students should certainly be encouraged to engage with new experiences, whether initially selected by themselves or their teachers. In Gee's terms, cited in the dialogue above, they need to go through the probe, hypothesise, reprobe, rethink cycle (Gee, 2003, p. 90) with respect to those experiences. Gee's work on what we can learn from video games claims that the skills in reflective practice required by experts in professions are mirrored in engagement in a good video game and can be self-taught. In this case, the video game provides the experience, and a player who can progress in a videogame through persistence and self-teaching does not need a teacher. An analogy might be drawn with higher education courses: the course is the experience and students can work through it at their own pace.

We have indeed heard colleagues and (more likely) outsiders say that if everything is available online, the teacher may be redundant. Should teachers then be worried about their future? Gee's observations on appreciative systems suggest that a world without professionals (such as teachers) is a long way off. The expression *appreciative systems* refers to the combination of affective and cognitive dimensions of a practice. For a player of a computer game, it is the results, rewards and good feelings about success that count, perhaps in relation to others who are playing the same game. The uncertainty about the arrival of the reward is an additional element that strengthens this good feeling. For people in professional contexts, it is more complex:

> … they must form the sorts of goals, desires, feelings, and values that 'insiders' in that domain recognize as the sorts members of that domain (the affinity group associated with that domain) typically have (Gee, 2003, p. 97).

For students aspiring to become part of an affinity group, the probing reflective practice will need to incorporate knowledge of such appreciative systems—and they will only be able to achieve this through dialogue. Their teachers will need to use the probing principle both with respect to the affinity group and to their cohort of students. And they will also only be able to achieve this through dialogue.

We know from studies of experts' knowledge and social practices in situated learning (Brown & Duguid, 2002; Eraut, 2000; Lave & Wenger, 1991) that learning is a social process. What is getting overlooked is that teaching is too. A completely student-centred approach to networked learning, while laudable, risks neglecting or omitting essential consideration of a teacher's necessary repertoire for the twenty-first century.

The Teacher as Orchestrator of Experiences

So far, we have identified an overarching need for dialogue, especially in relation to probing the students' learning and the domain itself. We have recognised that sometimes a teacher has to be silent, to leave space for students to do their own work. But students' own work has to be meaningful both to themselves *and* to the context in

which the learning is taking place. It has to incorporate relevant experiences of which the students may not yet be aware or sufficiently knowledgeable. It is up to teachers to orchestrate students' experience to allow students to process it actively, in a way that has personal relevance and meaning for them (Caine & Caine, 1994).

The idea of experiential learning has been around for some time (Dewey, 1938; Kolb, 1984; Lewin, 1942/1951) and seems to fit with the constructivist and collaborative forms of learning in social contexts said to be particularly associated with digital technologies (Selwyn, 2011). Caine and Caine (1994), however, claim that "all learning is experiential": learning from experience is not simply one among many options. But experience itself does not necessarily result in learning, which is why it has to be managed. In its information-delivery mode, the Internet affords an overwhelming range of content for multiple experiences; the Internet's social and communication function is what is needed for proper orchestration of those experiences.

An engaging teacher—whether in a classroom, online or in a blended approach—will initiate the learning experience, establish its tone and maintain a felt presence throughout even if they leave the actual or virtual room for part of the time. This sense of presence will be maintained during asynchronous and synchronous meetings and will remain even between synchronous sessions. It will be helpful therefore to consider both the features of the orchestrated experience and the characteristics of the effective orchestrator.

Writers who use the expression orchestration in relation to teaching do not necessarily agree on what that might mean. For Caine and Caine (1994), experiences should be immersive, and they use videogames as an analogy, resonating with the ideas of Malone (1981a, 1981b) and Gee (2003). Selwyn (2011) on the other hand, challenges this idea arguing that there is a case for stepping away from the authentic experience and outlining the major concepts involved in it—reinstating the notion of direct instruction, but in a context of taking a critical approach to those actual experiences including the use of digital technologies themselves. It may be the case that Selwyn does not see orchestration as teaching but as something else (indeed, he seems here to be regarding teaching as mainly instruction):

> As well as benefitting from the experience of being taught by a teacher, it could also be argued that learners benefit greatly from the teacher orchestration and co-ordination of technology-based education (Selwyn, 2011, p. 134).

This is perhaps another example of ambiguity over what counts as teaching in the digital age. In a book entitled *The Experience Designer*, Alger (2002) uses the concept of narrative as being at the nucleus of learning, a theme that has been extensively developed in the work of Roger Schank (1990, 2002). This arguably provides an alternative way of thinking that would accommodate both the fully immersive and the more blended experience plus direct instruction. Narrative is seen as providing stability in a changing environment in both public and private spheres. Alger suggests thinking of the Internet as a story, with a setting, plot (interactivity), characters, episodes, props, goals and consequences (Alger, 2002, p. 28). Despite the emphasis

on stability, Alger is arguing for a disconnection from previous forms of education, because they "emanate from curriculum as information design, instruction as information delivery" (Alger, 2002, p. 6).

Using Alger's arguments to revisit the idea of the online as the real course with deficits, one possible explanation of the view is that it is formed through viewing the online as a form of information delivery. Because there is a great deal of information online, this is an understandable perspective. It can also result in inexperienced teachers thinking that putting a course online means posting information into a VLE. (And this may be what the students seem to be calling for too—lecture notes online.) There is a strong contrast when the ideas of narrative, communication and interactivity come into play—and effective teachers will realise that they draw on such narratives in creating their own students' experiences, whether in classrooms or online. Our resistance to the view of the online as merely information delivery also underpins our preference for the term *networked learning* over online courses.

Different modes will present different teachable moments and networking opportunities and thus we should be careful not to look for an exact correlation between online and classroom-based opportunities for creativity. A digital environment affords the opportunity to return to online posts and get more out of them in the light of new insights; once the discussion in a classroom tutorial is over, it can be hard to recapture the moment. The physical classroom may provide a stage to a performing teacher: the talking head in an online lecture capture may not work in the same way as the dynamic (or front as Goffman (1990) put it) has changed. Both of these may be forms of performance, but they are not the only forms available to the teacher. Nor are the forms from the physical classroom and traditional representations of teaching the only ones that teachers should consider.

The metaphor of narrative is reminiscent of Goffman's (1990) one of performance, already mentioned in the section above: The Virtual Permeating the Real. In both cases, there is a recognition that an individual's activity—whether teacher or student—is part of a socialised and idealised way of interacting within a particular context, drawing on the skills of the performer in exemplifying a set of accepted values. Alger draws on three of our key themes here (reality, teachers, performance) when he says: "The real *teachers* in our world are the people that provide authentic examples of human ingenuity" (Alger, 2002, p. 121, emphasis in original).

Both Caine and Caine (1994) and Selwyn (2011) refer to orchestration as a mix of artistic judgement and practical or scientific skill. These are mirrored in what Alger (2002) refers to as creative and critical vitality—thinking styles and events. Events and performances will be formed from experiences, narratives, stories and dialogues; thinking styles will need critical and creative skills. We turn now to the qualities of teachers and how these might be augmented through digital technology and social networks.

In an earlier cited work, Macleod and Ross (2011) use the metaphors of jester, fool and trickster to explore how well their characteristics might fit with the ambiguous new roles of online tutors. These performance metaphors yielded useful

insights. Their conclusions also fit with the idea of orchestrating experience, and so we repeat them here:

> … our view is that online tutors should:
>
> – be willing to be the focus of critical attention, and to make themselves impossible to ignore in noisy online spaces;
> – support students to question and challenge authority (theirs and others'), but be aware of their own positions of power in doing so;
> – model 'secure not-knowing' and enjoyment of ambiguity;
> – find ways to provide a felt presence;
> – allow students to untangle complexity for themselves, in their own context;
> – be playful and use humour without making students a target (Macleod and Ross (2011, p. 25).

Interestingly, this parallel between jester and academic has also been noted by one of the editors of the current volume who has used it to good effect to explore the role of academics and the nature of the academic community in a networked society (Jandrić, 2013). We take great delight in such synchronicities. Another such is that the bulleted list above seems to fit a description of Deleuze's classroom-based teaching style! (Bogue, 2013)

Conclusion

The view that an online course is an inferior version of a real one should cause us to look not only at what is necessary to ensure the success of online courses, but also at what we think teaching and learning are about anyway. For us, the process of making teaching (the familiar) strange (Kaomea, 2003) has reinforced the social and dialogical nature of teaching. It has also brought out the constant interplay of the virtual and the actual in education as in other aspects of our lives—and problems associated with the pervasive binary of virtual and real. We have indicated that we prefer the term "networked learning" over those that privilege learning as information-gathering and teaching as information-dissemination, but we also want to ensure that use of this expression does not undermine the idea of teaching. We have argued that it is useful to support a more philosophical understanding of the virtual in relation to teaching, particularly to bring out the role of the teacher a creator of experiences and source of relevant signs in a complex world.

Although the moves towards encouraging students to persist, explore and interact with the material do not mean the end of the teacher, their parallel development with online and networked opportunities for learning has been fortuitous. We have seen technology being used as a Trojan horse to bring in more innovative, and student-led forms of educational engagement. Thus an initial emphasis on *information technology* eventually cedes to one on *communication technology*, and the main loss is of a now-discredited instructionist model of education. There is a frequently used saying, variously attributed: 'Anyone who can be replaced by a computer deserves to be'. We are making the case here that good teachers do not come into this category; elements of their practice might, however, which could possibly (ideally) even

free up some time to attend to how they might use technology for effective teaching especially in a dialogical sense. Those teachers who feel that what they do could all be done by a computer should be supported in going beyond this position and reviewing what being a teacher really means.

Dialogues with students ideally will allow them to be in control of their own learning but with teachers still supporting them in becoming part of an affinity group, engaged in appropriate narratives and exposed to relevant experiences. The roles of teachers and students have sometimes blurred during our analysis, and of course we have ourselves brought both these perspectives to the study. We are still forming our own narratives in a rapidly changing world, sometimes simultaneously with our students. We conclude that though we want to emphasise the teacher's role in digital environments, it may be appropriate to think about students as junior colleagues in inquiry (if they are willing to espouse this role; some may not be, though we think we should encourage it). Online teachers are not involved in unreal or inferior practices: we are doing complex communicative work in networked teaching and learning.

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Chapter 6
Virtuality and Fostering Critical Design Thinking: An Exploration of the Possibilities Through Critical Theory, Design Practices and Networked Learning

Caroline Newton and Burak Pak

Arguably the twenty-first century is characterised by a myriad of challenges and a rapid pace of change and troublesome conditions, such as the environment, the global economic crisis and numerous conflicts of all sorts. It is within this context that our plea for increased critical thinking and critical design is situated. Projects such as *the Bird's Nest* in Beijing or *the Olympic Village* in London have all been extensively covered by both mainstream and specialised architectural press. In all these projects, the spotlight of attention has been on the design and the designer. The 'Starchitects', a term used to refer to world-famous architects who have achieved a sort of celebrity or an idol status, are at the centre of the attention. The choice of cities and developers to create iconic buildings, designed by these celebrity architects, can be understood as ways to create more profit or to become global cities. The context of the design and the neighbourhoods around these and the daily life experience of the people these projects are interfering with seem of lesser importance.

Unfortunately, this imbalance between the attention for the design product and its designer on the one hand and the intended or the future audience on the other is also present in the design studio pedagogy as it is being employed in most schools of architecture. This imbalance truly conflicts with the initial conceptualisation and theorised possibilities of studio-based learning approaches (Schön, 1987). In parallel to these developments, the technological evolution of the last decades not only

C. Newton (✉)
The Bartlett Development Planning Unit, UCL, London, UK
e-mail: caroline.newton@mac.com

B. Pak
Faculty of Architecture, KU Leuven, Leuven, Belgium
e-mail: burak.pak@gmail.com

enabled projects with complex structures such as the Bird's nest or location-aware installations such as the Toyo Ito's *Tower Winds* in Tokyo, but have also led to the creation of virtual realms in which online networked learning communities (NLC) (De Laat, 2006, p. 86) open new opportunities to reinvigorate the social tasks of the architect during the educational trajectory.

In this contribution we connect the social turn in architecture practice and education with the innovative possibilities that emerge from the integration of networked learning in design education. We work through three interactive arguments:

- Critical thinking and a critical attitude are essential for the creation of innovative ideas, concepts or solutions that go beyond the current conditions and problems grounded in the existing conventions of society.
- Critical thinking should be an essential part of the architectural design practice, education and most importantly the design studio as its central element.
- Networked learning (Goodyear, Banks, Hodgson, & McConnell, 2004) has a strong potential to foster critical thinking in the architectural design studio because it can facilitate the redefinition of the existing traditions in previously unimagined ways.

The usefulness and importance of critical thinking has been the topic of debate for educators, psychologists, philosophers and social theorists (Dewey, 1933; Mezirow, 1981; Smith, 2011, Steier, 1991; Wilson, 2002). Critical thinking is usually understood as a reflective investigation in one's own thinking and related behaviour. Through the examination of one's own thoughts, it is possible to learn who we are and how the beliefs we hold and the worldview we have influence our thinking and action. Critical thinking allows us to become aware of our positionality (Foucault, 1982; Giddens, 1976, for example see Schuermans & Newton, 2012).

Demonstrating the importance of the critical design thinking approach, we aim at investigating the current practice of architectural education. We position and question its own reasoning, and illustrate an alternative way to approach architectural practices, education, as well as the relation of these practices to information and communication technologies (ICT).

In this context, we start with an analysis of the current situation of architecture as a profession in close relation with architectural education and the design studio as its central element. In what follows we first elaborate on the notion of critical thinking and situate it with the notions of critical design and critical architecture within the broader frame of critical theory. Then we stress the importance of integrating critical thinking in architectural education and practice. Examining the existing situation, we critically approach the problems associated with the architectural design practices.

Next, we address the social turn in architecture; as this shift enforces the need for a critical approach to architecture and a networked learning pedagogy that allows students to incorporate the necessary skills of collaboration and critical thinking. We deconstruct the current configuration and operational modes of the design studio in

architectural education, and relate these to a discussion on the role of students and practising architects as users. Furthermore, we introduce a typology of virtual realms to explore their significance for integrating critical (design) thinking in architectural education. In the final section, we derive conclusions and draw future prospects for the integration of a social attitude as a product of our critical standpoint.

Critical Thinking and Critical Design in Context

Critical thinking as employed in this chapter is rooted in Neo-Marxist ideology interpreted within the tradition of critical theory through the contributions of the Frankfurt school and its translation in the disciplines of planning and design by Peter Marcuse (2009). As Brenner (2009) clearly explains, critical theory is reflexive, it explicitly engages with normative questions and thus rejects an instrumental use of scientific knowledge. Moreover, it 'emphasizes the disjuncture between the actual and the possible' (Brenner, 2009, p. 203) and seeks to 'liberate human beings from the circumstances that enslave them' (Horkheimer, 1982, p. 244).

From the definitions above, it is clear that critique and critical theory are about politics. In this sense, thinking critically and by extension designing critically is about being political and engaged. Both in critical thinking and critical design we have to be conscious about the context in which we operate, as it also influences our thinking and designing. In this sense, critical thinking is essential for design because it reveals how subjectivity and alternative forms of knowledge manifest themselves in a specific social and historical context (Brenner, 2009). A critical design approach is grounded in the knowledge that design is never neutral: it is shaped and formed by the society and the system it was developed in. Therefore, designing architecture, and especially public spaces, is naturally 'a form of politics' (Eisenman, 2012).

In the current capitalist society, it can be argued that design enforces values of capitalism (Dunne, 1999; Dunne & Raby, 2001; Melles & Feast, 2013). The same can be claimed for architectural artefacts. The Modernist designs of Le Corbusier such as Plan Obus for Algiers and many other works of his followers are true examples that support these statements (Jencks, 1987, p. 12). Although the Modernist movement argued that they pushed forward a new and better society, they develop the ideas that came from the minds of a few 'enlightened' thinkers-architects. What they showed in the end is a tomorrow for a small elite, designed from within that worldview. The Modernist city of the future is therefore not a social paradise based on equality. Instead, it enforces the existing social power relations and the capitalist tendencies (Bloch, 1995).

Today we see that architecture and urban design increasingly strengthen consumerism and segregation. Madanipour (2010, p. 2) explains that 'the development and use of public spaces mirror the way a society is organized, shaped by unequal distribution of power and resources'. The proliferation of shopping malls and gated

communities illustrates his point. In contrast, in a handful of locations, counter urban design approaches are slowly emerging and grabbing the attention of alternative media. Preliminary examples of these small-scale interventions are *Guerrilla gardening* (in London) and *Pavement-to-parks* (various locations in the USA) which fall into the 'tactical urbanism' movement. It is possible to draw parallels between critical design and tactical urbanism, but different than the latter, critical design specifically aims to imagine alternative possibilities for the current state of affairs through a continuous interaction of reflection and action (Melles & Feast, 2013). Therefore, critical design involves the constant questioning of politics and dominant (capitalist) values.

Dunne and Raby explain that in order to get a better understanding of a preferable world it is necessary 'to move beyond designing for the way things are now and begin to design for how things could be, imagining alternative possibilities and different ways of being, and giving tangible form to new values and priorities' (2011, p. 131). They suggest designers to work together in a dialogue with people in the fields of ethics, philosophy, political science, life sciences and biology. This kind of collaboration requires the development of an attitude of dialogue which needs to be nurtured during the education of the architectural designers. Consequently, architects can avoid playing the safe role of 'administrators' solely answering the demands of the clients controlling the capital.

Contemporary architectural design practices require effective participation and mutual learning. Especially in large-scale projects, it is becoming quintessential to enable innovative forms of learning through which a high number of inhabitants can critically construct knowledge and share their problems, needs, future goals as well as novel ideas.

The above implies that architectural education, at present, needs to be put under scrutiny, and the design studio as its core should be deconstructed. We need an approach in which norms and values are integrated and which embeds a more social attitude into the educational trajectory, assisted by technological innovations and networked learning pedagogies. In this sense, the integration of various social and geographic learning platforms and virtual environments can potentially enable new constructivist learning modes; particularly in socio-spatially situated and media-rich learning contexts. In a nutshell, these environments are 'computer-generated, persistent spaces in which users co-exist as avatars exploring, building, interacting and communicating' (Koutsabasis, Vosinakis, Malisova, & Paparounas, 2012, p. 1).

In the context of architectural design learning, we think of these in an inclusive manner. Possible examples include *Second Life* and *OpenSim*, as well as the multi-user virtual globes such as *Google Earth*, augmented reality environments such as *Wikitude* and web-based hybrid geographic platforms (Pak & Newton, 2015). When combined with novel learning strategies through a *networked learning* approach, these technologies can promote and augment rigorous discussion and informed consensus on actions and design problems (Schnabel & Ham, 2011).

This approach described refers to an 'educational context in which ICT are used to promote collaborative and cooperative connections—between one learner and other learners; between learners and teachers; between a learning community and its learning resources—so that participants can extend and develop their understanding

and capabilities in ways that are important to them, and over which they have significant control' (Banks, Goodyear, Hodgson, & McConnell, 2003, p. 1). Through the use of networked learning approach, it is possible to enhance our powers of observation, create richer and authentic learning experiences in which the learners collaborate in creating new knowledge and extend their own understandings (Lloyd, 2010). On the other hand there is a need for more attention to criticality in the networked learning practices (Mann, 2004, p. 216).

The Social Turn and Architectural Design

The proliferation of information and communication technologies in the last decades has enabled architects and designers to design in a radically new way and provided the technical solutions and material innovations to realise designs that were unthinkable before (Jencks, 2011). The products of these designs (e.g. buildings) are getting more intelligent, meaning they are able to respond and adapt themselves to their immediate physical surroundings (e.g. temperature, lights).

For instance, the *Weather Tower Project* in Brussels can forecast the daily weather and 4,200 windows on the building can individually be lighted by RGB-led bars depending on the temperature and wind changes (LAb[au], n.d.). Such architectural designs are praised because they are supposedly answering the complexities of our current societies. We argue that this is a narrow approach. The technological advancements do not necessarily enable the designers to take the lived realities of our contemporary postmodern and globalised societies into account.

First of all, cities are more than spaces of pure physical composition. Undoubtedly, the built environment reflects the strong intertwinement of space and people. As Lefebvre (1991, p. 26) explains, '(social) space is a (social) product' and 'the space thus produced also serves as a tool of thought and of action […] in addition to being a means of production it is also a means of control, and hence of domination, of power'. The role of architects and (urban) designers in interfering in this built-up space can thus hardly be underestimated. It is important to recognise that designers have a societal obligation (Newton, 2013). As Bernard Tschumi explains: 'Architects act as mediators between authoritarian power, or capitalist power, and some sort of humanistic aspiration. The economic and political powers that make our cities and our architecture are enormous' (Tschumi quoted in Fraser, 2005, p. 318).

Second, we observe a 'social turn' in architecture. More and more in increasingly, architects and designers start to get interested in housing for the underprivileged in our societies, often in exotic places. This call of the informal has been attracting an increasing number of professionals, academics, and designers. Unfortunately in some cases, the attraction is based on the interest in the aesthetics and innovative designs, as is illustrated in the *MoMA* exhibition on *Small Scale*, *Big Change*, which showcased *New Architectures of Social Engagement* (Lepik, 2010).

In other cases, an idealisation of the exotic leads to an aesthetic fetishisation of projects such as the Elemental's *Quinta Monroy Housing Project*, in which the

residents fill in the provided structure based on their possibilities (Newton, 2013). Newton (2013, p. 131) argues that 'when urban designers and architects get interested in informal urbanism it should be for more than the mere "aesthetics"'. The lived realities of the people who are influenced by these projects have to be more than a playground for the architects. It is insufficient to claim complexity and intelligent user-centred design just because the building looks complex or because it offers several solutions within one building.

Problems with the Architectural Design Practices and Education

Building on a long tradition of critical theory, and more specifically on Foucault (1980) and Deleuze and Guattari (2004), we acknowledge that every act we undertake as architects not only directly influences people's living environments, but also shapes or confirms societal/political discourses. Therefore architects and designers can no longer take the position as objective administrators, despite the difficulties this brings (see also Davidson, 1995; Fraser, 2005). Relating Furedi's (2006) claim that 'being an intellectual requires social engagement' with Gramsci's (1992) conceptualisation of an intellectual we want to stress that the same moral and social engagement should be taken by architects. This need has to be addressed during the educational process of the student-architect.

It was Schön (1983) who called for an 'epistemology of practice implicit in the artistic, intuitive processes which some practitioners do bring to situations of uncertainty, instability, uniqueness, and value conflict', he referred to this as 'reflective practice'. In the following years this strand of reasoning was further developed by people such as Cross, Christiaans, and Dorst (1996), Akin (1997) and others leading to the belief that just as the sciences have their own underlying forms of knowledge, so has design. As such design has its own ways of knowledge production, thinking and acting (Cross, 2001).

A 'designerly way of knowing' (Cross et al., 1996) is able to reinterpret existing problems, or more broadly questions, and to develop solutions that have been unthought-of before. A designerly way of knowledge production does offer possibilities to go beyond the hegemonic university discourse based on strict science (Newton & Boie, 2011). Lacan (2006) has argued that dominant thoughts and principles in a society are unlikely to be contested by the apparent 'neutral' knowledge produced at the university. In contrast to this architects and artists have historically been important actors in the development of (creative) innovations (De Graeve, 2010). We argue that today this creative and innovative practice is more than ever needed. The hegemonic position of the so-called *scientific* knowledge, supporting dominant beliefs needs to be contested and our humanistic heritage needs to be rediscovered.

In order to achieve this aim, architects need to develop ideas, concepts and solutions that are grounded in the current conditions described by Bloch (1995 (1938–1947),

p. 13): 'Every solid daydream intends this double ground as homeland; it is the still unfound, the experienced Not-Yet-Experience in every experience that has previously become'. Thus the education of future architects needs to foster this utopian attitude, and proposed design alternatives need to go beyond the current condition. A 'Utopian attitude' (not to be understood in the modernist's sense, but Utopian as Bloch (1995, p. 13) understood it) will be a crucial part of the formation of urban planners and architects. We argue that, as architects, we need to critically think about our current society and envisage a future—more inclusive and equal one. Inclusiveness requires valuing other human beings and the importance of equality, and equality is understood when the importance of collective responsibility and action is obvious (Machel, 2010; Newton & Boie, 2011).

Reflections of Architectural Practices on the Architectural Design Education

When we reflect the issues above on architectural design education and build further on Cross's (2006, pp. 4–5) reading of Peters (1965), we can deduce three principle criteria:

1. The transferred knowledge should be worthwhile.
2. The way people are educated is as important as the knowledge being worthwhile (not imposing, deliberative learning).
3. Mere knowledge is not enough: understanding and positioning one's knowledge in relation to other things is imperative.

Consequently, future architectural and urban design professionals need to be able to develop a socio-spatial cognition; a knowledge and understanding of the socio-spatial intertwinement. To achieve a true understanding and be able to think critically about the material and ideas that are being presented throughout the education trajectory, mere listening to the teacher will not suffice. Argyris and Schön (1978, p. 3) called this 'double loop learning'. This type of reflective learning takes place when practitioners critically question the underlying norms, policies and objectives of an organisation with the purpose of further improvement.

Parallel to Schön, Mezirow (1997) speaks about the need for transformative learning. Transformative learning aims to help the students to re-examine their understanding of the world and revise their belief systems and behaviour (Clark & Wilson, 1991; Mezirow, 1997). He goes on to argue that merely providing new information is not enough. The information needs to be incorporated by the students in their own frames of reference, this requires an active process of critical (self-)reflection. The kind of education that fosters this needs to be 'learner-centered, participatory, and interactive, and it involves group deliberation and group problem solving' (Mezirow, 1981, p. 10).

Another important aspect to consider is that education is more than mere training and 'knowing that' (Cross, 2006, p. 5). It is about positioning oneself as an engaged

building and urban design professional. There is a need for more than merely a curriculum that is solely based on knowledge transfer. We need to stimulate students to think of their own position within the professional field they will enter, and within the world at large.

Such practices require developing ideas, concepts and solutions that reach beyond the current conditions and problems. Thus, we stress that the Utopian attitude, as understood by Bloch (1995, p. 13)) should be a crucial part of the formation of architects (Newton & Boie, 2011). Integration of novel virtual environments and worlds into the architectural and urban design education provides potentials for redefinition and improvement of power relations as well as promoting interdisciplinary networked learning and participation of students, tutors and other stakeholders.

Problems with the Architectural Design Studio Practices: Do We Need a Reanimator?

During the course of the twentieth century the design studio has become the heart of architectural and urban design education. This pedagogical model has its roots in the studio-based training at the *Ecole des Beaux-Arts* in Paris during the nineteenth century, whereby the several aspects of the design discipline are brought together (Kuhn, 2001, p. 349). Structural design, technical aspects and the social implications of a design were all taken into account during the design process. From its conception in the nineteenth century, the design studio offered the possibility to work in a holistic manner on questions and challenges that were being presented to the students.

Thus, studio-based learning holds the promise of realising an educational model in which not merely knowledge is being transferred but one that allows the learners to educate and emancipate themselves. These ideas are underpinned by the humanistic and critical theoretical insights provided by Rancière (1991) and Freire (1970). Both thinkers stress that education is much more than a mere transfer of knowledge from the teacher to the student—instead, it is about enabling the students to educate themselves. In the words of Freire, 'what the educator does in teaching is to make it possible for the students to become themselves' (Horton & Freire, 1990, p. 181), and Rancière (1991, p. 15), 'one can teach what one doesn't know if the student is emancipated, that is to say, if he is obliged to use his own intelligence'. Boyer and Mitgang describe studio-based learning as:

> reflective … design project centred … master craft-person supervised … group size varied (ranging from groups of 20 all the way down to pairs which move freely and change sizes frequently at the learners' will to learn) … discussion intense … individual project driven … highly integrated across multiple knowledge elements of the profession being practiced … Studio-based … and fostering of the learning habits needed for the discovery, integration, application, and sharing of knowledge over a lifetime (1996, pp. xv–xvi).

This can be an answer to Schön's definition of the (architectural education) studio as a 'reflective practicum in designing' (Schön, 1987, p. 4), whereby students

learn not merely by accumulating knowledge but through an ongoing process of 'trial-and-error' (Wang, 2010, p. 175). Thus, it is assumed that the students are being educated in a 'conversation-like' process between the students and the educator who is managing the studio. Valkenburg (2001) and Wang (2010) stress that collaboration, rapid communication and the broad societal relevance are the characteristics of the design studio approach. Schön's (1983) 'reflection-on-action' can be realised in an environment that stimulates dialogue and debate, as in networked learning settings both learners and tutors are on a same level and are able to discuss issues and dilemmas that arise during the studio.

From the above, we argue that a studio-based learning approach holds numerous opportunities to educate future architects in a critical fashion. At the start of design studio exercise, that can run over different weeks, the students get a (design) task or question. In order to develop (design) strategies, students not only research the matter at hand, they also simultaneously start designing and experimenting. In order to do so, students collect information from a large number of disciplines or areas of interest and process these in a nonstructural way.

Possible alternatives or answers to the challenges presented are discussed with both peers and instructors and in an iterative way the student works towards the presentation of the more 'satisficing' answer (Simon, 1969, p. 29). Learning happens in a networked manner, through conversations, collaboration and dialogue. While in the past, these interactions happened in 'real-life', during the studio hours, today we have the opportunities to extend this way of learning in the virtual realms. Students are encouraged to critically engage with their subjects of study and to leave the beaten tracks in search of alternative possibilities.

Criticism of the Architectural Design Studio

While above we sketch the positive possibilities of a studio-based approach, we must also acknowledge that over the years a problematic 'culture' has developed in both architectural education and practice. When reflecting back on his educational trajectory Mark Howland (1985) explains that:

> The long hours of work in a common studio space forged us into a close knit group of men and women who were marked by our dedication, endurance and talent. We shared the excitement of learning to see the world in a new way, of learning to distinguish between well and poorly designed glasses while our friends were drinking coffee unaware from Styrofoam cups. We were the imaginative professionals with certified taste.... What the architectural tradition and our mentors suggested and what we students were teaching each other was that boring and conventional people produced boring and conventional designs. We encouraged eccentric dress, hyperbolic speech and unconventional behaviour.

It is not difficult to see that one of the implications of this sort of pedagogy is the fostering of an elitist attitude. The Architect, as an enlightened being, should be able to educate the ordinary citizens in the society. Le Corbusier, the most prominent modernist architect of the twentieth century, was influential in this thinking embodying

a Neo-Platonist position. He was convinced that the universal ideas and pure forms (of harmony) exist outside of our daily reality and that only the educated and enlightened beings (such as architects) were able to know these ideal forms and ideas. Bringing the 'normal people' in contact with the pure and perfect geometries would enlighten them. Authoritarian tendencies develop easily, and certain architects were convinced that this enlightenment, assumingly for the 'people's good', should happen even 'against the people' if necessary (Jencks, 1987, p. 12).

So, although we acknowledge that studio-based learning holds the promise of being able to answer the aforementioned needs regarding the education of the architect in our contemporary and complex society, we also see that in practice this design studio approach contains shortcomings that have effect far beyond mere pedagogy (Koch, Schwennsen, Dutton, & Smith, 2002; Webster, 2006). There are a number of myths that are present within most schools and design studios.

A first point was revealed by a study of the *American Institute of Architecture Students* looking at the 'studio culture' in 125 schools in the USA. The research showed that the focus of the studio is still primarily on the final product rather than on the process. Disregarding the process of design also implies that no real attention is paid to the reality in which a design will be situated. Issues of participation or taking into consideration the concerns of future users are disregarded (Koch et al., 2002).

Webster (2006) brings a second important observation to the fore, that studio-based learning in architectural education is still poisoned by an overemphasis on the teacher. Consequently, it hampers a real constructivist education in which both the student and the teacher are on equal foot during the design project/process (based on Rancière's concept of the 'Ignorant Schoolmaster') (see also Newton & Boie, 2011).

Third, the current emphasis on the design product, together with the emphasis on moments of critique, where students are being evaluated, makes that students work towards a final presentation in front of a jury of 'experts' or 'masters'. These one-off occasions are not only harmful for a healthy student life (e.g. nightlong working, high levels of stress …) (Koch et al., 2002). They also create a 'skewed' power hierarchy in which students have to justify their work and thoughts to the teacher (and the experts), often in a spatial setting that is only reinforcing this hierarchical relation and often accompanied with a discourse in which the experts show their expertise while at the same time question that of the student (Webster, 2006). We can hardly argue that this way of learning is still 'a reflective conversation with the materials of the situation' (Schön, 1987, p. 4). This approach, whereby the educator presents himself as an authority or expert, rather than a facilitator or provocateur, doesn't stimulate transformative learning (Mezirow, 1997, p. 11).

All this leads to a behaviour that is unhealthy and neither in line with how Schön's envisaged architectural education nor with the set-up of a studio-based learning approach or the ethos of networked learning. On the contrary, this form of education contributes to the development of a type of architects who consider themselves as being experts, being masters in architecture. The Architect has the knowledge and the understanding of making design decisions that are both based on rational reasoning and artistic/aesthetic understanding. The interrelation of these two sides—the architect as expert and the architect as artist—helps to strengthen the

architect's status as the 'artist—genius', on which 'the architectural culture to the outside world' (Till, 2009, p. 60) strongly builds.

Till (2009, p. 178) is concerned about the role architects should take on, and, building on a large body of literature, develops very strong arguments that 'architecture depends'. The over-focus of architects on the final product and its aesthetics has skewed the overall understanding of the social role of architecture. And although we acknowledge that the role of architects and the role of architecture cannot be conflated we agree with Till, who argues that 'the key ethical responsibility of the architect lies not in the refinement of the object as static visual product, but as contributor to the creation of empowering spatial, and hence social, relationships in the name of other' (ibid). In this context, architects do not require only theoretical or the practical knowledge, but also need to understand their responsibilities within the context of its deployment (see Newton & Boie, 2011; Shotter, 1993; Till, 2009, p. 166).

Potentials of Virtual Environments for Fostering Critical Design Thinking

The evolution sketched in the former sections illustrates that the emphasis of the educational practices has shifted from the designed object (from an artefact, to a building, to an urban setting) to the architect-designer. This is problematic in several regards. We still believe that the architect has a role to play in the society, rather than being means to an end. It would be too easy to hide behind the excuses of answering the call of the client, or working within a utilitarian framework which only looks at economic viability and cost minimisation (and thus profit maximisation).

In order to understand how architecture and education could be reanimated, we first look into the current role of the architect within a climate of ongoing neo-liberalisation. Table 6.1 compares several domains of contemporary architecture and highlights tensions between educational trajectory which enforce the stereotype of the architect as artist and autonomous thinker, and the daily reality of the architects as 'innocent professionals' who answer the needs of their clients.

In contrast to software engineers or managers, whose work is generally evaluated by anonymous users, clients and customers, the architect is faced with the verdict of expert panels of peers.

The first three columns in Table 6.1 illustrate the limited perspectives of the main target audience (architects), producers, and marketers of the virtual environments. In this sense it is clear that an alternative approach is required. Extending and overriding the above interpretations (Table 6.1, column 4), we reframe and suggest utilising virtual environments as catalysers for the redefinition of the architectural practice and education. In this way, networked learning can foster critical thinking and strengthen the role of the practitioners and students as socially engaged intellectuals as described in the former sections. In what follows we will present some alternative approaches that encourage students to think of their own position within the professional field. We will show how virtual environments can foster critical thinking and innovative thinking. First, we will present the typologies of virtual environments and how we see these at work in architectural education.

Table 6.1 Professional domains and the architecture professional

	Professional architecture view	Technology-oriented view	Marketing-/business-oriented	Critical architectural education
Participants	Client–architect	User–designer	Customer–entrepreneur	Critical learners
Outcomes	Built environment (building, square, street …)	Software	Value proposition	Creation of empowering spatial and social relationships
Power distribution	Maintain and enhance power distribution	Observation, improvement and better facilitation	Observation and profit maximising action	Reconfiguring the power distribution
Virtual Environment for …	Visualisation and promotion of the project	Improving performance and efficiency	Competition	Critical learning and critical design networked learning
Education	Architect as artist	Knowledge and rationality	Financial knowledge/ markets/ organisation and leadership	Transformative learning
	Autonomous designer			
	Vitruvius's 3 virtues: solidity, usefulness and beauty (*firmitas*, *utilitas*, *venustas*)			Redefinition, participation and mutual learning
				Interdisciplinary dialogue
				Enabling context-consciousness
				Creating richer and authentic learning experiences
Evaluation	Crit panels of experts (architect practitioners)	User panels	'Market system'	Integrated/expanded jury: NGOs, representatives of the users, practitioners, teachers and peers

Virtual Platform Typologies and Their Networked Learning Potentials

Virtual realms have a potential to extensively redefine the existing realities and relationships between clients, architects, and experts from other disciplines or the relationships between teachers and students in architectural education. In this context, virtual environments and integrated Web 2.0 platforms can be seen as potential media for activating new types of educational approaches which cover novel research methods, theoretical knowledge from a broad range of disciplines, and facilitate collaborative knowledge construction in a network-based manner (McLoughlin & Lee, 2011) (Fig. 6.1).
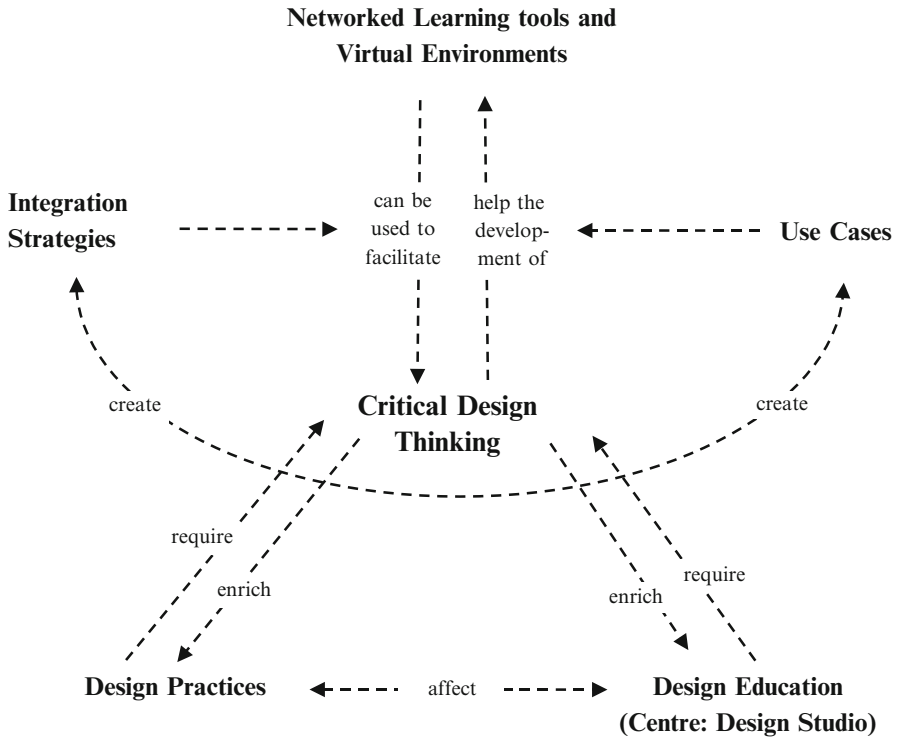
Fig. 6.1 A concept map revealing the addressed topics structured around the critical design thinking: design practices, design education, use cases, strategies and virtual tools/environments

As virtual environments are designed and developed by people, their properties can be set to reach specific aims. For instance, a virtual environment can focus on the stimulation of out-of-the box design thinking by introducing the absence of gravity or it can focus on stimulating debate and discussion between the different parties involved, thus focusing to certain communication modules. Some of these realms are specifically designed for certain aims and allow a certain degree of freedom for their use without degenerating into a 'tyranny of freedom' (Schwartz, 2000, p. 85).

In order to clarify the differences between these worlds, we mapped a wide array of possible virtual environments (Fig. 6.2) and explored their significance for architectural education (Pak & Verbeke, 2012). Considering the variety of virtual environments and the fact that architectural education should be contextually embedded, we organised our typological effort on two axes to differentiate the relations between the environment and the content. The horizontal axis of analysis involves the evaluation of the environment of the virtual platforms based on Milgram, Takemura, Utsumi, and Kishino's (1994) reality–virtuality continuum. This continuum starts with 'a strictly real-world environment clearly constrained by the laws of physics' and ends up with 'a virtual reality environment in which the participant observer is totally immersed in a completely synthetic world'. On the vertical axis, we address
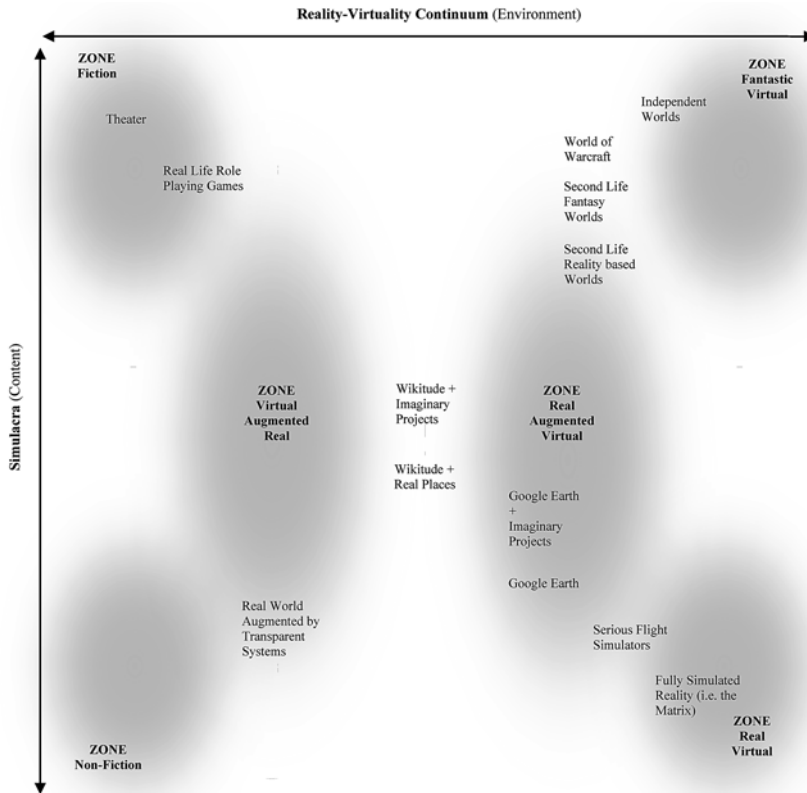
Fig. 6.2 Virtual platforms according to their contents and environments, including related concepts and 'zones'

the content that is being handled in these realms. With this purpose, we refer to the concept of the simulacrum, which goes back to Plato's ideas on image-making in his famous Sophist dialogues (Plato, Brann, Kalkavage, & Salem, 1996; Deleuze, 1983).

In the dialogues, Plato makes a distinction between the image that is a faithful reproduction (or as good as possible) of the original and the copy that is an intentional deformation of the original. Baudrillard's (1988, 1994) *simulacrum* takes this concept further and differentiates between four successive phases of representation of a reality.

In the first phase the image is a good reflection of the original; in the second phase the image masks and perverts the reality; in the third phase the image masks the absence of the basic reality; and in the fourth phase, the image becomes its own pure simulacrum. While the copy resembles the original, the simulacrum has a totally different end: it gets a life of its own. That is why Baudrillard's conceptualisation is relevant for typological analysis of virtual environments and their usefulness for critical networked learning.

In our diagram, the factual real is located at the bottom of vertical axis as it is a copy of the real that bears as much resemblance as possible. When we gradually move upwards, the content resembles the real world less and less. At the end of the axis are the unique virtual contents which are fundamentally different than the ones in the real world. These categories allow us to describe certain 'zones' in our diagram. These are: the real 'virtual', the virtual augmented real, the real augmented virtual and the 'fantastic' virtual.

The Real 'Virtual' Zone

When we speak of the 'real virtual' we refer to virtual environments that represent the real world, such as serious *Virtual Flight Simulator* games. It is clear that they are close representations of reality (and intend to be so); regarding the whole virtual environment, the architecture within it and the experience they try to evoke. The most extreme 'real virtual' is the fully simulated reality. It is a non-existent theoretical environment first introduced in Gibson's (1984) *Neuromancer* book as a virtual reality dataspace, which later inspired *the Matrix* movie by Wachowski Brothers (1999).

The Virtual Augmented Real Zone

This specific category refers to the use of ubiquitous augmented information systems connected to the real-world objects. Typical examples of the virtual augmented real are the pilot support systems which draw on information from integrated virtual environments, GPS data and pilot's line of sight measurement. Pilots experience the space as a predominantly real environment superposed with a virtual environment. Because of the technical complexity of these systems, architectural applications are so far limited to research projects. This category is closely related to the spaces which emerge as a combination of virtual environments and real structures. Bertuzzi and Zreik's (2011) mixed reality games for augmented cultural heritage can be considered in this zone.

The Real Augmented Virtual Zone

This type includes virtual environments where information from the real world is embedded into the virtual realm. Different than the virtual augmented real, majority of the spatial information is created and joined in a virtual system. *Kinect Sports* video game is a typical example of this typology. The majority of the game takes place in a multiplayer virtual environment and avatar behaviour(s) are augmented with real-life motion. Because of the relative affordability and mobility of their technical platforms, these types of applications have enormous potentials for urban design, user participation in planning and construction engineering waiting to be realised (Pak, Verbeke, & Ag-Ukrikul, 2011).

The 'Fantastic' Virtual Zone

Fantastic virtual environments are characterised as products of 'unrestrained imagination'. Massively multiplayer online role-playing games such as *World of Warcraft* or *Everquest* are examples of the fantastic virtual environments. Certain worlds that are created in the open simulator platforms can also be considered as fantastic, depending on the content and the configuration of the environments. At the first glance these types of games might look less useful in the field of architectural design education. However, by changing and reconfiguring the attributes and working principles of the virtual environments, it is possible to stimulate creativity and support collective thinking (Jakimowicz, 2002; Merrick & Ning, 2011; Rosenman, Merrick, Maher, & Marchant, 2006). For example, we can imagine and represent an environment in which people are not governed by the laws of gravity, which would allow the students to test their design strategies in this completely different setting. These kinds of educational practices can both be a liberating experience as well as a confrontation with traditional design thinking (Oosterhuis & Feireiss, 2007).

Non-virtual Fiction Zone

This zone includes a rich world of pre-electronic games (e.g. chasing games, boardgames …), plays and theatre which take place in the real world, occurring or existing in actuality. These can be claimed as the starting points and continuous sources of inspiration for many virtual games and worlds as well as architectural education (Sonmez & Erdem, 2009; Yurekli, 2003).

Non-fiction Zone

In our chart, the non-fiction zone relates to the 'actuality' and includes things that are considered to be factually accurate and non-imaginary.

Possibility of Mixed Zones

It is important to add that in many situations, the virtual environments can travel between the described zones and/or cover multiple zones.

Strategies for Fostering Critical Thinking in the Architectural Design Studio Using Virtual Environments

Moderation Without Autocracy

We have stressed above that the studio, as the heart of architectural education, is the 'reflective practicum in designing' (Schön, 1983, p. 4). We have also elaborated on some of the current shortcomings, and in this section we illustrate the possibility of

overcoming these shortcomings using virtual realms. Designing and working in virtual environments offers several possibilities regarding teaching and learning experiences. First, the design course does no longer need to be arranged in a physical place during certain hours (although we acknowledge that a physical meeting place every now and then will stay of major importance). Consequently, design as a process can be emphasised much more and the interaction between the teacher and the student can take on the form of an ongoing conversation as virtual realms offer the possibility of asynchronous communication and networked learning.

The designs of students can evolve based on discussions with tutors, and depending on the design of the realm, parallel development scenarios can be traced. Additionally, one can also benefit from interaction with the other participants in the realm, be it other tutors or students. A forum—which can take a myriad of representations in the realm—in which all ideas and comments come together can lead to a high level of interaction and unlock the possibility of crowd-sourcing as well as increasing mutual learning and co-creation. We might even envisage an independent virtual realm (see the 'fantastic virtual' typology in Fig. 6.2) in which the context for the design question has been constructed independently from real-world criteria. We can easily imagine a world in which no gravity exists, in which we can use a material with certain characteristics, and in which all the students, tutors and other participants can build/design their own projects. Participants can visit and experience each other's designs, perhaps add post-it comments, or maybe even manipulate the designs.

In such realms, it becomes clear that the importance is focused to process, communication techniques, teamwork and networked learning. Furthermore, a 'classical' design studio jury becomes very difficult, as the realms stimulate other ways of evaluation. They can stimulate the transition from the panopticon feeling of the design studio to a 'pantopicon' approach as defined by Novak:

> While the panopticon describes a condition that is one-to-many, the conditions brought about by the pantopicon are both many-to-many, and one-as-many-to-many. We have reached a stage where all synchronic and diachronic knowledge is equally accessible. Distance in space-time is collapsing, and everything and everyone can enjoy an unparalleled, if disincarnate, proximity (Novak, n.d.).

Thus, the student is no longer submitted to the skewed power relation to a design jury but uses networked technologies to engage in 'a reflective conversation with the materials of the situation' (Schön, 1983, p. 4). This approach comes closer to the reality of the profession where the architect is in a constant conversation with clients, builders and other stakeholders about ideas, concepts and beliefs. People are connected in networks and especially architects, in their daily practice are in a constant communication and relations with others.

Carvalho and Goodyear (2014, p. 10) argue that networked learning can be understood as a practice that predates the computer age, but that has been often used as a synonym for online learning. When in 1998 the term networked learning was used by Goodyear et al. in a clearly pedagogical manner, it pointed precisely at the importance of the promotion of connections between learners and learners and tutor. This promotion largely happens through new ICT developments and online platforms. As such we see renewed opportunities of reintroducing the strength of working together in design projects. Networked learning offers students the possibilities to focus more on the process of design projects rather than on a 'perfect end state'.

An end state that in reality will never be perfect, either because of the wishes and aspirations of the clients or because of 'random' coincidences out of your control (see as an illustration the work of the Belgian architect Lucien Kroll or the work of *Rural Studio* in the USA). The relation between networked learning and architectural practice is elaborated upon in the recent publication of Carvalho and Goodyear (2014, p. 17), where they point to some characteristics, typical of the architectural practice. They understand architecture as an indirect practice that has an effect on people through the built form. Architecture is further understood as neither arbitrary nor deterministic, it is multidisciplinary and flows across scales, from the broader context to the small detail. These characteristics again show how important debate and discussion is for the practice and thus these skills need to be developed during the educational trajectory.

Virtual environments can provide this opportunity for training. Virtual environments also offer the opportunity for clients with an extra medium to discuss and translate their desires and aspirations into formal creations. It is easy to imagine clients walking through virtually designed houses, experiencing different rooms and perhaps even changing things. For instance, we can imagine adding another window, enlarging the bedroom area, changing the colour of the tiles, bathroom, etc. This can be done asynchronously. Thus it becomes possible to question the more commonly assumed position of the architect as the one who holds the knowledge and wisdom and truly understands the world and its functioning. The Neo-Platonist idea of the architect as the 'philosopher-king' (Fishman, 1977) can be critically altered and architects should take on the role of critically engaged intellectuals, an attitude that also needs to be stimulated during the education.

Virtual environments can be considered novel because they enable 'learning as a social process' (Brown & Adler, 2008) by creation of rich content through discussion and reflection. Besides providing three dimensional experiences, virtual environments entail new strategies, tools and techniques that encourage and augment informed, creative and social interaction. Introducing virtual realms which allow students to deal with socio-spatial challenges, spaces in which their design is constantly being challenged by possible users, by other designers, etc. helps them to constantly re-examine their own ideas and positions. In close relation to constructivist theories, a virtual environment-integrated design studio (in contrast with the traditional design studio) promotes community building and social learning rather than one-to-one face-to-face communication.

An example of a web-based geographic virtual environment for the collaborative, open-source and location-based analysis in the urban design studio is located in KU Leuven Faculty of Architecture, Campus *Sint-Lucas Brussels* (Fig. 6.3). In this studio, we have used a prototype developed specifically for the representation and communication of alternative urban development projects (Pak et al., 2011). In this context, it relates to the real 'virtual' zone in our typology represented in Fig. 6.2.

During the eight-week long experimental study, the students were able to effectively use the environment during the analysis phase of the urban design studio and created an online inventory that covers five gigabytes of analysis findings, sketches, photos, maps, studio presentations and texts describing their experiences.

Fig. 6.3 Collaborative, open-source and location-based analysis in an urban design studio using a web-based geographic environment (Pak et al., 2011)

Fig. 6.3 (continued)

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- BROWSE UPLOADED
- HELP PAGE

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- What links here
- Related changes
- Special pages
- Printable version
- Permanent link
- Browse properties

ANNOUNCEMENTS
- Final critique for the current uAD studio

11 January 2011 / 09.00-18.00 @ ROOM T20

Lxia de Béthune, Chotima Ag-ukrikul, Aurelie de Smet, Burak Pak, Kris W. B. Scheerlinck

- Studio Work Publication

We are preparing for the publication of /v/our studio work. We would like all teams to edit their own work

making your posters for publications on:

title=Publication

You should hand in these 2 sets of poster during Tuesday 7 Dec 2010 studio time (in a CD or in a USB stick).

PAST EVENTS

Temporary Installations in the Canal Zone Brussels

OBJECTIVES

Reading the Environment: critically searches different techniques of mapping to explore the new urban conditions. The aim of this design studio is to explore and experience the city through the lens of architects/designers. We are challenging how to turn designerly ways of seeing & reading into actions that reflect & express the findings.

INTERVENTION ZONES

Map | Terrain | Satellite

Bruxelles-Vill Brussel

Anderlecht

INTRODUCTION

The borders of the Brussels canal in Anderlecht are fragile surroundings since the nineteen-century industry transformed into a marginal activities like second hand car trade. The area is confronted with a lot of problems as high unemployment, poor population, insecurity and numerous wastelands. In recent years interest grew for the waterfront sites. These sites offer experiences and vistas of the canal and are extremely close to the city centre. Real estate developers have started to update the existing spaces, hoping to attract new inhabitants. But above all it seems essential to search how to create a quality and meaningful environment, in

Fig. 6.3 (continued)

Fig. 6.3 (continued)

The proposed prototype provided opportunities for the transfer of the rich knowledge produced within the framework of a design studio to future studios, thus establishing a basis for the sustainable development of education and design ideas. The design studio coordinators were also assured that the body of knowledge represented in the virtual environment can potentially inspire their future students, and therefore we decided to use this environment as a major resource for future design studios.

We learned from this study that creating transparent and open studios can enhance the communication in architecture design education. The virtual environment that we tested in the proposed design studio context performed as a sustainable information platform for collecting and disseminating students' design information and motivated them to collaborate. We were also able to use the environment for following the progress of student works online on a regular basis, especially during the reflection process which took place in the design studio.

Virtual Environments as a Sustainable Mirror Media for Increasing the Quality of Life in Real Worlds

'Real' virtual environments can be considered as mirror spaces of real cities which facilitate participation of different disciplines—and most importantly—lay people in the development of new architectural and urban design projects. In this sense, virtual environments can contribute to the improvement of the built environment and the quality in real worlds.

It is clear that today people are increasingly involved within the public domain (in its broadest sense) and are increasingly voicing their own ideas and concerns regarding larger public projects. Nowadays, people are even able to stop large infrastructure projects. Consequently we want to argue that participation processes can benefit from a good integration with virtual environment possibilities. The work of Pak (2009, 2011) is exemplary as it shows that the use of virtual environments can stimulate participation processes and stimulate citizens to out their concerns regarding relevant issues.

Student architects could (and should) engage in such practices in the early phases of education. In this context, architectural schools can embrace the use of virtual environments by collecting student works and projects in sustainable and accessible virtual environments. For instance, student projects can be shared and experienced online with students, practising architects, experts and lay people to create live and interactive debates on increasing the quality of life in real environments. These kinds of practices can also help architectural schools to establish closer relations with society as well as facilitate the development of novel ways of creating a more participatory approach in architectural design. Specifically, the integration of experts from other disciplines can promote inter- and transdisciplinary knowledge transfer in an out-of-the-architectural-design field. This conversational approach will prove to be of importance when entering the professional field of architecture,

Fig. 6.4 Outline of the web-based geographic environment for communication, analysis and deliberation of alternative urban development projects (Pak et al., 2011)

as the architect discusses ideas, beliefs and concepts with his or her client and other experts involved in the construction and design process.

Unfortunately, the development of participatory and sustainable mirror-virtual platforms is still in progress and implementation of such environments requires high levels of expertise. Virtual platforms such as *Second Life* are not entirely suitable for these kinds of use cases. First, they are not designed to integrate real-life data from geographical information systems in real time; a feature necessary for providing contextual information that is essential for the evaluation of urban projects by the lay people and experts. Second, the objects cannot be assigned timestamps that can be controlled by the users in an interactive manner (also the length of animation is limited to 30s) which limits the ability of the world to represent multiple phases of a single project. Furthermore, mirror-virtual environments for public participation should be able to handle multiple forms of communication, synchronous, asynchronous and most importantly attached to certain feature(s) of a project in a location-based manner. In this context, it is evident that further research is necessary for the activation of these kinds of integrative environments.

At this point we would like to present the virtual environment model outline (Fig. 6.4) that is created as a preliminary effort to create an alternative platform for the communication, analysis and deliberation of alternative urban development projects prepared for the Brussels Capital Region (Pak et al., 2011). This platform was developed with the contributions of *Agency for Territorial Development* and *Brussels Environment Organization* and is planned to be implemented and tested for the European quarter in Brussels. In its intended use, it relates to the virtual augmented real and fantastic virtual mixed zones described in Fig. 6.2.

We have also created educational use case scenarios for this platform in which student projects can be shared and experienced online with other students and teachers, practising architects, experts and lay people to create a live and interactive debate on increasing the quality of life in real environments (Fig. 6.5). This studio setup, which we call *Design Studio 2.0*, differs from the classical design studio described above in terms of available communication modes and styles, learning
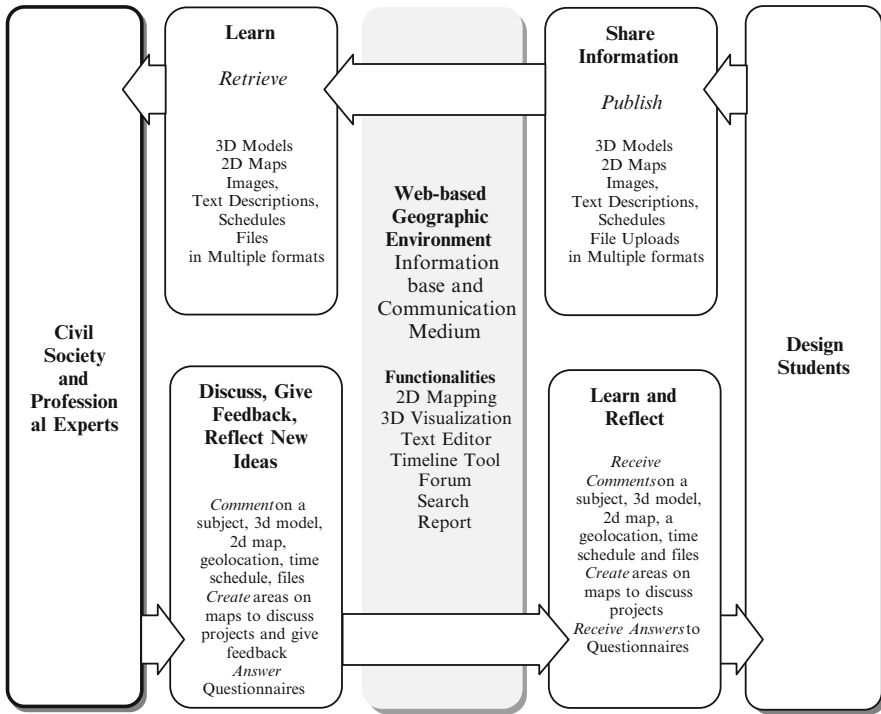
Fig. 6.5 The educational use scenario, actions and functions: reflection-in-action

experiences, studio focus, studio environment, time, information resources and representation of design information (Pak & Verbeke, 2012):

- *Design Studio 2.0* makes way to blended learning which refers to the combination of conventional and online learning activities.
- Compared with the conventional studio, the focus of the *Design Studio 2.0* is more oriented towards the students and the critical learning processes.
- *Design Studio 2.0* supports the design information to be shared in novel ways, including the use of 3D models (4D with the inclusion of time), scanned versions of sketches and drawings, computer drawings and renderings, dynamic maps, geolocated notes, and comments.
- Architects operate in a virtual world, a constructed representation of the real world of practice (Schön, 1987, p. 75). The *Design Studio 2.0* learning environment extends this world to a shared and globally accessible virtual world creating novel potentials for collaboration.
- Learning in the *Design Studio 2.0* can take place outside the school environment and is not limited to the studio hours.
- Besides the synchronous communication form, asynchronous and combined communication forms can be supported.

Conventional Design Studio   Novel Design Studio (Design Studio 2.0)
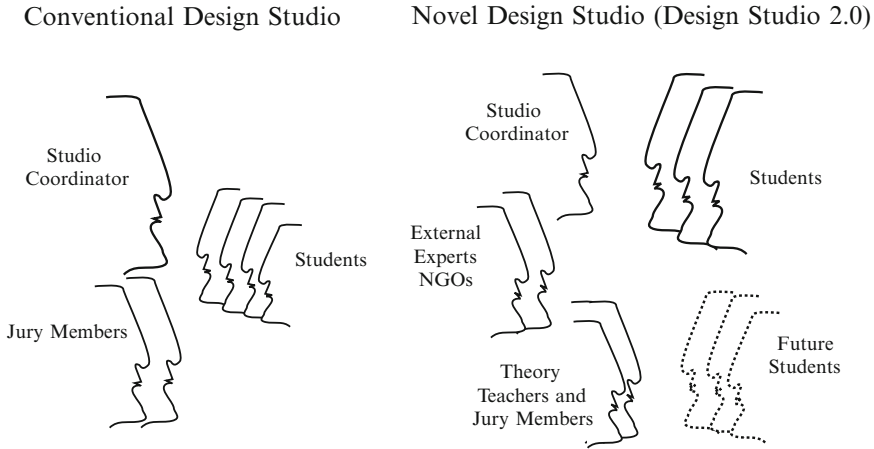
Fig. 6.6 Actors involved in the conventional and the proposed design studio setting

- While the conventional design studio involves face-to-face communication, the *Design Studio 2.0* also facilitates avatar-to-avatar communication.
- Consequently, in the *Design Studio 2.0* setting, it is possible to share the student works with the external experts and representatives of non-governmental organisations as well as students from different studios (Fig. 6.6).

Thus, this example illustrates the first steps of how a virtual environment stimulates an approach to urban design and architecture in which the process is more important than the end product, and enables a critical engagement of designers and stakeholders.

Before we move on to outlining some of the future challenges, we briefly want to highlight some of the opportunities introducing virtual worlds and networked learning approaches offer to the education of future architects and urban designers.

First, practising architecture entails constant conversations and discussions with a multitude of stakeholders. The current educational practice does not place enough emphasis on the importance of communication and working in teams. Introducing virtual realms in which an emphasis is placed on communication, both synchronous and asynchronous, enables a rediscovery of the opportunities of working together in a networked environment. Second, networked learning approach emphasises the social aspect of teaching and learning. Referring back to Argyris and Schön (1978) and Mezirow (1997), it is important that through the educational pathway students do not only acquire knowledge, but also re-examine their understanding of the world in relation to other people's ideas and positions. These insights can be developed in a networked learning environment, such as *Design Studio 2.0*, that offers students the possibility to openly discuss their ideas. Third, by developing these insights, networked learning environments can have an impact in the real world and its design. An important example in support of this claim is the current revaluation

of participatory design approaches. While participation in design practices is currently often reduced to pseudo-participation and placation, we are convinced that fostering an attitude of dialogue and communication can potentially empower all stakeholders and reinforce their input from the initial conception of projects and designs to their possible realisation.

Conclusions and Future Challenges

This chapter connects the social turn in architecture practice and education with the innovative possibilities that emerge from the integration of virtual environments (in a broad sense) in design education. We demonstrate the current challenges for architectural education and argue that a critical design attitude is imperative to tackle the challenges facing future architects. On that basis, we argue that critical thinking can be stimulated through the networked learning pedagogy that connects back to the initial conceptualisation and theorised possibilities of studio-based learning approaches envisaged by Schön (1983, 1986, 1987). Furthermore, we illustrate that critical thinking can even be enforced using new and innovative virtual learning environments. However, the complexity and inflexibility of the existing virtual and real learning environments are the biggest threats to integrated networked learning practices. At this point, two important factors need to be taken into consideration.

The first factor concerns difficulties associated with integration of 'innovative' virtual learning environments. In the educational context of architecture, these learning environments should provide more opportunities for critical reflexion than commonly used virtual learning environments. Instead of traditional communication, they should offer complex networked 3D-environments where the learners, and by extension the users, could interact in a multitude of ways, and which would offer opportunities to challenge the conditions of the virtual realm they are engaged in. Truly new insights and innovative pedagogies should arrive from the integration of virtual realms that can be found in the top right quadrant of Fig. 6.2, because these virtual realms offer the richest opportunities for experimentation for both teachers and students. However, complex virtual environments are sometimes not easily accessible for educators. Furthermore, capacities of such environments are sometimes far from well understood, and even easily dismissed under the classification of gaming and entertainment. Despite those limitations, this research clearly indicates that complex virtual environments offer sound opportunities to experiment with design and social implications of the practice of designing.

Secondly, we have observed the social turn in architectural practice. In a design practice that takes this social turn seriously, the architect-designer will acknowledge the needs and ideas of future users in a more radical way. According to Newton, 'The protagonist in the whole (urban) design practice is no longer the "expert" planner, but it is the informal community-based/grassroots process and the accompanying strategies and activism' (Miraftab, 2009). Central in this reasoning is the idea of critical design and critical thinking as a 'mediation of theory and practice in social

transformation' (Friedmann, 1987, p. 391). In this recalibrated role, the architect is expected to be critically immersed in the broader community. According to our findings, innovative virtual realms can be used to prepare the students for this role during their educational trajectories.

We would like to conclude with a number of remarks and suggestions related to more general concerns. The beginning of this chapter stresses the importance of infusing the architectural discipline with critical thinking and critical design grounded in the ideas and concepts of critical theory. Thus, in order to question the contemporary state of consumerism and capitalism, architects should engage with this current condition and actively seek to develop and imagine alternative urban futures (Brenner, 2009 and Eisenman, 2012). As suggested by Dunne and Raby (2011), this cannot be done in a mono-disciplinary manner, but in a continuous dialogue between people in different fields (from ethics to philosophy, from politics to biology). The chapter shows how integrating virtual realms and networked learning in design studio settings can stimulate students to adopt a critical approach to (architectural) design.

Adopting a critical attitude in architectural design practices and education should also include an in-depth questioning of learning processes and tools. Various types of virtual environments have different intrinsic properties which can potentially empower, enable and promote critical thinking and learning at different levels (Fig. 6.2). In order to enable critical learning practices in the design studio, it is necessary to couple these environments with custom tactics and strategies.

Virtual environments which can facilitate various communication, sharing and discussion modes do not magically enable critical thinking and collective learning. The overall planning, nature and content of networked teaching and learning should be sound and compatible with these aims. For instance, while involving external experts and lay people (users) into the design studio, it is also necessary to enable meaningful and productive interactions and positive dialogues between the involved parties. These require a significant amount of time dedicated to learning design and monitoring of the outcomes. Therefore, in order to create more innovative learning experiences, extra resources need to be allocated as a part of the general education strategy.

Furthermore, we have observed that promoting critical teaching and learning in the design studio raises general interconnected issues which naturally echo with political participation practices such as motivation, trust and equality. In order to be able to motivate the students to engage in critical conversations, it is necessary to break their conventional habits and promote a new understanding of criticism in the studio. One of the biggest challenges in this case is the students' reluctance to criticise each other's works in a rigorous manner. In this sense, establishing trust between students as well as the other participants is essential. At this point, ensuring equality in learning and critical discussions is a well-known (but difficult to reach) motivating factor which can increase the students' trust in the teacher as well as the value of the design studio itself. In addition, combining real-life and virtual learning activities, face-to-face meetings in real-life (especially in the case of involving experts) and thus enabling blended networked learning can increase the motivation and trust of the students.

Last but not least, commercial virtual environments and social media platforms frequently violate their users' privacy by selling their personal information to third parties. Using these without anonymisation can lead to counter results conflicting with the aims of this research. Therefore, while facilitating networked learning, it is important to take measures to guarantee the privacy of the students, teachers and other involved actors. This can partly be achieved by self-hosting learning environments and data, relying on in-house/open-source software solutions and excluding commercial solutions.

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Chapter 7
Moving from Urban to Virtual Spaces and Back: Learning In/From Signature Graffiti Subculture

Konstantinos Avramidis and Konstantina Drakopoulou

This chapter focuses on a specific kind of urban writing, signature graffiti, that has its roots in the streets of Philadelphia and the underground train system of New York City during the late 1960s, that has nowadays evolved into a global subculture. Signature graffiti can be described as the unsolicited, frequently illicit, practice of writing repetitively one's self-invented identity (e.g., a name, logo, character or any personal indicative sign) on urban surfaces with the purpose of gaining some sort of reputation among peers. The definition of signature graffiti lies neither in the topics nor the aesthetics of the pictures produced but in the intention of the agents. The compliance with graffiti rules, which determine behaviors and attitudes, goals and strategies, praise and disapproval, define the subculture.

Signature graffiti is inherently linked with personal identity and style. This emphasis on personal style prompts "writers," as practitioners like to call themselves, to organize groups, known as "crews," constructing, according to Richard Lachmann, "a total art world" for discussing new designs, devising aesthetic standards, and judging innovations (1988, p. 247). Through this process, writers negotiate a shared sense of style and, at the same time, they elaborate their own, thus developing both a personal and a group identity. As graffiti styles became more and more sophisticated,

K. Avramidis (✉)
Edinburgh School of Architecture and Landscape Architecture,
University of Edinburgh, Edinburgh, UK
e-mail: k.avramidis@ed.ac.uk

K. Drakopoulou
Department of Byzantine Philology and Folklore, Faculty of Philology,
National and Kapodistrian University of Athens, Athens, Greece
e-mail: k_drakop@yahoo.com

an exchange of knowledge and techniques turned out to be essential. This fact, along with the illicit nature of the practice, made learning, networking, and collaboration among peers a central need from the very early days of the subculture.

For graffitists, the available resources, whether physical or mediatized, coupled with their interpersonal interactions are the ways to gain access to instructions and consultancy. The way writers learn and represent their craft became important from the very beginning; graffiti is all about acquiring, evolving, and demonstrating culturally meaningful knowledge and skills. Collaboration and peer evaluation gave rise to a graffiti learning field in its own right. Signature graffiti gradually evolved into an alternative cultural field which enabled practitioners to educate themselves outside dominant educational institutions and develop skills relevant for their everyday lives. Our decision to restrict our research to signature graffiti lies in the fact that this type of public writing, compared to others (e.g., political graffiti), is the only massively global culture that reflexively appropriated technology, extensively used or invented various media of distribution, encouraged collaboration among its practitioners by evolving peer-assistant mechanisms and evaluation structures, forged networks of exchange between writers and resources, and provided practitioners with transferable skills and options for alternative mainstream lives—in short, it has all key elements of networked learning.

The formation, adaptation, mutation, and dissemination of signature graffiti are indissolubly interlinked with the ways writers communicate with each other. Historically, for graffitists, means of circulating and critiquing their work are crucial. Since the 1960s, the channels through which graffiti has been transmitted, and thus perceived and judged, have radically changed: from walls and trains, to independent zines and more recently to the Web; from physical, through analog, to digital. Graffiti is no longer perceived only where it is actually produced: its audience is increasingly neither the neighborhood nor the city, but the world. This change affects graffiti evaluation, learning, and production since, as Lachlan MacDowall notes, "practitioners adapt to the increasing circulation of images" (2008, p. 138).

Graffiti has inspired a rich and varied academic body of literature from a number of disciplines such as urban studies, art history, criminology, and anthropology. However, this study considers only insights that pay attention to the relationship of graffiti and its media (Austin, 2001; Iveson, 2007; Snyder, 2009), graffiti's learning potentials (Christen, 2003; Rahn, 2002; Valle & Weiss, 2010) and its recent association with the Internet (Bowen, 2010; MacDowall, 2008). Apart from the graffiti literature, the special and constantly evolving relationship between learning, technology, and people in a subcultural context is also noted by Iain Borden (2001) in his research on skateboarding, and comprises the theoretical core of Jeffrey L. Kidder's (2012) recent study on parkour.

In this study we understand graffiti writing as a materially dependant mark of one's presence (Chmielewska, 2007), as digitally archived and constantly flowing information (Bowen, 2010; Pennycook, 2010) and as a subcultural practice (Lachmann, 1988; MacDonald, 2001). Unlike several new subcultures which emerged and evolved along with the Internet and understand it as their cultural context, in the

case of graffiti, the Internet, as Andy Bennett suggests, "is conceptualized as a cultural resource appropriated within a preexisting cultural context, and used as a means of engaging symbolically with and/or negotiating that context" (2004, p. 165).

This chapter explores the extension of the graffiti field, whether enabled or facilitated by the new technological capacities, and the educational implications that this widening may entail. Particular emphasis is given on how technological advancements influence writers' interactions, mediations, and spatialities: from the traditional apprenticeship to the virtual interaction, from the wall and train surfaces to the websites, and from the spatial–temporal dislocation of the Internet back to the locality and materiality of the city. We focus on the three domains through which writers communicate and concurrently are educated: their interpersonal interactions, the graffiti media, and the city. In each of these three domains, we interrogate how the transition from the physical and localized to the digital and globalized changes writers' subcultural, as well as transferable, skills.

This study is based on the assumption that graffiti largely depends on, and concurrently challenges, what materiality, technology, and culture can afford in a particular spatial and temporal context. These elements impose different restrictions and open up possibilities that, to a great extent, designate both the setting and the extension of graffiti milieu. The aim of this chapter is to show how this expansion, in the light of the pervasive presence of the Internet, affects the way writers communicate with and learn from each other in a subcultural context, that, in turn, transforms how practitioners view and engage with their immediate material and social reality.

Writing Graffiti

Expanding the Writing Field: The "Graffscape"

The graffiti field is a setting in which writers are positioned hierarchically. This positioning is both based on and governed by the subcultural rules and evaluation criteria. Entering this world implicitly means accepting its "laws," working hard, and investing time and effort to build a "subcultural career" is expected (Lachmann, 1988). Graffiti's competitive environment and the possibility of gaining fame motivated writers to develop innovative artistic forms and led them to expand their field.

Nancy MacDonald argues that "to earn fame you need an audience": the wider, the better (2001, p. 83). Even though writers publicly address their messages, their intended audience is no other than the graffiti community. According to Kurt Iveson, graffiti should not be considered as a "private address," since graffitists, as they write their signatures, do not draw a dividing line between desired and wider audiences (2007, p. 144). To address and form the widest public possible, graffitists are "getting up," that is, spreading one's name in the city by utilizing walls as their communication venue. Unsurprisingly they also started appropriating New York's subway

system to reach a public that is geographically dispersed. Joe Austin notes that in doing so, the underground system has been gradually transformed into an unofficial network through which writers "could 'broadcast' their work all across the city" (1996, p. 276). The keyword here is "broadcast." The way in which the message is broadcast, the surface of transmission (e.g., wall, train, photograph, screen), not only designates the audience and dictates the perception of the message, but also represents the medium to extend the field.

Graffiti are vulnerable and ephemeral by nature: they depend on documentation. For writers, photography is one of the most popular ways to record their feats before being damaged or erased, and, as Ella Chmielewska argues, graffiti "needs photography as a medium for 'getting up'" (2009, p. 273). Moreover, writers' work also depends on its circulation. This transition from the wall and the train to the photographic surface marks a brand new era for graffiti, since these pictures are included in magazines or other media and travel throughout the world.

Jeff Ferrell emphasizes the determinant role that the media representations played in the transformation and dissemination of graffiti subculture when he notes that "many writers became aware of and interested in graffiti not only through direct exposure to the works" of others, but "through mediated visions of graffiti elsewhere" (1996, p. 43). Moreover, hip-hop becomes the vehicle through which writing culture is broadcast around the world, by appearing on rap album covers and video clips (cf. Austin, 2001, p. 202). For instance, the first exposure to graffiti for the would-be Greek writers comes from the mass media and hip-hop. As Dee 71 (2011), a veteran Greek writer, notes:

> It was through break dancing that I started getting engaged with hip-hop in 1984. It was through hip-hop and some films, magazines and photographs (which were mainly concerned with break dancing) that graffiti captured my attention. The most intense feeling though came from the film *Beat Street* and through a booklet which included a text on the elements and culture of hip-hop.

For Dee 71 it was hip-hop culture that provided the possibility of a new life. Moreover, some books and films that featured graffiti attracted his attention. The books *Subway Art* and *Spraycan Art*, published in 1984 and 1987, respectively, as well as the films *Wild Style* (1983), *Style Wars* (1983), and *Beat Street* (1984), proved to be extremely influential in the circulation of graffiti beyond the US borders. The significance of films in the dissemination of graffiti is also underscored by Jason (2012), one of the most prolific graffiti writers in Greece. He recalls:

> I started graffiti in 1991. The first pieces were done at the SKRA square, an area in Kalamaria (Thessaloniki, Greece). It totally came out of the blue when I first saw STYLE WARS in ET1 national channel. Generally, I got early in the HIP-HOP scene due to break dancing.

Technological advancements allowed writers not only to disseminate their culture and expand their field, but also made the emergence of local scenes possible. The proliferation of graffiti in Greece could be seen as an example of what Arjun Appadurai (1996) calls "global ethnoscapes." Appadurai's work focuses on the "five dimensions of global cultural flow." These five "scapes"—the ethnoscapes, technoscapes, mediascapes, finanscapes, and ideoscapes—refer to flows of people, technology,

information, capital, and ideas, respectively (1996, pp. 33–36). In graffiti, all the channels of transmission and communication, both physical (walls, trains, etc.) and mediated (independent zines and commercial publications, or online platforms and films), gave birth to a writing "scape" in its own right—the "graffscape," as Alastair Pennycook terms it (2010). The graffscape is the field in and through which writers' communication exchanges take place. The physical locations in the city and their various mediated reproductions mutually form the field of graffitists' exposure. "To talk of graffscapes," Pennycook argues, is to understand graffiti "not as immobile text on static city walls" but rather as constantly flowing and in motion information (2010, p. 144). It is not only the writers that travel through the city to write their names; their documented pieces travel by themselves through the media and the Web. Technology played a reflective role in the formation and expansion of the graffscape and radically changed writers' worldview, "as did their goals—from all-city to all-world" (Snyder, 2006, p. 94).

Extending the Learning Field: The Graffiti "Learnscape"

Graffitists are critical of schooling within dominant cultural institutions where learning is motivated by grades, a sense of antagonism is cultivated, and team working is not really encouraged. Instead, they genuinely choose, and therefore value, to learn outside the standardized controls of evaluative systems through their own "peer-review" structure, to collaborate with each other, and compete to achieve mastery. Writers gradually become aware of the transformative potentials of experiencing, learning, and evaluating processes through their active participation in the graffiti world. Graffitists absorb valuable habits, such as showing respect or working hard to improve, cultivate critical ways of thinking and modes of conduct, and acquire or further develop various transferable creative and managerial skills.

In the groundbreaking book *Pedagogy of the Oppressed* (1970), Paulo Freire proposes a concept of learning radically different from the dominant "banking model." Freire strongly opposes sterile and uncritical educational procedures for both teacher and student, during which the teacher acts as the "depositor" or "narrator" of knowledge and the student as the passive "depository" or "container" (1970/2005, pp. 71–72). Instead, he suggests an approach that is based on the reciprocal engagement of both student and teacher in the production of knowledge and meaning that also critically encounters the world beyond the educational setting. This approach regards both the student and the teacher as incomplete, and does not privilege the teacher as the knowledgeable, powerful, and unquestioned subject. On the contrary, for him knowledge emerges only with the "restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other" (1970/2005, p. 72). The Freirean concept of education counter-proposes a different relationship between student–teacher dyad and society at large: one that cultivates a conscious and critical understanding of the person and the world. Freire's pedagogy is based on terms such as "critical consciousness" and "conscientization," which include the

process of consciousness raising, questioning the social and political power relations, and challenging the taken-for-granted situations in educational, social, cultural, and urban levels. The graffiti field, as we will see, seems to facilitate these ideals of critical pedagogy to blossom.

Ivan Illich, in his seminal book *Deschooling Society* (1971/1999), challenges institutionalized learning and prompts us to shift our focus from "educational funnels" on "learning webs," as he terms them (1971/1999, p. xx). Illich believes that a new model that creates networks of learning is needed in order to provide resource access to those wishing to learn, encourage those who want to share their knowledge, and give opportunities to those who seek to present an issue publicly (1971/1999, p. 76). In a sense, graffiti seems to substantiate this potential. In a striking fashion for 1971, Illich suggests that the use of advanced technologies could play a decisive role in creating and sustaining "learning webs" with peers and the like (1971/1999, pp. 72–104). Illich is aware of the dangers embedded in technology and discusses the need for "tools for conviviality" (1973/2001). Illich's "tools" promise openness to human expression and allow utilization and reconfiguration according to various needs. His concepts anticipate, to a great extent, the Internet's contemporary various possibilities for interaction and learning (e.g., archives, fora). For Illich, people and technologies creatively interweave to form a learning environment beyond the traditional institutionalized way of thinking, operating, and evaluating. Graffiti, by its marginal position, is an interesting example of how communication and noninstitutional learning are bound up with technology and people.

Illich's webs of learning have set the foundations for the more contemporary concept of "networked learning." Networked learning has been defined as the "learning in which information and communication technology is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources" (Jones & Steeples, 2002, p. 2; Goodyear, Banks, Hodgson, & McConnell, 2004, p. 1). Simply put, networked learning is the process of forging connections between people and information in such a way that either enable or facilitate learning. The key element in this definition, as Peter Goodyear asserts (2005), is "connectedness." Networked learning should be distinguished from distance learning, as it can include physical interactions and exchanges as well. In our view, it is a learning process that results from the use of networked technologies, digital or otherwise. Networked learning is by definition a relational concept, in that it brings together learning subjects, whether learners or teachers, and learning resources. The emphasis of the concept should be put on learning and connection that technological advancements allow rather than on technology per se. Neither online material nor technologically enhanced communication is enough to properly define the term. As Goodyear et al. argue, "the use of online materials is not a sufficient characteristic to define networked learning. Human–human interaction is an essential part of networked learning" (2004, p. 2).

Prominent scholars of the field have identified some limitations in this very first, yet surprisingly persistent, definition of networked learning. For instance, it has been recently argued that "the principle not emphasized in this early definition, but which was always present and has become to be seen as an important and integral

aspect of networked learning, is the one of collaboration" (McConnell, Hodgson, & Dirckinck-Holmfeld, 2012, p. 7). Networked learning is often considered to be part of institutionalized learning, thus risking to exclude the valuable learning happening in nonformal everyday practices outside of deliberately designed educational settings. Steve Fox believes that this kind of framing favors "educationalization" and neglects the learning that occurs within or emerges from communities whose purpose is not primarily educational (2001, p. 77).

Learning, as understood here, is a much wider and encompassing notion than education. Education is traditionally associated with the imparting of knowledge and skills through teaching and is seen as something that lasts for a finite time, often taking place during a socially prescribed period of the life of an individual. Further, it is considered to be a formal process of knowledge and value transfer, typically happening within institutions by individuals that are in more powerful position than the learners, and which often leads to a degree or certificate of some sort. On the contrary, learning is usually understood as considerably less formal, bureaucratic, and institutionalized. It is thought as an ongoing, experiential, and self-motivated process of knowledge, value, and skill acquisition. Fox has used an interesting metaphor to illustrate the difference between education and learning. He suggests that formal education is just "the visible tip of a learning iceberg" (2001, p. 81). This means that learning is multifaceted and cannot, or rather should not, be limited to institutions or instructional environments only. Extending Fox's metaphor, it can be argued that the "invisible" part of the iceberg that lies in the deep sea is the pervasive everyday and informal learning taking place in various settings and/or instances. This does not mean, however, that learning is an informal and self-driven process of acquiring knowledge while education is formal and taught. Rather, learning might include teaching or happen within an institution, but it should not be limited to these instances only. Learning may occur in everyday activities or teaching can occasionally happen between people who consider themselves members of a community. In other words, education and learning might be better thought in terms of intentions and settings.

To learn means to benefit from and become transformed by the whole experience and process. Self-motivation and the freedom to choose what and how to learn make graffitists think critically of dominant institutional learning, where students are obliged to learn things that might not be of immediate interest. Contrary, in graffiti scene "learner" and "teacher" share a common ground, i.e., the practice of public writing. They reciprocally educate each other and collaborate to mutually define their learning "material" according to their personal or community needs. Then, graffiti, by its peer-assisted and self-directed learning structures, can be considered as a valuable and creative learning alternative and might give insights on how learning can take place outside institutional settings.

During the graffiti learning process, writers develop new skills, modify their existing talents, and/or further cultivate their inclinations. At the same time they acquire values and adopt behaviors that permanently change the way they think and act outside the graffiti world. Of course, graffitists' learning is not always innocent or positive. For example, writers are encouraged to take illegal actions; the riskier the better. On several occasions, the graffitists end up with a criminal record and are

stigmatized for the rest of their lives. Even more tragically, in an attempt to fulfill their subcultural "duties," some writers have lost their lives. The fact that graffiti is male-dominated leads MacDonald to note that writers receive negative gender lessons, embedded in the culture's emphasis on masculinity (2001, pp. 94–150).

In graffiti, the field of operation, representation, skill demonstration, and prestige circulation converge with that of learning: the graffscape is also writers' "learnscape." Graffiti pieces and their representations not only provide status to their producers but also become learning resources for other writers; graffitists' interactions not only show knowledge, but also inform and instruct. In other words, graffiti learnscape consists of a network of places, people, technologies, and pieces (whether mediatized or physical). In this study, graffiti is seen as a widespread, yet fortified, networked community in which, although not deliberately designed to serve this role, learning happens in a number of occasions. Here, in the context of signature graffiti subculture, networked learning is understood as a process of noninstitutional and informal learning which happens in the interpersonal interactions between like-minded peers as well as during their production and encounter of subculturally important learning resources. It is characterized by collaboration and connectedness among graffitists, and is motivated by their shared interests. It is neither seen as a merely self-directed resource-based processing model of learning, nor as technologically enhanced apprenticeship. Rather, it is thought as a community-based learning that not only relates resources and people, but also uses communication technologies in such a way that people and resources are interwoven and fused to an extent that one cannot make clear the definition of the one without the other.

Graffiti learning is a combination of self-directed learning and peer assistance: it is based on the instructional properties of the available resources, the interaction between writers and the actual practice *in situ*. Then, the graffscape can be divided into three distinctive, yet closely interrelated and often overlapping, learning, and at the same time, communicational domains: the media, the interaction between graffitists, and the city. It is to these three domains that we now turn.

Graffiti Media

Mediatized "Getting Up": From Zine Design to Profile Management

Graffiti writers are devoted fame hunters; being "all-city" and "getting up" is their primary concern. Even for those who produce works legally, and whose main purpose is not to "get up," fame remains an underlying motivation: they want their pieces seen and evaluated. This is why graffitists appropriated the subway surfaces in the first place. As the number of writers grew, the need to exchange material and reach geographically dispersed audiences gave rise to zines and magazines. As Gregory Snyder asserts, this type of independent media "often comes after the creation of the

subcultural form, and in many ways expands the reach of the subculture beyond geographic and physical space … They do not create a subculture so much as document and disseminate it to other of its members" (2006, p. 96). These media served the needs of the subculture (e.g., information exchange, "getting up") and in the process became extraordinarily influential. The requirements to produce this kind of media though, such as finding resources, categorizing them, and synthesizing them into a meaningful design, lead writers to develop graphic design, photo editing, and marketing skills. Graffitists also had to forge a strong network of trustworthy peers, as most of the zines, especially in the early years of graffiti, were distributed hand-by-hand.

"If graffiti includes the desire to make oneself known across a range of geographical areas," Tracey Bowen argues, "the Internet, then, has multiplied this opportunity to include places and spaces beyond an accessible, physical locale" (2010, p. 86). In 1994 Susan Farrell created the first graffiti website, provocatively called *Art Crimes*, which operated as a global visual inventory of pieces. The Internet has dramatically changed with Web 2.0 technologies which allow users whole new possibilities, including participation in social networking platforms, blogs, video-sharing sites, and so on, which are instantly embraced by the graffiti community. All these platforms became the channels through which writers broadcast their works, acquire reputation, and demonstrate their skills.

Compared to still images, videos are perhaps the most accurate way for writers to capture the process of their performance. By manipulating duration and sound, writers are able to enrich the mode in which they demonstrate their activity, and show their technical skills, or daring, or both. For example, videos that show legal writing are focused on the piece and graffitist's hands: they are always shot in daylight; the camera is mainly stable and captures solely the wall. Quite often, the camera follows the movement of the writer's hand while drawing a line or executing a difficult color effect detail. Writers' outfit is not dissimilar to what an artist would wear in the studio, and these videos are usually accompanied by more chilled rap music. The attention here is on the detail, technique, and mastery.

In contrast, in films with illegal content, the focus is on the action per se. The scene is taped exclusively during the night and the camera is usually in a "dizzy" motion. Here, the surroundings play an important role and thus are captured. Writers are presented as outlaws and vandals wearing full face masks and hoodies, while the physical sounds are utilized as an inseparable part of the adventurous atmosphere (e.g., writers' steps in a silent underground tunnel, the shouts of guards who run after them). In films with illegal content, focus is on excitement and speed. During the representation of their activity, writers learn that the way they document, edit, direct, and finally present their process and progress is crucial. This is also important in many creative mainstream disciplines.

Digital media "transformed the prestige system of writing culture" in a similar way to zines a couple of years earlier (Austin, 2001, p. 260). As opposed to zines, in Internet platforms there are no editorial interventions by third parties, the reached audience is dispersed globally rather than locally, and the message is instant, multimodal, and interactive in nature. In the past, zine editors had the "powerful role of arbiter," and

fame had more to do with "who a writer knows than his or her talent" (Austin, 2001, p. 260). This has learning implications as well, since now the writing knowledge ceases to be monopolistic, i.e., deriving its power from singular and privileged sources, and becomes available to all through the Web.

Writers today can bypass "middlemen," and are more independent in presenting their work: graffiti is more decentralized. Moreover, graffitists can earn global notoriety without leaving their hometown: writing has become de-territorialized. The instantaneity of the Internet not only helps writers to establish a quick and global reputation, but also to "spread the word about new trends in writing culture" (Austin, 2001, p. 259). It follows the dynamic of graffiti evolution and is literally up-to-date. Further, the multimodality and interactivity of the Web provide the means for graffitists to demonstrate themselves in the ways they wish, to choose the best mode to promote their work, and select not only what, but also how to show it.

Graffitists regulate the information they broadcast through the Web; they manage their online profiles to represent themselves and their work as they like. Committed writers meticulously collect, carefully organize, and eventually upload and present their evidential objects. This record of feats, by the way of a virtual portfolio, constructs the representation of their subcultural identities. The way Jason manages his profile in the *Streetfiles.org* graffiti photo-sharing platform is illustrative. Letters and characters, new and old, legal and illegal, personal and collaborative pieces, along with walls, trains and sketches, photos from yards and graffiti jams, poses in front of completed pieces and in action photos, links to his blog and *YouTube* videos—all coexist in a delicate balance. His 221 uploaded photos are not accidentally chosen; every single flick is meticulously selected, not only to convey specific subcultural meanings, but also to confirm that Jason is an old school, prolific, hardworking, and skilled writer, a graffiti master.

But it is not just his pieces and the images per se; the captions and titles he uses are also carefully chosen. For example, "double trouble" and "business as usual" accompany photos depicting Jason along with his mate Caze, while "writing history" is the caption under the flick of the first triple whole car ever executed in Greece. The message is not the piece itself, but is constituted by the image-caption interplay: the viewer is skillfully directed to receive not only the visual but also the latent cultural message. Jason is a master writer, and knows not only how to prove it offline, but also to communicate it online. Through their constant engagement with Web profile management, writers acquire another valuable transferable skill for their mainstream careers.

The need for mediatized "getting up," information circulation, and reporting from the streets, coupled with the need for specialized graffiti products, gave rise to a self-sufficient industry within which writers have the opportunity to follow alternative careers (cf. Snyder, 2012, p. 307). For example, it is not accidental that the owners of several spray-paint manufacturing firms and the vast majority of graffiti shops in Greece are either former or active writers. Other graffitists channel their acquired skills in creative disciplines, such as photography, graphic and web design, tattoo design, architecture, advertisement, fine arts, or any other field where design and visual communication play a determinant role. In many cases, the participation in graffiti helps

young people to bring to the surface their creative inclinations; the writing environment is the first field where they practice their talents, get feedback, and confirmation of their abilities. The active engagement with this subculture not only helps young people to acquire a variety of transferable skills, but also opens up possibilities for alternative mainstream careers "where sometimes none existed" (Snyder, 2012, p. 314).

Online Visual Repositories: Scrutinizing and Learning

In a similar fashion to sketchbooks and zines, the Internet "provided a new teaching mechanism to writers. This teaching process differed from the face-to-face contact between apprentices and masters, but it was no less collective" (Austin, 2001, p. 260). The archive that writers create as they share their feats on the Web serves as an important stimulus for all the practitioners. The pictures become "a learning tool, allowing writers to scrutinize and study their own work as well as the work of others" (Snyder, 2006, p. 94). Writers identify those graffitists with a style that matches their tastes, compare their pieces, understand their "mistakes" and evolve. Further, they often take advantage of the possibilities that contemporary communication and information technologies afford so as to connect, discuss, and exchange ideas and material with like-minded peers, engaging this way in a subculturally meaningful learning process.

Videos are also valuable learning materials because, compared to the flicks, they usually capture various stages of writing: from the beginning to the final product. For example, in legal videos one can learn the stages of writing and some basic techniques of execution (e.g., first goes the sketch, later the fill in and the background, and finally the outlines). In videos with illicit writing, one can learn how to enter a train yard (e.g., tools needed to cut a fence, outfit to protect identity), and how to escape when something goes wrong. In a sense, photographs bear stylistic instructional properties while videos are more technical.

In graffiti subculture, those who do not "know their roots" are looked down upon. This knowledge used to pass from one generation to the other through narrations of older writers and through occasional photo trading. Graffitists, throughout the years, selected and documented what was noteworthy: their pieces. In doing so though, they captured the temporality of specific places. A relevant and oft-cited example is the *Graffiti Archaeology* project (cf. Bowen, 2010, p. 86; MacDowall, 2008, p. 141). This website captures the way graffiti changes over time in specific places in various US cities, and opens opportunities to study how graffiti evolves in particular walls.

Graffiti in Xanthi.gr, a documentation website from a provincial city in Greece, opens a similar window into the past of specific walls that have special meaning for the local graffiti scene. It is also a platform through which one can draw both inspiration and conclusions, either aesthetic or historic: which names and crews last, who was influenced by whom, how local spots evolved over the years. In reading the sequence of photographs from specific spots, writers reconstruct the history of the wall and extract meanings that are of interest to them. By emphasizing the connections between writing history and new developments, digitally distributed graffiti

help writers to understand that the future possibilities of writing in their home cities depend on maintaining links to the past of the local scene.

The online graffiti material constitutes an archive that maintains the historical perspective of writing culture and provides graffitists, as well as researchers, with an effective educational apparatus. Similar objectives have led to the research program *Digitizing Photographs of Graffiti Art in Athens and Thessaloniki*, organized by the *Byzantine Literature and Folklore Department* at the *National & Kapodistrian University of Athens*, under the supervision of Prof. M. A. Alexiadis. This website focuses on data content standards for descriptive cataloguing called the *Categories for the Description of Works of Art* (CDWA). Due to graffiti's ephemeral nature, the creation of this online graffiti archive was intended to meet the needs of various interested communities, such as libraries, museums, archival and visual resources professionals. The main differences of the institutional and subcultural publicly available portals are the creators and their intended audiences; writers usually strongly support the insider initiatives, but they do not disregard those of the outsiders.

For graffitists, online repositories are learning resources. Like autodidacts, writers become responsible for their learning: they are transformed into "self-teachers" and take control of their learning. In doing so, they build confidence and become critical of the concept of teacher as authority figure. Writers spend a great deal of time scrutinizing the available learning material in order to decipher not only the stylistic qualities of a piece but also how it is positioned on the wall and represented in the photographic frame. They go through countless pages of paper trying to understand how to shape complex letters and characters, give their design perspective and depth, or combine colors in an aesthetically pleasant or innovative way. This self-directed learning is supplemented by occasional or regular interactions between graffitists, where they discuss each other's progress and outcomes, providing feedback and/or criticism.

In a sense, through dedicated websites, writers not only acquire knowledge of the local graffiti history, but also become aware of how the very process of documentation and dissemination affects their practice. They are trained to attach specific meanings to specific places, and learn that meaning is constructed in a historical perspective and emerges from a cultural, spatial, and temporal context. In the hands of writers, the various online platforms become "learning webs" and "convivial tools," radically changing the way the community forms its culture and graffitists shape their identities. Today, *YouTube* tutorials extend apprenticeship; personal blogs replace the traditional sketchbooks, and the Internet becomes the new subway system through which pieces circulate and fame is conferred.

The Educational Role of Documentation: Manipulating Graffiti Flicks

Gunther Kress and Theo van Leeuwen (1996) address the significant role played by the materiality of inscription. They argue that the surfaces, substances, and tools used in inscriptions are of great importance because each "contributes to the

meaning of the text in its own particular way" (1996, p. 231). They also believe that inscriptions are highly dependent upon technology as the latter defines their visual impact and perception. Kress and van Leeuwen identify three types of inscription technologies: the technologies of the hand (e.g., painting); the technologies of recording, or analog technologies (e.g., photography); and the digital synthesizing technologies (e.g., computer interfaces) (1996, p. 233). Writers no longer view graffiti on the actual surfaces on which they were produced, but increasingly through different surfaces (e.g., photographs or computer screens). In a sense, graffiti is produced by human hand, then recorded using analog techniques, and then digitally distributed and perceived. In short, graffiti is initially produced in an inscription mode which is radically different from the mode of reception.

Every inscription technology imposes restrictions and entails different treatments in order to communicate the message effectively: it designates not only the way graffiti is produced but also determines how it is received. Let's take the example of photography, since it is the most prevalent mode of recording and communication in the writing community. The key role of documentation and recording has of course its historical antecedents in the 1960s and 1970s, when the ephemerality of performance, body art, and the inaccessibility of land art required media such as film or still photography. Several artists combined the role of photography and video as recording devices with their inherent aesthetic values, transforming them to "essential components of the work itself" (Elwes, 2005, p. 10)—and that is quite similar to what graffitists do today.

Writers prefer to capture their work photographically in front view; in daylight for legal pieces and night light for illegal pieces. Due to graffiti's ephemeral nature, this seems to be a necessity, which means taking the picture right after its execution and before the piece is damaged or erased. But there is also an intention behind that. Photography is a bracketing of a larger scene: it is an editorial device. Through their pictures, writers narrate their experiences and dress their representations with atmosphere. For instance, graffitists would include snow in their images to give a sense of the difficulties they faced during the execution of the piece (Fig. 7.1). Furthermore, they would probably include in the photographic frame a part of the larger scene in order to indicate that the spot is central (e.g., cars passing by), difficult and risky to reach (e.g., exterior ladders which indicate that there is no alternative way out), or a place where nobody would ever expect to encounter graffiti (e.g., under a bridge in the middle of nowhere). But is it a central and risky spot or not? It may look risky, but in reality it may not be.

Graffiti is increasingly becoming representation-based, and writers rely on and invest subcultural meaning in images: representations shape their beliefs, and their distribution determines writers' physical practice. The evidential status of the photographic picture can be challenged by easily available image manipulation software. Writers often use similar software to make their pieces look better (e.g., adjust brightness levels), to correct mistakes (e.g., erase a dripping), or to remove any undesired elements from the image (e.g., another tag or an urban element that reveals scale). During their constant engagement with representations, writers become aware of the rhetoric and devious power of images, and thus become critical, or at least suspicious, of the techniques adopted from the mass media.

Fig. 7.1 "Botsi Snow." Graffiti piece by Jason at Botsi district, Thessaloniki, Greece, 1999. Artist: © Jason. Photo: Courtesy Jason

Fig. 7.2 "Jason … and everything changes." Graffiti piece at IKEA, Thessaloniki, Greece, 2008. Jason, in the online caption that accompanies his photo, paraphrases the Greek advertisement slogan of IKEA. He poses in front of the wall to give the viewer a sense of the massive scale of his piece. Artist: © Jason. Photos: Courtesy Jason

Writers frequently crop their images to fit only their pieces, and often experiment with various photographic angles to make their work look bigger. In actual large-scale works, however, graffitists pose next to their pieces so as to help the viewer to understand the scale (Fig. 7.2). Moreover, writers increasingly learn and utilize specialized shooting techniques, such as high-dynamic-range imaging. Also, they employ light painting, that is a photographic technique in which the movement of a light source is captured in a long exposure imaging, or make use of new graffiti products, such as the "night glow" luminescent paint, so as to create visually compelling representations of their pieces. The fancy results are later uploaded to

various websites where they are judged, not only for the depicted pieces, but also for the manipulation.

Graffitists always come back to the spot to make sure that they have taken the "proper" photograph. They may have taken a flick after completion of a piece, but it is very common to go back to the scene and wait for the right picture and/or frame: writers direct and manage their representations. The position of the graffiti writer Ints (2012) is indicative of "what really matters":

> What I do not like in trainbombing is the fact that it is very difficult to photograph your piece properly. In contrast, streetbombing provides you with the opportunity to visit the spot the next day and take the right picture of your piece which, after all, is what really matters…

Writers learn to exploit opportunities offered by still and moving images, and they manipulate compositional and rhetorical power of images in order to convey certain meanings. To achieve that, except for the images focusing on pieces, writers themselves become "models." For instance, in a photograph, exceptionally contrived and full of subcultural symbolism, Jason (foreground) and Caze (background) pose in front of their pieces (Fig. 7.3). Their outfits and posturing are far from innocent. Their pants and shirts are covered in paint and both wear masks and old school b-boy-like *Adidas* shoes. Their dirty outfits attest that they write frequently, and particular shoes show their affiliation with hip-hop. Their masks serve a double role: they conceal faces and at the same time refer to the tension of the newly completed writing.

Jason demonstrates various used caps, referring to the variety of lines he executed, while the evidence of his fingers full of paint shows that he was actually painting minutes before the shoot. Caze holds one spray can in each hand while his fingers are on the caps. He is looking directly at the camera with an aggressive body

Fig. 7.3 "OLDskoolSALONICANS: the Salonicans old skool finest." Jason and Caze posing in front of their pieces. Thessaloniki, Greece, 2010. Artists: © Jason, Caze. Photo: Courtesy Jason

posture, as if he has just stopped writing, and is ready to start again. Except for the caps, sepia effect is applied to the photograph, and, should we look carefully, we see that the background is intentionally blurred. Nonetheless, the flick partially reveals its context, leaving visible some characteristics of the place in the background. Those who are familiar with the Greek graffiti scene can recognize that Jason and Caze are at Kalamaria's "Wall of Fame," a historically and subculturally charged wall in Salonika City. The title also helps the viewer to receive the desirable meaning of the message: "OLDskoolSALONICANS—the Salonicans old skool finest." They are old school, they dress and behave as such, and they are from Salonika: all we need to do to confirm that is pay attention to the background of the image, and the wordplay between Salonika-spray cans in the title.

A close reading reveals nuances of meaning in the way writers represent themselves and their works. Should we consider that graffiti subculture is dependent on these transactions and communicative exchanges, then the way writers represent and distribute their pieces is determinant. This is why graffitists either adopt or develop techniques in order to represent their works in the best possible ways: they learn to exploit what different inscription technologies afford. This has altered the way they think of physical space, act in virtual space, and perform in both realities. This has an enormous impact on writers' worldview: it changed the way they understand and operate both in their subcultural field and social milieu. In the process, graffitists are mastering visual communication techniques and transforming technological constraints into opportunities. Writers invent, or further develop, existing strategies, such as deploying the image–text relationship, writing powerful captions-slogans or manipulating the rhetorical power of images in order to target their audiences and communicate their messages efficiently. This is a dual lesson: writers learn how to cope with and decipher the increasingly image-mediated world, and at the same time are equipped to pitch their work and themselves visually.

Graffiti Interactions

"Old School" Interactions: Apprenticeship and Crews

Richard Christen argues that "the mentor-apprentice relationship is the primary way that young writers have learned their craft over the last decades" (2003, p. 65). Through the mentoring system, aesthetic principles, subcultural values, technical skills, and style are handed down from one generation to the next (Avramidis & Drakopoulou, 2012, p. 333). This process usually takes place within crews, which, although originally organized to support painting and dispense technical skills, over the years became complex social and educational arenas. Three main factors made apprenticeship and collaboration amongst writers an integral part of graffiti subculture: graffiti's competitive environment, its sophisticated style and difficult execution, and its illicit nature.

During apprenticeship, either within crews or with a mentor, novice writers learn how and what to observe in other graffiti: style, execution, color combinations, etc. Perhaps one of the most popular and significant procedures that every writer undergoes throughout the apprenticeship is the discussion on subjects related to the practice, history, and values of the subculture (cf. Valle & Weiss, 2010, pp. 129–131). During these conversations, "the criteria of evaluation are created" (Valle & Weiss, 2010, p. 131). Thereby, beginner writers "become aware of how graffiti is evaluated and fame is conferred by audiences" (Avramidis & Drakopoulou, 2012, p. 332). These criteria are of great importance as they train writer's vision in important elements of practice such as seeking difficult-to-access locations, paying attention to details related to execution and material and so forth. Apart from technical matters, graffitists learn what is acceptable and what is not acceptable in graffiti subculture. For example, "biting," meaning copying others' style, or "crossing," namely overwriting other writers' pieces.

Most of this knowledge, which at least in the formative years of graffiti is unavailable elsewhere, is acquired by neophytes through occasional contact with more experienced writers, trial and error, or direct instruction in a crew (Avramidis & Drakopoulou, 2012, p. 333). Crews, most of the time, are geographically localized group formations. This allows crew members to meet on a regular basis. They also forge strong friendships, interpersonal trust, and develop a unique sense of support, reciprocity, and commitment to each other. Crews operate like families—they prepare members for confronting the difficulties and opportunities of society, in this case the graffiti field.

Crew members, whether experienced or not, perform in turns the role of the teacher and the role of the student. In the process they reconfigure the traditional institutional perception of the student–teacher relationship, where the teacher is the active agent and the students are the passive recipients (Freire, 1970/2005, p. 72). Graffitists challenge the "banking" model of learning as described by Freire (1970/2005), and they learn to think critically of their educational position. In a sense, the learning procedure that writers undergo, although paradoxical when one considers the hierarchical stratification in the graffiti world, seems to reject the "teacher–student contradiction" and to substantiate the Freirean concept of education, whereby individuals must be "simultaneously teachers and students" (1970/2005, p. 72).

The setting in and during which learning happens is important. It is different to participate in a learning situation in a school, where the teacher is often positioned opposite to the learners due to the classroom's arrangement, compared to a wall in the street, where graffitists paint side by side. The spatial correlations in both cases deserve attention. In the former case there is a situation of power while in the latter less so, as learning stems primarily from collaboration and common interests. The context of any learning situation matters.

Writers who paint together are equal: they learn from and teach each other in turn. In front of a wall, or rather in the graffiti community in general, race, ethnicity, class, gender, and age do not count—only mastery and commitment are important. It does not matter who writers may be in their real lives. After all, writers enter this field with another, self-invented identity. By inventing and putting into public circulation

new names, graffitists are able to create new links with their everyday identities and new connections between their past and present. In graffiti, writers are evaluated for their attitude and performance within the community, solely based on this new "persona." They are freed from any everyday societal conventions or limits, and can shape their new identities as they wish. Graffitists invest a great deal of time in finding unique and characteristic names because it is through this signature that one is presented in the community. Some of these names reveal personal information (e.g., neighborhood, birth date) while others attempt to sound aggressive or artistic. There is a very special relationship between fame, anonymity, and identity in graffiti subculture: one may be legendary but practically unknown. In a sense, graffiti self-naming provides similar opportunities with that of the Internet; in both cases "anonymity" is utilized for a purpose.

Another common practice in graffiti, which underlines the importance of network and learning happening within the community, is the sketch and piece exchange, i.e., the process when a graffitist writes another writer's name with his or her own style. This kind of exchange is utilized not only to show respect for a writer or to demonstrate one's skills, but also to provide new ideas to the participating graffitists and the community as a whole. An exchange is considered complete only when both writers produce a sketch or a piece for each other. Online platforms, such as *Greek Exchange.tumblr.com*, facilitate and publicly disseminate these exchanges, while motivating practitioners to either participate or further connect and collaborate. These websites enhance and accelerate the exchange procedure and make public a practice that has its roots in the formative years of contemporary graffiti.

Back in the day, novice writers, let alone those from provincial cities, used to forge exchange networks with more experienced graffitists, who were usually located in big cities, so as to learn their craft. They would send letters including photographs and sketches, and then, the experienced writer would return them with comments and further sketches. Quite often was the, rather outdated nowadays, technique of partially coping the sketch, using a carbon paper, and then intervening to another writer's style in order to make it more stylistically sophisticated or delicate. In a sense, graffitists were engaged in a "distance apprenticeship" of some sort. This practice of not only assisting in the development of another writer's personal style, the most intimate feature of a graffitist's identity and work, but literally evolving it together with the writer, shows emphatically how close the collaboration amongst writers might become and how deeply engaged and committed can graffitists be in their own learning setting.

Assistance, collaboration, and cooperation do not take place only between experienced and novice writers, or among members of the same crew. In fact, master writers share their innovative techniques with other experienced writers and work together in common themes. In collaborative graffiti productions, whether legal or not, graffitists share features so as to make the pieces more stylistically "consistent" (e.g., one paints in the piece of the other, or one draws the all outlines with a particular technique). All the aforementioned show the, cultivated through constant learning, collaborative spirit of graffitists.

Online Interactivity: Feedback and Evaluation

Crews' significance as educational and informational arenas has radically changed since the emergence of the Internet. Today's websites are not static repositories of images that allow only passive observation. Instead, they include fora or allow messages, comments, and chatting, thus facilitating synchronous and/or asynchronous communication between writers. Even though they might be less personal, dynamic web platforms allow writers to interact instantaneously over vast distances and share pictures, links, etc.

The process of learning is primarily concerned with the involved people, the duration and frequency of interaction amongst participants, and building upon existing knowledge. Then, in the case of graffiti, the Internet provides an extended field for interaction and learning from peers. Most importantly, the Internet provides writers with the opportunity to communicate with peers with different levels of mastery from other cities, have more regular interactions with other graffitists (especially when compared to the occasional meetings with masterwriters in the past), and revise and re-consult the stored interactions and communicative exchanges. In other words, it facilitates networked learning within graffiti community.

The website *Streetfiles.org* provides an interesting example here. Writers create an account and start uploading their works while other users can post comments. Several options for categorization are available and "Love"–"Hate" buttons are provided. *Streetfiles* is a space where graffiti flicks from around the globe can be either judged or consulted. Except for the less critical, yet stimulative, comments such as "dope," "burner," "killer," and so on, there are some others more evaluative, like "I don't get this or that letter," "you should work more on your execution," "it looks depressive," or "check this or that piece or writer." It is easy to understand that the first three comments are instructional and critical, while the fourth is directional. These comments are useful, not only for the writer, in order to figure out the problems and correct the style, color, or execution, but also because they direct the next "reader" of the piece: this reaction list biases the reader. In turns, all graffitists comment and are commented on, criticize, and become the subjects of criticism. During the process, graffitists become aware of their axiological situation, thus raising "critical consciousness" (Freire, 1970/2005).

Apart from *Streetfiles* or relevant graffiti websites, such as *Streetpins.com*, writers create their own blogs, either personal or collective. In all cases, the "voters" provided are welcomed and used to grade each other's pieces. When writers, experienced or not, receive too many negative grades, they need to reconsider their work. Negative votes may refer to different aspects of a piece: ethical (e.g., writing on respected places, such as a church), aesthetic (e.g., the piece may be of low quality in execution, coloring, or style) or subcultural (e.g., writing over a better piece). During this evaluation, writers absorb many important values, such as considering the social impact of their actions, working hard to improve, and being aware of the rules and structures embedded in a field of operation.

In chat boxes and online fora, writers discuss graffiti issues, share experiences, ask questions, and get answers, and debate on the "philosophy" of their culture. In fora such as *Hip-Hop.gr*, one of the most popular graffiti fora in Greece from which we draw our examples in this paragraph, writers ask for information and technical directions, such as "Which cans and caps are better and why?" or tips on drawing techniques, for instance "How can I make a stencil?" They share links and categorize resources (e.g., graffiti books and films). They also discuss local news, such as "Who got caught and what went wrong?" that later ignites relevant subjects like "What to do in case you face legal charges for writing." Building upon or modifying former conversations, different people with different perspectives and backgrounds, both in real and graffiti life, offer and share their experiences, and in the process are transformed from passive receivers of information into active agents in the creation of knowledge. People with different outside, non-graffiti related, experiences interact to produce culturally meaningful and useful knowledge.

Apart from the technical issues, fora host debates that are aesthetically and culturally grounded. For instance, one initiates a discussion under the topic "What do you think of this writer?" and the comments which follow are not dissimilar to that of an art history classroom (e.g., comparisons with other writers of the same "writing tradition," colors and techniques used, sociotemporal context). During these conversations, graffitists are trained to evaluate each other's work, while participating in fertile criticism which is, implicitly or not, aesthetically, culturally, and contextually grounded. Other questions such as "What is your opinion of this or that graffiti-related film or mainstream article?" fuel hotly debated issues of how "outsiders" think of graffiti and to what extent these representations properly address certain aspects of writing. In a sense, writers implicitly learn how to engage with a discourse analysis. Graffitists are also occasionally asked to "Vote for the best writers in Athens and the provinces." In this case, they are indirectly asked to demonstrate their trained judgment and be prepared to justify their choices. At the same time, they are asked to be vigilant and up-to-date: writers need to be aware of not only the history but also the current writing "trends" and active local communities.

By addressing questions and opening up subjects, "learners" lead and facilitate the discussions that take place in such platforms. In doing so, they rapidly learn not only to direct the conversations but also to position their questions and enquiries in such a way that opens up different, and often conflicting, dimensions of a subject, especially when it comes to graffiti philosophy. Even more importantly, these discussions remain stored and available, thus perpetually useful and renewable.

The Internet seems to construct a new, shared, "connected" writing culture. In online interactions and exchanges works are presented, skills are demonstrated, status is conferred, subcultural identities are negotiated, cultural principles are questioned and destabilized, criticism is involved and crystallized, and axiological criteria are formed. Knowledge is created and distributed, at the same time that common concerns are debated and personal stories are told. What is discussed online derives from the offline experience, and what is learnt online influences the offline practice. The "traditional" graffiti methods through which historical, cultural, and aesthetic criteria used to pass from one generation to the next, either

through participation in crews or apprenticeship with a master writer, are now extended from online interactions. However, two major graffiti characteristics are still difficult to transfer online: the technique of execution and the way that writers locate their spots for intervention. The former depends on direct engagement with the materiality of the city, and trial and error is needed to develop the craftsmanship. The latter relies on deep spatial and cultural understanding of the immediate urban surroundings. Different factors are involved that largely dictate writing practice: graffiti is all about constraints.

Writing In Situ

Material and Cultural Restrictions: Becoming Context Sensitive

Graffiti relies upon its "artifacts." It is in the practice of writing, its positioning in physical public places, that the subculture is implied and evinced, becoming powerful and subject to valuation by other members. "To the uninvolved and uninformed, graffiti may seem out of control," but as Jeff Ferrell and Robert Weide note, "in reality it's largely controlled by the urban environment in which it exists" (2010, p. 50). In the same way that the parasite relies on its host, graffiti depends on its location, its surface of application.

Graffiti is simultaneously a physical act and a cultural practice. As such, it is ruled by both material and social restrictions. Physiological and circumstantial constraints, in other words contextual restrictions, dictate graffiti writing. Scale is one of the first physical challenges that neophyte writers have to face. They need to learn to transcribe a sketch, which is rarely larger than an A4 page, into a wall size piece, that is usually at least three meters long. Constraints encountered during the execution of a real size piece (e.g., too long straight lines) are reflected back to refine the style in sketch. Further, through their practice in situ, graffitists develop material sensitivity (e.g., invent new techniques for different textures) and start to appreciate, or even manipulate, several immaterial qualities (e.g., use particular colors that develop a special visual dialogue with a sunset or a water reflection).

The restrictions imposed by and the opportunities emerging from the urban surroundings play an extremely important part in graffiti. Writers' mediated exposures are not often easily replicable in their cities (cf. Kidder, 2012, p. 248). As Chmielewska argues, "each city canvas invites a different treatment, form, placement, extent, and magnitude for wall writing" (2007, p. 156). It is completely different to practice graffiti in New York, Tokyo, and Athens, not only in terms of textures, places, and infrastructure available, but also in how graffiti is socially perceived. For example, mainly due to the lack of infrastructures, the Greek graffiti scene formed and evolved on walls rather than on trains, in contrast to the US scene. In Los Angeles, signature graffiti was considered to be closely associated with gang activity, while in Greece, at least in the early 1990s, it was even associated with hooliganism. The prominent model of Greek domestic buildings affords different treatments compared to the building blocks in New York City.

Graffiti is driven by numerous visual, spatial, social, and subcultural criteria (cf. Chmielewska, 2009, p. 272; Ferrell & Weide, 2010, p. 51). It is governed by the materiality of surface, the visibility of and accessibility to the spot, the morphology of the city, and even the weather conditions. For instance, wind direction imposes restrictions and calls for special techniques, while the potential humidity on a surface would also affect the final product. The graffitists who have faced difficulties and made technical "errors" during the execution of a piece often write apologies for their mistakes to the graffiti community. As Susan Stewart notes, "writers will often make evaluative comments part of their 'pieces', leaving a history of the constraints on their work: 'sorry about the drips', 'it's cold', 'cheap paint', 'too late, too tired' etc" (1987, p. 166).

Writers learn to adopt, or even invent, completely different tactics. The mediated exposure is translated and adjusted in the specific cultural and spatial context; it is locally performed. In the process, writers learn to be adaptable, seek originality, fight against misconceptions, organize tactics, take risks, be brave and so forth. They learn that all cultural formations, even the most self-referential ones such as graffiti, are context sensitive, both in terms of production and social perception. The reactions that their activity invites emerge in a cultural, spatial, and temporal frame. Even if graffiti draws boundaries between the scene and the rest of society, the writing community soon finds out that the "outside" world largely affects the way the inside is structured. Graffitists learn that not only the material and spatial but also the social and cultural restrictions largely define the way people operate in a given field. In a sense, writers become familiar with how different cultural formations interact with and mutually designate one another, and learn to recognize and understand the existing and emerging social structures. Most importantly, since graffiti is all about publishing one's work and being exposed to the public, graffitists learn to overcome fear of exposure in a given public domain.

Graffiti on the Spot: Changing Worldview and Vision

Various groups "read" the generic urban elements differently. Where others see a handrail which ensures their safety, skateboarders see an element to slide on; where others see a bench to sit on, traceurs understand it as an obstacle to overcome; where others see a wall which shields private from public life, graffiti writers read a surface to broadcast their personal stories. In parkour terms, this is called "PK" vision and refers to an alternative way of looking, experiencing, and understanding urban elements (Kidder, 2012, pp. 245–247). It could be called SK and GF vision for skateboarding and graffiti, respectively. It does not really matter how we label it. What matters is what this vision is: it is a different way of "reading" the city.

"Reading the city differently" is a way of re-imagining the affordances of urban elements. According to James J. Gibson, the affordances of an object or environment are its embedded properties that allow and furnish an individual's action (1979/1986, p. 127). Today the term is used to refer to the overtly visible, easily

recognizable, functional indications of objects, whereas we refer to the latent and imaginative perceptible properties of the environment that reveal any hidden possibilities for action. Being a writer means to know the surface, to understand, and re-imagine its affordances. Knowing the graphic space of writing is crucial for writers because they have to appropriate different techniques, means, and materials so as to intervene properly. The graphic space on which a text is situated and the materials used to produce it define its reading. Graffitists exploit the affordances of their objects (e.g., spray-paint, walls, photography, websites) and that of their environment (e.g., urban and/or virtual space) to convey subculturally meaningful messages. In the process, they learn to appreciate the "hidden" qualities and to imagine the potentialities of their immediate environments.

Writers do not read each other's pieces as single images or plain signs; they recognize them as visual events. When graffitists look at a piece, they read and appreciate its invisible characteristics. Through the years, writers' vision is trained not only to evaluate other graffitists' pieces but also to read the city differently. Stephen J. Saville, in his study on parkour (2008), argues that the trained and mature traceur's body leads to "immaturity," driven by the playful engagement with urban materiality. This also seems to be the case for graffiti. Although the selection of appropriate spots for graffiti interventions may seem random and accidental, in reality it is deliberate and based on long-trained vision. Material and immaterial, corporeal and incorporeal, as well as cultural factors shape writers' mental urban mapping and vision.

Writers constantly scan their surroundings seeking to occupy the most appropriate spots and urban elements for their purposes. In doing so, they develop an acute eye, a very special sensitivity in appreciating the visual characteristics of the urban environment. Writers do not watch; they see the city. They do not look at the city from a distance, but read it closely. Graffitists occupy and frame the urban environment with their vision. Since they need to learn how to attract attention, writers develop a unique spatial cognition concerned with materiality, depth, perspective, color, and everything that produces visual impact and emotional response. Consequently, it is not surprising that many writers follow successful mainstream careers in disciplines where creativity, spatial perception, and visual communication are crucial.

Apart from styles, colors, and so on, graffiti is all about "the spot." This has led graffitists to a constant exploration of the city. In fact, committed writers know their cities as no one else does, from the most visible and crowded places to the abandoned and silent alleys. This fact further enhances their emotional attachment with space and their sense of belonging. The latter leads graffitists to feel they own the city and that have the right to actively engage with its production. Even if writers' messages are not overtly political, the acts of writing and reclaiming space for expression are. With their writings, graffitists challenge and denaturalize the privatization of contemporary urban space that is increasingly becoming the unquestioned and taken-for-granted social norm.

This fact makes them think critically not only of the ethics and aesthetics of urban space but also of its modes of production. A relevant point is raised by Freire when he notes that critical consciousness is the result of "intervention in the world"; when the students, or the writers in our case, start to consider themselves "as transformers

of that world" (Freire, 1970/2005, p. 73). He also pinpoints the fact that the "banking" concept has transformed individuals into "spectators, not re-creators" (1970, p. 75). The "critical consciousness" in regard to urban space production is highlighted by the Greek graffiti writer Besore (2011):

> Graffiti for me, apart from a means of communication with other writers, is a way of declaring my existence in public space; this is a fact that the wider society often ignores. Most people believe that the city is a spectacle, a final product that has been constructed just to be seen and not to be co-produced; this prevailing social perception transforms every urban intervention, including graffiti, into an illegal act.

Ferrell and Weide (2010) argue that writers' decision to paint in specific places is driven, governed, and shaped in accordance to the following: the audience addressed and the visibility of the spot, the anticipated longevity and potential durability of their pieces in the particular place, the availability of space and competition among writers for particular spots and the seriality and accumulation, i.e., writing across diverse neighborhoods and spaces. This ability to locate and intervene in particular spots "is built from a writer's participatory knowledge of the graffiti subculture, and from an understanding of the places and situations that members of that subculture imbue with cultural significance" (Ferrell & Weide, 2010, pp. 49–50; cf. Ferrell, 2013). However, spots are neither solid and permanent nor univocal. They both influence and are influenced by subcultural, physical, and representational dynamics. The latest technological developments, including digital photography and Internet-based communication technologies, have radically changed the way writers understand their environment and "liquefied the spots" (Ferrell & Weide, 2010, p. 59). Since "physically absent others are increasingly able to be virtually present," the Web becomes "the spot" (Kidder, 2012, p. 240). The Internet platforms seem to "have become the new fame spots. Writers don't have to consider the potential audience of the actual spot" (Snyder, 2009, p. 148). Although it refers to graffiti magazines, Snyder's previous quote acquires even greater power when considered in relation to digital media distribution.

Should we consider that graffiti is dependent on its audiences, then the way writers choose their spots for intervention is radically changed: the online practice largely affects the offline. Since writers no longer broadcast their work only in the real world but rather in the virtual, the way their work is documented and distributed designates their choice of the spot. This shift from the original to representational, the change from one transmission channel to another, dictates not only the reception of the message, but also how the producer of the message thinks of the message and acts in the physical world. It seems that graffitists choose their spots in accordance with the anticipated image; the expected picture of the piece comes before its actual execution. Graffiti's representation and circulation "liquefied" not only the spots but also the writers' vision.

Nowadays some pieces are especially designed for the Internet, or rather for particular web environments, such as *YouTube* or *Facebook*. The graffitists who produce such pieces, which are usually executed in less visible physical spaces, do so to make fun of those writers who seek "cheap fame" (e.g., a piece that writes *Instafame* that sarcastically paraphrases *Instagram*, or another one that copies the

characteristic red box of *YouTube*'s logo and writes *YouSuck*), or to comment on the relationship between the virtual and the real environments. The recently launched *#graffitichallenge* is perhaps the best example to illustrate the reciprocal relationship between the digital and physical practice in this specific subcultural context. In Greece, this challenge was initiated by Nar, a Salonika-based graffitist, in September 2014. The graffiti challenge works as follows: a graffitist produces a tag or piece in a physical spot and then posts a photograph on *Facebook*, where other writers are challenged to do the same in 48 h. Nar starts the challenge by writing a slogan which reads "nice spot" accompanied by an arrow which points to the wall (Fig. 7.4a). Beneath the piece stand the names of those who are invited to accept the challenge. In response to Nar's challenge, the Athens-based graffitist Rtm creates a character that depicts a man executing a pole vault while tagging (Fig. 7.4b). The piece is followed by the message "Yo Nar, Don't do it for the Spot, Do it for the Sport" and a list of further challenged graffitists. Wake from Vienna accepts Rtm's challenge and, on his turn, calls more writers to accept the challenge—and so forth.

Despite the undeniable mobilization that the *#graffitichallenge* causes in the graffiti scene, perhaps its most striking aspect is the repetitive use of a digital element, namely the hashtag (#), in physical spaces. The hashtag is a type of metadata tag which allows similarly tagged messages in social networking services to be grouped and retrieved upon an electronic search. Similarly, physical hashtag group geographically dispersed pieces and connects writers. In doing so, it creates a sub-culturally meaningful network of locations, a new global data map, while highlighting the dialectical relation that the real and virtual share in graffiti world. In this case, the hashtag, both as convention and function of the Internet, is literally transcribed in physical world before returning back to the Web, and in the process reveals how the physical graffiti piece, its representation, and its channel of dissemination are fused. The *#graffitichallenge* emphatically demonstrates that the line between online and offline practice is fine, or even nonexistent.

Today the links between location, risk, and the subsequent fame conferred are broken, since the original source and its representation image are conflated.

Fig. 7.4 The #graffitichallenge. (**a**) "Nice Spot." Thessaloniki, Greece, 2014. Artist: © Nar. Photo: Courtesy Nar. (**b**) "Yo Nar, Don't do it for the Spot, Do it for the Sport." Athens, Greece, 2014. Artist: © Rtm. Photo: Courtesy Rtm

Writers see the physical world not only photographically but also "Internetically." Given that the representation of graffiti is increasingly received and evaluated, then this partially explains the contradiction that can be witnessed in today's graffiti practice when the graffitists choose to write in less visible places. Considering that physical spots have "become disconnected from their traditional subcultural status, and from their existing urban audiences," then every writing spot is seen, understood, and appreciated as a part of a global landscape (Ferrell & Weide, 2010, p. 59). This fact reconfigures several subcultural characteristics and principles, and reshapes writers' vision.

Conclusion

The way graffiti subculture is structured as a field, and how practitioners operate and are educated within its boundaries, makes it a fertile subject in thinking of alternative possible forms of learning away from the prevalent institutional settings. The mutation and the dissemination of the graffiti field is based on how writers communicate with each other and reach their audiences, which in turn is a matter of technology. The primary way through which graffitists expand their field of communication is by manipulating the affordances of different objects, environments, and technologies. Graffitists reflexively adapt their practice in the physical world to their evolving understanding which derives from the appropriation of the subculturally useful characteristics that information and communication technologies afford.

What seems to be important in dealing with the representation and circulation of graffiti in online environments is not how it travels instantly, transcending the spatio-temporal boundaries, but rather how the use of the Internet affects, changes, and expands the graffscape within which writers perceive their spatial and social reality and redefine their practice and learning in accordance with this new understanding. That is not to say that the virtual overmatches the real; graffiti affirms the continuity between the real and the virtual. Writers' virtual experience is not disconnected by their real experience; the former is influenced and enhanced by the latter, and vice versa.

Through their participation in production and representation of graffiti, writers learn various invaluable lessons: be hard-working, innovative, collaborative but also independent; self-determined, self-motivated, responsible, trustworthy, and so forth. Moreover, graffitists gradually develop "critical consciousnesses" of understanding power relations in education and society. They are also equipped with technical skills, knowledge, and values to critically encounter and meet the requirements of a mainstream life and career. In a global environment where technology and communication are ever more important, perhaps one of the most significant elements that evolve through participation in graffiti community is creative manipulation of physical, analog and digital environments and tools. Those elements, and their adaptability, provide both the impetus and the necessary skills for success in mainstream careers, where management, creativity, visual communication, and imaginative engagement with all types of materiality are determinant.

Moving from the real to the virtual, writers develop a reflexive spatial, cultural, and technological way of thinking and operating. This oscillation between different

spaces and media changes the way they see, understand, and act in physical space. Technologies expanded the graffscape and, in doing so, provided a wider learning field for graffitists. The Internet made the learning process of graffiti easier and broadened writers' horizons by exposing them to a wealth of information and providing them with platforms for interaction. This medium, however, seems to be less capable of fully supplanting the traditional apprenticeship; it extends it, but not univocally.

Ultimately, what emerges from the current analysis is that writers' fields of exposure are not limited to the local urban landscapes or the graffiti media. Instead, graffitists' works relentlessly flow and reach de-territorialized audiences within the global graffscape. It is in this same field that writers today acquire and evolve many important elements for an alternative life. In the continuous, iterative, and reciprocal relationship between the physical and digital, graffiti constantly moves from urban to virtual spaces and back.

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Chapter 8
Teacher Heutagogy in the Network Society: A Framework for Critical Reflection

Maarit Jaakkola

Following the advent of the network society, ontology and epistemology of learning have undergone significant changes (Borko, 2004; Fullan, 1993; Guskey & Huberman, 1995; Hodgson, McConnell, & Dirckinck-Holmfeld, 2012, pp. 292–293). While new information landscapes shape patterns of media consumption and production, their critical understanding has become a new mode of orientation and can even increasingly be counted as a civic skill. Consequently, educational institutions are expected to reflect contemporary social changes by introducing various ways of learning in and about information and communication technologies.

Acting as role models and facilitators, teachers are notable gatekeepers for entire realms of knowledge and action: for the most part, they decide which technologies and directions of social action are selected and promoted. On that basis, teachers are influential agents of social change (Fullan, 1993). However, traditional teaching competencies might not necessarily produce the desired results in networked settings. Therefore, the scholarly inquiry into the nature of networked teachers' new technological and pedagogical competencies has become increasingly relevant (Minocha, Schroeder, & Schneider, 2011; Shaikh & Khoja, 2011).

In mainstream research, teachers' relationships with technology have been traditionally discussed and developed within paradigms of instructional design or instructional systems design (see e.g., Banathy, 1991). In this context, the technosocial history of networked learning shows a constant evolution towards connectivity, flexibility, and openness. Learning Management Systems (LMS) have provided teachers with tools to share and manage course content. Virtual Learning Environments (VLE) have provided them with pedagogically tailored tools for performing social

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M. Jaakkola (✉)
University of Tampere, Tampere, Finland
e-mail: Maarit.Jaakkola@uta.fi

interaction. Customizable Personal Learning Environments (PLE) based on social media have placed individual learners into the focus and enabled them to manage own learning (Anderson, 2008). Following those fundamental conceptual and cultural developments, the role of the teacher is calling for a redefinition. Under the circumstances, teacher competencies in self-study and networking are becoming increasingly important. Therefore, this chapter focuses to individual teacher competencies in pursuit of sustainable support for professional development.

Relationships between teachers and information technologies have been described by various competing terms such as e-learning and technology-enhanced learning. In order to emphasize connections "between one learner and other learners; between learners and tutors; between a learning community and its learning resources" (Goodyear, Banks, Hodgson & McConnell, 2004, p. 1), this chapter is focused to the concept of networked learning. Teacher competencies in the network society have been extensively researched and debated. For instance, public discussions have asked whether teachers should be web-savvy or just web-aware (Lane, 2010) and to what extent teachers should be reachable via social media platforms (Preston, 2011). Educational institutions have been expected to bridge the digital divide by acting on differences that have turned out to be only partly generational and to adopt tools from informal learning environments (Warschauer, 2004). Following the 2005 *Alexandria Declaration* and the 2007 *UNESCO Paris Agenda*, recommendations and guidelines for teaching media and information literacy have been delivered worldwide (Grizzle & Wilson, 2011).

Following established definitions of media literacy, the UNESCO recommendations are based on three interrelated key competencies for the teachers' curriculum. Those competencies are: *knowledge and understanding* of media and information for democratic discourses and social participation, *evaluation* of media texts and information sources, and *production and use* of media and information (*ibid*: 22). In terms of information and communication technologies, it is declared that the pedagogic challenges involve "the integration of various technologies, tools, and e-content as part of whole class, group, and individual student activities to support didactic instruction" (UNESCO, 2008, p. 10). Teachers are required to develop critical thinking and extend it to their students using various media. Critical approach is extended from reception of digital content and web-mediated communication to content production, application of technological solutions, social presence, and online behavior.

This chapter elaborates a tentative framework for examining contemporary teachers' competence requirements with a focus on usage of information and communication technologies. Conceived within the theoretical framework of networked learning, its interest lies in exploring and understanding ways that networked technologies "can be incorporated into pedagogy and learning designs to support and mediate critical and productive learning" (Hodgson & McConnell, 2013). It cannot be denied that mastering technologies is nowadays seen as pivotal for professional development. Networked pedagogy pushes individuals towards autonomy crystallized in the concept of heutagogy, thus imposing increasing challenges for teachers as facilitators of self-directed learning processes.

The social structures of late modern society are significantly shaped by and organized around networks that build on digital technology and pervade all domains of social and economic life (van Dijk, 1999). Castells (1999) insists that pedagogy must be transformed to be apt to educate "creative, flexible, and autonomous individuals." Although teachers are often regarded as mere inducers of network interactions, they are also active agents in the network society. Instead of choosing between preselected resources characteristic for the era of printed textbooks, creation of virtual environments requires access, filtration, and autonomous choice of tools. In his recent work, van Dijk (2013, p. 6) interprets Michel de Certeau's *The Practice of Everyday Life* (1984), which proposes that people use tactics to negotiate the strategies that are arranged for them by institutions. This is exactly what teachers have to do with new technologies: consequently, they are every day confronted with a wide range of open questions that need to be solved locally.

Teaching and learning increasingly occur in mediated form and range from a wide variety of different forms of organization and interaction, such as private and public, co-operative and collaborative, or synchronous and asynchronous. This fact poses questions that need to be interrogated from the individual perspective, where teachers typically establish an expertise based on accumulated experience involving tacit knowledge supported and developed in reflective action (Nijhof & Streumer, 1994; Schön, 1984). Therefore, a shift from the ontology towards the epistemology of the teacher pedagogy is required, which implicates paying particular attention to the teachers' agency in the networked world far beyond the walls of the classroom.

Research on educational technology has often been criticized for the lack of theoretical grounding. Technology is often regarded as a context that effects classroom activities but does not belong to its core. In order to make deeper sense of such distinctions, this chapter looks at the relationships between learners, technologies, and the society within the theoretical framework of critical pedagogy. Arising from the tradition of Frankfurt School of Social Science, and more recent works by theorists such as Paolo Freire (1970/2005), Henry Giroux (1992) and Peter McLaren (McLaren & Jandrić, 2015), critical theory insists on active social role of networked learning and individual agency of each teacher and learner. However, unlike early Frankfurt School critiques of modernity focused to modes of production, networked learning is strongly focused at design and architecture of learning networks (Carvalho & Goodyear, 2014). This kind of design critique "relates the values embodied in technology to a social hegemony," but "what depends on a social force can be changed by another social force: technology is not destiny" (Feenberg, 2002, p. 64).

Following a similar line of argument, Edelson (2002, p. 119) notes that teaching and learning is at its heart a design endeavor. The practical process of applying a (critical) theory to construct a design may help educators to apply the results of educational research in a better and more innovative way. A design framework is needed as a generalized design solution describing the substantive design principles that could function as a coherent set of guidelines for a particular class of design challenge. The goal-oriented nature of design research ideally contributes to understanding of both theory and practice. On that basis, this chapter creates a design framework for critical reflection on teacher heutagogy in the network society.

From Teacher Roles to Critical Reflection

Changing competencies in networked teaching and learning are often conceptualized through changing pedagogic roles. As recent social and technological developments have resulted in various changes in pedagogic epistemes that contribute to the consolidation of constructivist and learner-centered models of learning (see Harasim, 2000), it has become clear that the traditional role of the teacher is being extended in various directions. In virtuality, roles taken up by teachers and learners are interrelated with their typical tasks. For instance, Downes (2010) identifies the following roles for the networked pedagogue: collector, curator, programmer, salesperson, convener, coordinator, designer, coach, agitator, facilitator, technical support, moderator, evaluator, demonstrator, mentor, connector, theorizer, and sharer. The networked teacher thus absorbs new dimensions which could be classified into five different roles: the designing or planning role, the instructive or cognitive role, the social role, the managerial role, and the technical role (Minocha et al., 2011; Shaikh & Khoja, 2011).

The technical role involves providing learners with technical support and, more importantly, the ability to navigate web environments and interconnect applications, build mash-ups, and manage systems of information. The managerial role means facilitating procedural, organizational, and administrative tasks to set up and run online activities. The social role, familiar from old non-mediated environments such as classrooms, is altered by information and communication technologies towards the challenge to facilitate creation and growth of online student communities and networked communication. The instructive role and/or the cognitive role may remain the same as in non-mediated classroom communication, and yet stress learning through interactive activities, critical reflection, problem-based learning, and versatile feedback enabled by online presence. Finally, the role of the designer or the planner is attached to technological and managerial dimensions of online teacher presence, as they set up social infrastructures by using different tools for information sharing and interaction.

However, the concept of changing roles does not directly contribute to understanding how pedagogy, content, and technology are mastered and brought in mutual relationships to social contexts. Models examining teacher competencies have mainly concentrated on the relationships between content, i.e., the actual subject matter that is to be learned and taught, pedagogy, understood as the process and practice or methods of teaching and learning, and teachers' technological knowledge (Mishra & Koehler, 2006). However, viewing any of these components in isolation from others is merely an analytic act that is difficult to pursue in practice. Instead, teacher roles exist in a state of dynamic transaction and are given meaning by individuals who apply, to use de Certeau's term, their "negotiation tactics." Teachers form personal and individual relationships with each component of the system, as understanding affordances of a particular technology requires direct engagement with that environment.

Within the field of andragogy, study of self-determined learning has been termed as heutagogy, after the Greek word *heautou* ("of oneself"), to designate learning

processes where the ultimate responsibility for learning is placed on the learner (Hase & Kenyon, 2000; for review of the concept see Blaschke, 2012). In mediated communication environments learners are given greater levels of agency, while learning is even further determined and directed by the learner. These developments are dialectically connected to digital literacy, as agency is directly aligned with the expectation that individuals must attain learning-to-learn competencies in order to succeed in the network society (Ashton & Newman, 2006).

Heutagogy typically refers to students or learners in general. However, it also applies to teachers oriented towards building connectivity and social rapport, facilitation of collaborative discovery and sharing of information, supporting content creation and contributing to aggregation of knowledge and information as well as content modification (McLoughlin, 2011; McLoughlin & Lee, 2010). More than ever, this invites networked pedagogical agents—teachers and students—to take ownership of the processes of learning. This embraces the idea of professional development of an expert (Bereiter & Scardamalia, 1993) which has been found on the basis for teachers' professional development but extends to all learners by emphasizing agents' ability to solve nonroutine problems in a given domain.

A key concept in heutagogy is double-loop learning of self-reflection (Argyris & Schön, 1996). In this experience-based model, the learner considers the problem and the resulting actions and outcomes, and simultaneously reflects upon the problem-solving processes and their influences to own beliefs and actions. Double-loop learning means more than just learning from feedback and taking actions to change one's behavior. It relates learning from one's experiences to reevaluation of one's goals and beliefs, and occurs when learners "question and test one's personal values and assumptions as being central to enhancing learning how to learn" (Argyris & Schön, 1978; Hase, 2009, pp. 45–46). The broader framework of reflective action thus implies that action can be reevaluated and changed by the means of critical self-reflection.

However, it is more intricate to ask: How critical self-reflection can be accomplished in order to arrive at relevant changes in action? Reevaluation of wider frames of action might be difficult, as everyday usage of information and communication technologies is strongly characterized by habitual usage (Venkatesh, Morris, Davis, & Davis, 2003). Blaschke (2012) points out that heutagogy involves a flexible curriculum, a learner-defined learning contract, and learner-directed questions. Heutagogical approaches can therefore be regarded as particularly applicable in continuing education of professionals. The idea of heutagogy similarly underscores the role of self-reflection as the key component of self-determined learning agency, which belongs to mainstream educational thought at least since Dewey (1916).

If teachers are going to impact educational settings, scope of their reflection needs to be extended beyond the tool and its technical usage. Some scholars (Brookfield, 2010) make a distinction between the terms "reflection" and "critical reflection." Criticality is a normative issue, as it is grounded in a set of values which determine what kind of learning and education is inherently most valuable. Within the framework of critical theory, reflection should be focused at uncovering and challenging the power dynamics and hegemonic assumptions that frame theory and

practice of networked teachers and learners. In this way, teacher heutagogy is dialectically interconnected with critical pedagogy.

Professional education that engages with and enlarges experience is based on Dewey (1916) principles of interlinking action and reflection as well as free interaction with the environment during the process of knowledge construction. As Peter McLaren convincingly argues (McLaren & Jandrić, 2015), the relationships between technologies, teaching, and learning require deep engagement with questions of social agency, voice, and democratic participation as developed within critical tradition by theorists such as Paolo Freire (1970/2005), Ivan Illich (1973) and Henry Giroux (1992) (and, by extension, Peter McLaren). Power structures underpinning daily implementation of specific norms, expectations, and behaviors related to information and communication technologies can be deconstructed with the help of critical reflection between networked professionals. Such deconstruction can foster teachers' empowerment in digital environments and contribute to changing organizational cultures that cannot be transformed merely by decision-making or reorganizing work, let alone by delivering information or exposing teachers to theory. Conceived within the framework of critical pedagogy, therefore, professional development of networked teachers can become a powerful agent of social change.

Pedagogical Usage of Technologies

In the field of networked learning, inquiry into pedagogical usage of technologies does not imply only questioning how teachers embrace the new tools, but also how they understand the antecedents and consequences of their adoption for teaching purposes. From constructivist perspective, all learning is, at least in its ideal state, a proactive process which results from personal experiences (Hase & Kenyon, 2007, p. 112). Teachers may facilitate learning processes by providing guidance and resources, while relinquishing ownership of the learning path and process to learners who negotiate what and how will be learned (Hase & Kenyon, 2000).

Individual agency in virtual environments involves continuous evaluation, adoption, and adjustment of different tools and technologies. Therefore, teachers construct relationships with various access channels to available tools. In information systems theory, technology acceptance models suggest that the main factors influencing user decision how and when to use a certain technology are perceived usefulness, ease of use and personal attitudes towards the system in question (Davis, 1989). Perceived usefulness is the degree to which people believe that using a particular system would enhance their job performance. It consists of factors such as influence of important people (the subjective norm), relevance of technology performance to one's job, and expected output quality provided by technology in question (Venkatesh & Bala, 2008). Perceived ease of use, in turn, marks the degree to which a person believes that using a system would be free of effort. It can be divided into components such as computer self-efficacy, computer

	Model of learning and teaching: values and ideals; **relationship with pedagogy.**
	Course and community management: scheduling and selection of tools; **relationship with technology.**
	Invention and implementation of practice in the constructed environment: communication and adjustment of rules; **relationship with the learning community.**
	Critical relationship and interaction with the 'outside world'; understanding of consequences and power relations related to pedagogic solutions; **relationship with society.**

Fig. 8.1   Dimensions of pedagogical usage

anxiety, computer playfulness, and perceived enjoyment, which all mark qualities of the individual's relationship with a certain technology (*ibid*).

An essential prerequisite for technology adoption is thus the *technology relationship* that advances ways to enhance computer self-efficacy, which, again, encourages (more) creative intercourse with technology. Dealing with technology as a user is a matter filled with experiential knowledge. To advance heutagogy, users need to get opportunities for critical self-reflection in the fields of technological awareness, technology adoption and, after accepting a certain tool, for pedagogical and technical adjustment. Following this line of reasoning, it can be concluded that teacher heutagogy in relation to social media should consider teacher as pedagogical user, managerial user, communicative user, and social user (Fig. 8.1).

It may appear tautological to say that teachers are, first and foremost, *pedagogical users*. However, a wide range of studies (i.e., Anderson, 2008) have underscored the view that teaching with the help of information and communication technologies and social media should not be governed and conducted by technology-led ambitions; instead, the pedagogical goals should outweigh the technological ones. A pedagogical user has a pedagogical mission that can be partly or wholly realized in a networked environment. Additionally, there is always a number of good ways to realize any task. Pedagogical user should be able to evaluate a wide spectrum of opportunities and identify the best solutions for going online with students (or, indeed, for staying off-line). Pedagogy involves the conception of networked teaching and learning model which is almost inevitably constructive, and implies certain roles and positions for learners and teachers.

The *managerial user* entails an important dimension of considering affordances of a certain technology or a tool to fit pedagogical objectives. Above all, this role requires selection of tool(s) within various limitations. Affordance, coined by the perceptual psychologist James J. Gibson (1977), refers to actionable properties

between an actor and its environment. Their detection takes place as a consequence of interaction, in processes that assign values to objects in question, under dynamic conditions. Teachers can develop multiple ways of interaction with the same artifact, but it is crucial to carry out testing in order to detect various interpretations that the artifact may offer.

The *communicative user* comes into play when infrastructure has basically been constructed and a learning community should start its activities. Predominately, it is a matter of implementing pedagogical plan in a suitable communicative environment. Teachers should establish operational and ethical rules for various activities in order to mark boundaries between permissible and prohibited, appropriate and inappropriate, and desired and disdained. These rules cannot be entirely fixed in advance, as some will inevitably emerge as a result of learners' mutual interaction. The interaction, in turn, is interwoven with affordances in virtual environments.

When the teacher, as an agent in these four different user dimensions, is placed in the middle of inspection, he or she is primarily treated as a user combining content and pedagogy. When it comes to using technology, the core competencies form four areas of competence related to the usage, the practices, the conduct, the user, and the user environment. In combination, we finally arrive to the stratification of teacher competencies:

1. *Instrumental skills* are related to usage of computers and technology. They encompass basic skills such as text processing and browsing, and more advanced skills such as html mastering. Without instrumental skills, coherent and consequent activity in digital environments becomes impossible.
2. *Operational skills* represent competencies to take pedagogical advantage of available technologies. They are related to recognition and understanding of usage patterns in social media, and aim at fulfilling pedagogical goals by building upon instrumental skills. Operational skills include creating profiles in various public services, using different types of communication to achieve certain goals, and understanding consequences of online behavior.
3. *Strategic skills* are related to course planning, management, and understanding of networked communities from various perspectives. Teachers should know how to construct and lead virtual communities in different phases of its life-cycle, as well as how to get virtual communities working together. Strategic skills also include role and privacy management.
4. *Metacognitive skills* are related to self-regulation and web presence in networked environments. Teachers should be especially aware of own relationship with technology, time management, and lifelong learning and should foster experiences of self-efficacy and self-reflexivity. Personal progress can be supported by interaction and networking with other educators and professionals.
5. *Background skills* consist of a conglomerate of factors that either support or prevent evolution of the aforementioned skills. They include physical facilities, available hardware and software, teaching schedules, technical, educational, and emotional support for self-directed pedagogical practices, and intrapersonal communication to guide the "pedagogical imagination" in the community of

colleagues. These factors cannot directly be changed by educating an individual teacher on vocational courses but they need to be changed by educational policies and the teachers themselves within their communities on meso and macro levels.

6. *Critical skills* are necessary for creating connections between instrumental, operational, strategic, metacognitive, and background skills. They imply critical understanding of social and human consequences of various technologies, such as free- and open-source software, and skills required for making informed choices that reach beyond the level of immediate practice. Critical skills blend theory and practice, knowledge and values, and tradition and innovation, in the realm of critical praxis aimed at individual emancipation and social transformation.

From the perspective of technology acceptance, development of the above teacher competencies can be conceived at two main levels. At the level of everyday practice, they are aimed at finding appropriate solutions for networked teaching and learning. Within a wider time span, however, they are aimed at reaching a minimum of competence in different kinds of areas required for critical pedagogical agency in the age of the network. Some challenges pertinent to these new developments could be explored in teachers' continuing education, while others will inevitably stay in the "grey zone" of informal learning. In order to bring as many developments out in the open, the next section integrates the developed set of skills into a framework for professional reflection.

Overcoming Barriers, Identifying Tensions

Successful development and maintenance of critical learning in digital networks require a comprehensive set of knowledge and competencies rather than isolated skills. First and foremost, technology usage always builds on previous pedagogical expertise. Second, networked teachers should be prepared for regular developments in existing technologies and continuous flow of new hardware and applications. Foundation of lifelong learning in critical theory also requires teachers to continuously develop on moral and ethical basis. The ideological dimension that underlies all critical reflection discerns historically and socially sedimented values at work in the construction of knowledge, social relations, and practices. Therefore, to develop a relationship with technology suitable for advancing heutagogy, teachers need to be encouraged and invited to reflective dialogue.

In the area of professional development, it has been identified that practitioners gain deeper insight into their professional activities and improve their individual performance through methods based on mutual inquiry and self-reflection in self-managing teams. This approach is widely known as action learning (Revans, 1980), and its applications can be found in different kinds of organizational settings (Waddill, 2007)—including, but not limited to, the field of networked learning.

According to Revans (1980), professionals should be aware of gaps and inconsistencies in their knowledge. Consequently, they should be prepared to explore the

critical areas by asking suitable questions and accepting help from other people in similar positions. Critical consciousness of the core competencies and their absence or incompleteness opens up a path for networked learner's autonomy and self-determination. Teacher training should thus aspire for cognitive, emotional, and motivational dimensions when approaching technology from a pedagogical perspective. In this way, we are emphasizing teacher's personal relationship with digital technologies from pedagogical perspective supplemented with questions of affordance, community management, and critical reflection.

To a remarkable extent, adoption of technology is invested with personal and emotional significance, while relevant competencies can be fully acquired only through experiential learning. Successful adoption of any technology requires a continuous reflection of one's teaching activities and active effort towards solving perceived problems and developing updated survival strategies. Without reflection, teachers are likely to import own (sub)cultural norms and familiar problem solving practices into the classroom without making them explicit or testing their validity and utility.

Teachers should also become aware of the consequences of their choices and actions which inevitably hold economic, political, and cultural relevance for social transformation. As agents of social change, they should choose whether to support proprietary or open software, whether to endorse culture of copyright or culture of openness and sharing, whether to conform to the existing terms of use or to allow pragmatic exceptions. In this volume, contributions by Katarina Peović Vuković and Shane Ralston are particularly instrumental in addressing such choices. Critical reflection focuses not only on how to work more effectively and productively within the existing system. More importantly, it questions the very foundations and imperatives of current techno-social realities, thus assessing their morality and considering alternatives.

In the light of technology acceptance, typical areas of inquiry in teacher reflection can be analyzed at three different levels: instrumental, operational, and strategic (Table 8.1). Certainly, all knowledge areas are interrelated and interdependent. In order to make a strategic decision, for instance, an individual should be simultaneously informed by the instrumental level and the operational level. Furthermore, all levels of usage contain certain thresholds or barriers. The initial phase, as seen in workshops on web instruction for teachers, often involves discussing on the pros and cons of the "new" medium with regard to these barriers. Once critically contested, however, it can be discerned that not that much is completely new in the use of web technologies in teaching and learning.

The new models of teaching and learning are often built on constructivist and collaborative pedagogies enabled by network technologies (e.g., Borko, 2004). A number of learners are already acquainted with technologies from nonformal settings. As indicated almost half a century ago by Marshall McLuhan (1964), online software also derives its conceptual basis from the "old" media. Tools which have not acquired the official status of instructional technologies are tendentiously *framed* as something new in discourse. Rapid evolution of information and communication technologies prevents them from becoming transparent like their predecessors such as chalkboard and blackboard, overhead projector, and paper. Taming the new technology starts as soon as features that refer to something familiar and applicable are identified.

Table 8.1 Areas of reflective inquiry for action learning

Area of competency	Barrier	Potential tensions
Instrumental	Attitude: The relationship with technology, previous experience in computer-mediated communication	Is the user's previous experience characterized by positive or negative sentiments? What are the main anxieties and distortions? How do the tools conform to personal and professional values?
	Needs: Recognition of pedagogical needs and their equivalence to tools	Why should certain technology be used? Should technologies be used due to external pressure or personal preference? When not to use certain tools or technologies and how to abstain from them?
	Access: Availability of information about different technologies, new tools, etc.	How to access appropriate and versatile information? What kind of learning modes and learner types do they support? What is needed to operate with them?
Operational	Affordance: Technical and practical competence to harness digital tools for own purposes	Which technology and technological features support the goals best? Are the teacher's skills sufficient to resolve technical problems? How to find a tool corresponding to user's basic skills and social structure?
	Risks: Identification and prevention of harms and risks for learners	What are the most realistic risks for online activities in a given learning environment? Are they really risks or can they be (also) framed as possibilities? How to deal with real risks? How does the framing of something as "a risk" emphasize and conceal certain dimensions of action?
Strategic	Implementation: Persuasion of (new) users to use the tool chosen for pedagogical purposes	To what extent is/was the activity successful? How should it be altered? What sociocultural, political, and economic consequences follow?
	Adjustment: Findings through self-reflection on conducted work	How is a new tool embraced in learner community? How can its introduction and embracement be further supported? What are the particular and context-specific reasons for objections?
	Support: Context-specific background factors supporting usage of technologies in teaching and learning	Is there emotional and technical support in the community? What are the material facilities? Where could more support be found? Is all support sufficiently benefited from?

At the beginning of technology adoption process, a great extent of work is centered on attitudes and assumptions. As Mezirow (1991, p. 360) puts it, critical self-reflective learning can foster resistance to "technicist assumptions, to thoughtlessness, to conformity, to impermeable meaning perspectives, to fear of change, to ethnocentric and class bias, and to egocentric values." At early stages of technology adoption, teachers typically pose a number of questions that represent their uncertainty and uneasiness with the new medium, and those with less experience crave for reflecting their own relationship with technology and computers. Furthermore, many teachers feel that they have less power to make decisions affecting the

sociotechnical infrastructure of their classrooms than they really do, and reflection empowers them by building courage to make independent decisions.

Working on beliefs and prejudices related to technologies and technology-related pedagogical approaches that have not yet been fully legitimized in the community is necessary in order to pave the way for autonomous networked learning. New media provoke objection partly because of notable uncertainty and instability embodied in all information and communication technologies. Working on attitudes means redefinition of assumptions and active construction of an affective readiness to embrace new technologies for existing or new teaching purposes. Such work is not only individual. On the contrary, it is relevant for the whole community. Teachers must be given time and space to develop their attitudinal relationships with technology through the process of critical analysis and reflection that reaches far beyond the level of usage or convenience.

If there is no need for a certain task within the wider pedagogical context, there should, accordingly, be no need to introduce supporting technologies. However, needs can often be externally imposed and be related to societal demands as well as collegial rivalry in the professional community. Since the paradigm shift towards Web 2.0, pedagogical technology adoption has increasingly been detached from organizational policies (Anderson, 2008). In many contexts, teachers are basically free to opt for open-source tools free of charge instead of relying on organization-wide acquisition of licenses. However, it is often easier to go with the flow and use technologies on offer than implementing own solutions.

Construction and maintenance of online learning communities is associated with a wide variety of challenges. For instance, reliability of hardware and software as well as issues of privacy, copyright, and multitasking are often claimed to pose potential harms for teachers who feel responsible for protecting the networked learners' integrity and privacy. In reverse proportion to such protection, however, lies learner autonomy and various benefits gained from openness of education and teaching. By creating "a language of possibility," as aspired in critical pedagogy, potentials of information and communication technologies can be emphasized in an empowering manner that overshadows risks and disadvantages. Power of examples and peer collaboration has often proved efficient in sharing best practices and grass-root level developments. However, it is only through creating critical connections between the global, the local, the individual, and the general that networked learning can achieve an adequate balance between theory and practice.

In technology adoption research, facilitating conditions have been defined as the degree to which an individual believes that an organizational and technical infrastructure exist to support the use of the system (Venkatesh et al., 2003, p. 453). In this conceptualization, resources and connections that facilitate or hinder networked teaching in social media can be understood as both material and immaterial. Similar distinctions can be found at the generic level of networking, where Carvalho & Goodyear (2014, p. 417) talk about non-human nodes and human nodes, material and human connectivity. Neglecting finer theoretical distinctions, networked nodes and connections always include various variables affecting teaching and learning in environments determined by physical spaces, software and hardware, Internet connection, budget, and other factors.

Nowadays, however, many resources can be compensated using social media for pedagogical and professional purposes: by networking (to acquire newest information and seek for technical and professional support), collaborating (to exchange ideas and materials as well as to co-produce learning materials and elaborate practices), and using open software (to spare expenses). The described areas of inquiry might not present an exhaustive model. However, they do point at pivotal questions regarding adoption of social media: teachers should seek balance between their pedagogical aim, didactical applicability, and affordances of a particular tool.

Questions regarding adoption of social media intervene in personal and organizational relationships between networked teachers and learners and information and communication technologies. According to stratification of teacher competencies developed earlier in this section, teachers' interest in communicative features of social media is clustered around the following main themes: (1) whether to use virtuality in teaching; (2) which technology, platforms, tools, or services to use; (3) when to use technologies; (4) what are the consequences of using technologies; (5) how to ensure sufficient support for teachers and learners; (6) how to blend theory and practice in the realm of critical praxis. In sum, teachers are concerned with questions from access and utilization of different resources to critical emancipation and social transformation. Therefore, educational institutions should support all aspects of communicative processes that underpin technology adoption perspective.

In the realm of networked learning, heutagogy is a horizontal, non-hierarchical phenomenon. In the context of critical theory, all teachers are learners and all learners are teachers. Therefore, heutagogy developed in the context of networked teachers can easily be applied to their students—albeit often within very different contexts. Consequently, students should not be left aside in development of online structures, and the potentials for their engagement should be carefully examined. Establishing a *networked heutagogical partnership* amongst professionals and/or professionals and students as a basis for learning contract would engage both teachers and learners to advance ideas in operational and strategic skills. This would, in turn, advance exchange of experience contributing to networked teacher's and learner's heutagogy. Similar heutagogical partnerships could probably be developed in various other areas of teacher professional development. In the network society, however, such partnerships are always related to information and communication technologies and, by extension, to critical reflection on their complex relationships to networked teaching and learning.

Conclusion

In the field of networked learning, competence development is increasingly important because of enhanced self-regulation resulting from its decentralized nature. The main goal of this chapter is to identify conceptual tools to enhance development of networked teachers' agency in self-constructed virtual environments independent of technology and type of communication. The concepts of double-loop learning and self-reflection in action learning underscore the importance of developing teachers'

metacognitive resources to support agency. As postulated by various studies on networked learning and teaching, teachers are the key factor in embarking on new innovative projects and introducing new ways of learning. Vice versa, they may also hinder new ways of action through acceptance or refusal of certain pedagogical innovations.

Critical reflection is the key to acquiring learner autonomy—therefore, it is the central focus of heutagogy. Through critical reflection, networked learners can become aware of (mis)beliefs and (mis)conceptions that may set conscious and unconscious limits for efficacious action. Critical reflection may also unearth underlying power dimensions and assumptions. By exposing a multitude of relations around the self, critical reflection on technology usage can contribute to empowerment that helps learners to create own supportive networks. Although heutagogy is often conceptualized as a highly individualized activity, it requires vivid horizontal interaction: networked teachers need each other in order to undertake deliberate scrutiny. Reflection, however, builds on critical distance and thus requires a separate socio-techno-spatial space that is temporally and physically detached from everyday schedules and routines.

In the future, teachers are very unlikely to get more time for professional development than they have now. However, mobilizing a wide variety of network resources in line with the heutagogical perspective, they could acquire much needed spaces for learning and critical reflection. Involvement in online and off-line communities increases opportunities for access to information, provides emotional support, and enhances skills and knowledge required for critical participation in networked communication environments. Alongside fellow practitioners, teachers can form heutagogical relationships with a number of different communities: communities of students, parents, and virtual colleagues are valuable resources for critical, self-determined networked professional development.

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Chapter 9
Subversive Epistemologies in Constructing Time and Space in Networked Environments: The Project of a Virtual Emancipatory Pedagogy

Lydia Rose

"I know!" is a common phrase used in everyday vernacular, typically followed with, "I'm googling it" or "I googled it." This chapter is inspired by such interactions, conversations, and of course, social theory of epistemology, or socially accepted ways of knowing. In this chapter, the philosophical term epistemology refers to internalized ideological stances on "knowing." It is typically covertly informed by cultural practices in the process of transmitting formal knowledge within social institutions of learning—including, but not limited to, virtual environments such as online college courses.

For centuries, access to formal education has typically been limited to the wealthy, to the powerful, and sometimes to the intellectually gifted. Learning and knowing in the premodern and modern eras has typically been regulated, in a somewhat stringent manner, through a number of social institutions (such as universities, colleges, religious institutions, accreditation agencies, and the state) and by people in positions of power (such as instructors, professors, faculty, administrators, and benefactors). Such regulation has predominantly been based on various constructions of whole-rounded humanistic formal education aimed at higher echelons within the social structure. By and large, critical and creative thinking, as a hallmark of the educated, has been divorced from formal training aimed at the poor. In this way, formal credentialism has become a means of positioning people on the continuum of educational status, which is firmly structured by national and global measurements of educational achievement.

L. Rose, Ph.D. (✉)
Kent State University, East Liverpool, OH, USA
e-mail: lrose17@kent.edu

As of recently, however, information and communication technologies have brought significant challenges to these traditional relationships. Networked learning, and its focus to horizontal connections between learners, learners and tutors, learning communities, and their learning resources (Goodyear, Banks, Hodgson, & McConnell, 2004, p. 1), has begun to offer some serious alternative opportunities for obtaining skills, knowledge, and even credentials. The vernacular nature of these connections challenges traditional hierarchical structures and relationships, and—in the words of Katarina Peović Vuković (2015), creates the "authentic alternative cultures" which "offer radically different models of sharing knowledge and information." These cultures are linked to certain (hegemonic and/or subversive) epistemologies, which are based on the construction of important notions of time, space, the body, and the mind, and dialectically intertwined with (hegemonic and/or subversive) pedagogies. This chapter sets out to explore these complex relationships.

More often than not, boundaries between hegemony and subversion are far from clear. For instance, networked learning may disrupt the hegemony of traditional educational institutions over course materials, only to find that the establishment has pushed the frontier towards the process of prioritizing and distributing credentials. Vice versa, networked learning may be employed directly in the service of maintaining hegemonic social relationships, by offering "mass-produced" courses "for the poor" and "unaware" which offer little upward social mobility. At the intersections between human learning and information networks, questions pertaining to hegemony and subversion, epistemology and pedagogy, cannot be answered easily. Based on critical approaches to networked learning, which take "an ontological position that assumes an understanding of the world and view of the world, including learning and teaching, is socioculturally influenced and constructed" (Hodgson, McConnell, & Dirckinck-Holmfeld, 2012, p. 292), this chapter analyzes subversive epistemologies in networked environments, and brings to light opportunities for the establishment of a virtual emancipatory pedagogy.

Research Methodology

That is the way to approach evil: by stating it and manhandling it, the fevered gloom subsides, for that gloom does not belong to evil; it is merely the feeling of a person who is afraid of evil. "Death," said a wise man, "is not feared because it is evil, but it is evil because it is feared." (Lippmann, 1961, p. 136)

In order to articulate subversive epistemologies in constructing time and space in networked environments, this chapter combines critical and poetic methodology (Brown, 1977) and utilizes the practice of articulation and speculation through "symbolic action." According to Jay (1973), symbolic action is the externalization of thoughts into communications (written and/or verbal) which is particularly focused to the gap between the symbols in our society and the articulated, experienced reality.

During this research, the experiences of users, students, instructors, facilitators, and administrators that have been shared with the author are reshaped into meaningful symbols and articulated into unique symbolism. This symbolism is then manhandled in the way that uses the produced knowledge as the basis for putting forth a praxis of an emancipatory pedagogy for networked learning. In the poetic sense, such practice of articulation is best understood through "a point of view," "irony," and "metaphors" (Brown, 1977). In social science, this kind of data is often undervalued or even dismissed. However, when articulating epistemologies of space and time in virtual worlds and worlds of the mind, it provides an easy way of moving from one mode to another.

This chapter is inspired by Pierre Bourdieu's work on power and practice (1977), Michael Foucault's insights into power-knowledge and social control (1984, 1995), Jürgen Habermas's work on epistemology and emancipation (1971) and Antonio Gramsci's analysis of hegemony (1971). Such theoretical background leads directly to traditional critical theory of education, its notable representatives such as Paulo Freire (1970, 1998) and Ivan Illich (1971), and its contemporary applications to information and communication technologies (i.e., Friesen, 2011; Braa & Callero, 2006).

Bourdieu's articulation of the relationships between the body and practice builds a theoretical framework for construction of time and space in networked environments, while Foucault's theories situate these constructions within hegemonic relationships and subversive practices aimed at resistance. In this way, linking time with virtual bodies and practices turns constructions of time and space into subjects of power and control, which are explored using various critical approaches. Internet users transcend their minds from the presence in physical spaces to their virtual counterparts, and create an online presence where the body is situated within a physical structure while, at the same time, the mind is virtually linked to technological devices. Virtual connections to devices (such as computers, smart phones, or tablets) are limited by various physical limitations such as online access and battery life, and one's virtual online presence may reproduce or manipulate one's "real-life" status, power, position, and practices.

In virtuality, some spaces are free and accessible while others require membership, dues, tuition, fees, or some other resource that reaches beyond mere Internet access. Some sites may be unmonitored, automated, and replayed virtually without accountability affecting their online value. Other sites may be monitored, and practice/participation in a virtual environment may be recorded by calculating time logged online or measuring keystrokes, words, and submissions. Surveillance in virtual environments subjects students and teachers to oppressive constructions of time and space (Rose & Hibsman, 2014). However, this perspective allows for the examination of virtuality beyond this construction—as a potential site where educational hierarchies and practices may become disrupted, modified, and restructured—subverting the ways we "know."

Bourdieu's theory of body and practice is helpful in the examination of virtuality and subversive epistemologies. Articulation of online time separately from the time

in which the body is engaged in other activities creates spaces for disruption within the design of online learning strategies. Specifically, virtual environments focused solely to measuring one aspect of learning can be easily subverted in practice. For instance, the notions of "learning" and "knowing" are often subverted into practices of meeting specific, "measureable" objectives or standardized learning outcomes. However, the virtual body may log into a discussion forum, cut and paste a passage from an online text, and then reorder the words without really reading any of the comments from others, thus engaging in a measurable but meaningless practice. In an opposite example, the physical body that merely sits unengaged or ignored in a physical classroom may be fully engaged in a virtual space where his or her voice demands a virtual presence. The presented examples are just the tip of the iceberg, as the encounter between critical learning and digital networks (Rose & Hibsman, 2014; Rose, 2012) offers various potentials to disrupt the protected epistemological standard of the "educated."

Ways of Knowing in Networked Environments: Hegemonic and Subversive Epistemologies

The structured continuum of educational status is hegemonically founded on an epistemology of learning that equates credentialism with intellectual changes in one's humanitarian ideals, behavioral practices, and cognitive application skills. Face-to-face meetings between students and educators, in physical spaces such as classrooms, are based on controlling time and space in the process of distributing credentials; the same can be said for virtual educational environments. The emphasis seemingly placed on the "when" and "where" education takes place is sometimes as significant as the "what" is being taught. From their positions of power, decision-makers create schedules (construct time slots), set rules, and assign appropriate classrooms (construct space).

Seemingly, networked environments are not mere extensions of this construction, but potential sites in which educational hierarchies and practices may actually become modified, restructured, challenged, and even disrupted (Rose, 2012). Guidelines, policies, and procedures that quantify when, where, and how many times students should log into a weekly discussion forum exemplify a typical model of virtual learning environments based on a top–down structure. Based on the case of prepublication networks, however, Shane J. Ralston (2015) shows that networked learning alternatives might disrupt the dominant top–down business models and offer more egalitarian alternatives.

Networked learning experiences and the reconstruction of credentials using standardized scoring rubrics may serve as a means to subvert and disrupt the once-protected Ivory Tower by challenging the traditional ideological constructions: Who is educated, and who is not? (And, by extent, their contemporary derivatives such as: What is virtual, and what is real? see Sincair & Macleod, 2015.) While hegemonic epistemological standards determine who is "educated," networked

environments disrupt such educational/academic elitism through digital communications which provide voices for previously excluded masses. A great example of this is the marketing commercials for *Phoenix University,* which presents a montage of individual professionals in different careers declaring they are a "Phoenix" (University of Phoenix, 2014). These voices create spaces for the emergence of subversive epistemologies—new ideas about what it means to "know" and to be "educated" in the contemporary network society (Van Dijk, 1999).

Subversive epistemologies often arrive in hand with new technologies, and networked learning environments create significant spaces for subversive practices. Electronic spaces of communication are subjected to an inauthentic response, automated response, or nonresponse. The construction of time and space in networked environments allows for the subversion of practices that is many times unrealistic in the "real" world but perhaps not in the "virtual" world. For instance, an online instructor confided in me that a student confessed to logging into their live seminar at a bowling alley and worked intermittently on the seminar and the bowling game. In networked spaces, time spent on learning new material up to the level of creating new knowledge and meeting standardized learning objectives can be elusive, unrestricted, and unmonitored. However, in some networked environments, particularly those linked to formal educational institutions, time may become a commodity which is scheduled, restricted, and highly monitored. The network offers spaces for various contradictory practices—depending on context, it is up to educators, students, administrators, and independent learners to utilize these spaces in the most appropriate manners.

In the United States, approximately 20 % of all undergraduate students have taken at least one distance course and an increasing number of completely online educational programs have emerged (U.S. Department of Education & National Center for Education Statistics, 2011). Traditional state universities have also begun to serve various demands for virtual education. Additionally, many elite universities have "digitalized" their classroom education and offered it free of charge—but with a caveat as purely "informal" education which restricts access to credentials available to their elite, accepted, enrolled/registered, tuition-paying (and many times government subsidized) student body. As of recently, a number of massive open online courses (MOOC) are now available, many of which are on offer by elite universities such as *MIT, Stanford, Princeton, Duke, The Ohio State, University of California, Berkeley*, and *Harvard.*

The push and pull forces which move teaching and learning from common time and space classrooms into a network come from students, professors, instructors/teachers, administrators, educational professionals, and other stakeholders such as capital enterprises, governments, and nongovernment organizations. Consequently, virtual education has become a firmly established business sector which challenges and disrupts traditional hegemonic educational elitism. In some sense, information and communication technologies contribute to constructions of educational social networks that can be genuine and authentic. However, the "anytime, anywhere" construction of virtuality faces a plethora of issues which leave many players outside the gates of the Ivory Tower.

For example, the "I know I can do it" mentality can entice a student who is fully engaged in the workplace for 40–50 h a week and fully responsible for the rearing of children and managing a household (typically referred to as a nontraditional student) to register for (an expensive) online class with a subverted sense of time. The nontraditional student may recognize the lack of time to actually drive to a university, park, walk to a classroom, and then sit through or participate in a lecture/lab/lesson. However, the same student may subvert the knowledge of anytime, anywhere access to the Internet.

A student that sits through an hour-long lecture scheduled in a room has a specified, restricted, and controlled amount of time to listen/participate in a class lecture/lesson—when it is over, it is over. Online video capture of the same lecture could possibly take much longer to view depending on the speed of downloading or streaming, and the amount of time the viewer takes with the freedom to pause and replay the lecture to take notes, breaks, etc.—thus subverting an hour-long lecture into a much longer ordeal. However, the nontraditional student may be exhausted and fall asleep in a lecture hall, physically present, but missing the lecture with no hope of recovering the time. In an online environment, if one falls asleep listening to a podcasted lecture, one simply hits replay upon waking up. One way to explore these issues is to develop an emancipatory pedagogy for networked learning environments, as a subversion of the traditional hegemonic epistemology of the educational/academic structure through the control of time and space.

The subversive epistemologies equally depend on teachers, who can create various forms of virtual presence that might disrupt and subvert hegemonic constructions of learning and knowing. For instance, they can create "evergreen" lectures to allow recycling and subvert the concepts of time, space, and intellectual property. An evergreen lecture or podcast is a virtual video that is created at a single point in time, but can be presented over and over again to new audiences without significant loss of meaning. Imagine a university classroom in which no professor shows up physically. Instead, an assistant shows up at the beginning of the hour, pushes the play button for video lecture, goes out for a cup of coffee, and returns to hit stop at the end of the hour. This absurd example clearly indicates that the Internet has created a new space for subversion. What is completely unacceptable in the university classroom, suddenly becomes quite acceptable in its virtual counterpart.

The popularity of evergreen videos on websites such as *YouTube* has been used to subvert the elitism of education. In turn, the accessibility of the virtual marketplace has resulted in an elitist subversion of the counter-elitist subversion by turning them into capitalist enterprises. For example, the *Khan Academy* began with one person posting online tutorials for another person—an audience of one (Gupta, 2012). However, the usefulness of some tutorials resulted in their going "viral" and reaching initially non-intended audiences. Today, the *Khan Academy* is a recognized networked site of "informal" learning where knowledge is accessible, but again without providing the credentials (Khan, 2014). In this case, the road to obtaining credentials is subverted through the process of standardized testing—both for-profit and nonprofit purposes. Some capitalist enterprises utilize the underemployed, unemployed, debt-enslaved, highly educated, precarious Ph.D. workforce (Standing,

2011), to construct controlled, manipulated, standardized videos for companies—popularly known as "digital diploma mills" (Noble, 2003)—that offer standardized testing in the credentialing marketplace. Obviously, subversion of existing practices is not necessarily linked to emancipation, and subversive epistemologies can be situated at multiple places on the axis between oppression and liberation.

Subversive Epistemology in Virtual Environments

Epistemology, in the most basic sense, is the study of knowledge and justified beliefs—studying the unquestioned premises about how and what we know in any particular society or social group. In the world of academia, there is a clearly defined epistemic or dominant ideology based on science and an empirical, shared reality which determines the nature of educational institutions, the process of teaching and learning, and the typical roles of teachers and students. Shared meanings and definitions of the "educated" are founded on dominant belief structures which determine how knowledge is transferred from teachers to students and the place in which this happens—the university. The educated are typically those that have been certified by a state entity to have completed a recognized curriculum at an accredited institution. Education is formalized and institutionalized through an assumption that all students who accomplished a set program of study share the same set of experiences unique to the educational environment. So, education has taken place because one has been in an institution of learning (Cuban & Jandrić, 2015).

The "institutionalized education," where a formalized universal construction of education becomes obligatory under the guise of equal educational opportunity, is well critiqued by Illich (1971). His assertion that "educators package education with certification" results with reifying a hegemonic epistemology of education (possibly with prejudices and discriminatory practices regarding a construction of intelligence) such that learning and justice is lost. Since the writing of *Deschooling Society* (1971), Illich's conclusion that "the right to learn is curtailed by the obligation to attend school" is confounded with the means in which attending school has changed technologically with the advent of the Internet and subversive epistemologies regarding time and space in learning environments. However, while access to education becomes more and more feasible, its value is still strongly subjected to relations of power and control—not necessarily relative to the type of teaching environment that is created, monitored, and reproduced at multiple levels. Moreover, as education transforms further towards a market-based industry, availability of online technologies makes degrees seem obligatory regardless of their touch with the essence of an education—just like in Illich's predictions. In this context, subversive epistemologies are ways of knowing that reconstructs and/or manipulats the hegemonic ideals of knowing in a manner that was not intended by those in positions of power and control.

For example, many students are more focused on earning grade points than learning the offered material. The point system (an absolute measure) has replaced

relative measures of learning to focus on content-based measures that foster equity, fairness, and accountability (Becker, Geer, & Hughes, 1995/1968). Certainly, continue Becker et al. (1995/1968), students have always been oriented towards grades. Nowadays, however, high grades (along with other factors) have become an increasingly important precondition of success at the workplace, and this resulted in the phenomenon of grade inflation.

In spite of best intentions, absolute grading systems may contribute to various integrity issues in the networked environment. Earning an "A" in a class might or might not reflect the amount of knowledge or skills gained during a particular time frame, as the integrity of participants can easily be questioned. Is mom, friend, or someone else posting a comment on a student's behalf? Obviously, monitoring is paramount for justification of obtained degrees. However, technology enables various forms of education that are not subject to absolute grading. This leaves the informally educated without the opportunity for certification, and, consequently, without the main social benefits of education.

In the market place based on formal "real" education and informal education, the digital divide (Mason & Hacker, 2003; Van Dijk & Hacker, 2003) resurfaces in a new form. Free, immediate Internet access may result in a mind-set of "e-knowing," which constructs knowledge and information as being at one's fingertips. Suddenly, people feel that they are much more knowledgeable because they can quickly "look-up" or "google" information. This might lead to (at least partial) rejection of the need to store and retrieve information from one's brain, and significantly transform the nature of human knowledge as undervalued in comparison to online information literacy (ability to access online information). In this sense, epistemology and pedagogy are dialectically interrelated. In the dominant discourse of global neoliberal capitalism, when referring to "pedagogy," one is referring to the "practices" that a teacher uses to teach and measure learning. For instance, how does a teacher test students' knowledge and certify that knowledge has been received? The belief structure that one articulates in what makes a good test (content of material being tested), the means of the test (multiple choice, essay, verbal, demonstration), and the weight of the testing (how important the test is to passing a course) is typically referred to as one's pedagogy.

Pedagogy is usually framed by the hegemonic epistemology on (1) what learning is, (2) how learning is measured, and (3) whether learning has been accomplished within the set time and space. Testing is an integral element of hegemonic pedagogy, and questioning its relevance or even refusing to employ tests as a measure of learning becomes a genuine subversive pedagogy which immediately translates into a subversive epistemology. For example, if students are required to cognitively process information, think critically about it, and exhibit that information within a set space and time frame, the hegemonic standard of "testing" knowledge might be lost or subverted. Students will process input information differently, and their output cannot be measured in an absolute manner. Consequently, this raises various issues with accountability and credibility. Furthermore, online subversion of multiple choice testing is an example of e-knowing since the access to resources cannot be monitored without difficulty even with browser blockers. Therefore, multiple choice

testing strategies for the anytime, anywhere e-learning environment are merely processes of "hunting and gathering" correct rote responses where learning may or may not take place. More often than not, that is of little consequence—as only the final score of correct responses is relevant for certification.

Paulo Freire describes such pedagogical strategies as "the banking method of education" where teachers, who "possess" knowledge, make "deposits" in minds of their students (1970). Banking model of education rejects egalitarianism and reproduces the existing power relationships through construction of students as inferior objects in unequal relationships to teachers as superior beings. Freire reveals the oppressive nature of pedagogical methods that place the student in a passive, submissive position, and links it directly to hegemonic epistemology. In Freirean tradition, Rendon (2009) shows that the superior being/inferior object model ignores the "sensing and thinking" aspect of students as human beings and lies in direct opposition to education for wholeness, social justice, and liberation. Looking at a larger scale, Kaufman (2010) shows that the superior being/inferior object model is mirrored in many social structures that are founded on the same dichotomous power-knowledge relationship—knowers with powers over others.

Many virtual learning environments mimic the described structure of power-knowledge by mere transfer of traditional pedagogies to the Internet. In his historical analysis of the "lecture" as a traditional one-way communicative means of gaining information and knowledge, Norm Friesen (2011) shows that the podcast is a typical example of such transfer. The traditional mode of lecturing in educational environments requires a specific time and space for listening, taking notes, and processing information. However, the experience of a taped (digitalized) lecture is not necessarily the same as the experience of a live, performed lecture. Camins (2012) describes the importance of a learning experience that is subjected to a serendipitous manner in which inspiration, community, and meaning just happens. Time and space of learning is not determined only by lecturers and their learning materials; it is also influenced by a shared audience, community, or student body. On that basis, Ravenscroft (2001) emphasizes the need to link subversive epistemologies to critical pedagogy in networked learning environments.

Time, Space, the Body, and the Mind

In networked learning environments, time, constructions of time, and access to time are of particular interest. Time is typically situated within a physical, empirical reality of the clock and measured in seconds, minutes, hours, days, and years. Each day, everyone has an equal amount of time—24 h. In this sense, time brings a deep ontological equality. However, upon closer examination, available time is a valued resource in which the "haves" have more control than the "have-nots." Similarly, in an epistemological sense, the Internet enables 24/7 access to networked learning environments. In reality, however, not everyone has 24/7 access. Those who work and live in regulated environments, such as factories and cafes, are unable to access

online environments at certain times. Before the advent of the Internet, Vickery (1977) described such people as "time-poor."

Limitations to online access are also regulated by markets. Within that spirit, early research on the digital divide emphasized issues related to Internet Service Providers, urban and rural access, and language, and focused to questions such as: "Do you have access to a personal computer or not? Is there an Internet service provider available or not?" (Mason & Hacker, 2003; Van Dijk & Hacker, 2003). However, time, constructions of time, and access to time obviously creates new divides that need to be taken into account.

Nowadays, learning technology involves much more than equipment and software, and includes the actual speed of access to live virtual environments and other sources of instruction. Equipment may vary according to levels of technological sophistication from old-fashioned personal computers to laptops, tablets, iPads, smart phones, etc. The continuing development of wireless technology creates ongoing digital divides, as the range of various options for connectivity constantly increases. For example, some technological devices can access the Internet but may run so slow that one spends 10–15 min waiting for one page to load before is then readable; others may be faster but too expensive to use. Even various approaches to typing, such as using keyboard, fingertip or stylus, create divides in time required for input of data.

The digital revolution has not only transformed access to information and the Internet. It also changed what people do with their time—nowadays, leisure time, work time, family time, learning time, and the time connected to digital technology seem almost fully conflated (Bauman, 2000). As creating online friendships transcends the limitations of the place of the body, Zhao and Elesh (2007) emphasize unequal access to social capital through online social networks as another form of the digital divide. The body is located in a physical space, but the mind may have gone online focusing to virtual interactions such as texting, video chatting, reading, and connecting with others. Online social networks change how people spend their time, online and off-line, and contribute to development of unequal social capital, resulting in significant social transformation.

Bardhi and Eckhardt (2012) assert that traditional markets have been modified to include networks and networked modes of acquisition and consumption. While they examined the case of car sharing websites used in urban cities in the United States, their analysis of networked modes of acquisition and consumption is highly applicable to networked learning environments. Their conclusions are especially relevant for marketing of online degree programs, certification programs, online textbooks, and online access to other types of virtual resources which do not have a physical component. What is really purchased is time for accessing a text, a curriculum, a course, or a video tutorial. In a way, all learning in digital networks is linked to time-based consumption of relevant sources. Obviously, subversive constructions of time are paramount for providing that learning with a critical edge.

Bardhi and Eckhardt (2012) demonstrate that the mode of consumption shapes consumers' relationships to products and services. With online technology, one does not need to focus on the physical space and time of the body, but rather on virtual presence of the self and the time spent in online environments. The idea that

one can work a full week, have a family, and still work on a degree subverts taken-for-granted capabilities of the physical body and the mind. Unsurprisingly, marketing tactics manipulate this subversion, as many corporate and state-based universities market online education as an ideal model for fitting education into busy lifestyles. Once limited to the pool of people willing to retreat from work and family to study, online education is now manipulated into a consumption mentality of "have it all."

In the physical world, time can be conceived very differently from time in the virtual world, as well as in the world of the mind (the imagination). In a physical classroom, for instance, two or three students might raise their hands being called on to articulate a response. In a virtual environment, however, all students can respond almost without restriction. In fact, they might be called to respond even when they have no comment—forcing a student with no thoughts to have to spend an unspecified amount of time coming up with a "thought." Consequently, reading and responding back to students could become quite time-consuming. As a result of the demand for a timely response, many online teachers have adapted "subversive" virtual communicative behaviors. Common adaptive strategies include prewriting generic commentary which, with minor modifications, provides students with the impression of personalization, or responding to a batch of students with few generic comments. In spite of these strategies, working in virtual classrooms still takes a significant mental and physical toll.

Subverting the construction of time spent using digital technology, subverting the duties and tasks, one performs online as a learner, teacher, or administrator, and subverting the perception of time spent online, may range from truly oppressive practices to liberation and emancipation. On the privileged side of the digital divide, the key to these constructions lies in the area of monitoring and regulation.

Monitoring and Regulation

Monitoring and regulation exist on various levels—from the micro level of students, instructors, and administration, to the macro level associated with accreditation agencies and the state. Notions of accountability, responsibility, and quality are manipulated in a hegemonic manner which hides their oppressive nature and converts it under the guise of increasing professionalism (Rose 2013) and enhancing educational quality. In fact, however, such forms of monitoring and regulation may also have the effect of decreasing professionalism and degrading the quality and value of education (Smith, 1999). In this way, they contribute to Ritzer's (2012) McDonalization of society, which spills over into onsite educational practices that are subverted to match virtual environments with common textbooks, common objective statements, and standardized assignments, and which results in suppression of faculty's ability to create and distribute the latest developments in their fields.

In a micro sense, online environments are easily monitored and manipulated by students, instructors, and administrators. However, as they do not need to share the same physical space, students and instructors are capable of subverting their time.

In the classroom, students might be physically present, but subversion may occur when the mind is engaged in online (unrelated) activities or has retreated into the imagination. Instructors may also engage in similar subversions, if a lesson or activity is constructed in a way that they do not need to be fully mentally engaged. In highly controlled networked environments, instructors and students attendance may be tracked through accessing the site, minutes online, pages visited. Subverting the online tracking of time might occur by logging a device into the Internet site and going about with other tasks either online or off-line completely unrelated to the course. In onsite courses, make-up work might be used to replace an active, onsite activity. Such practices might provide feasible options to accommodate individual circumstances or could possibly become new forms of resistance to stringent structures of instruction.

The curriculum could easily be subverted through adoption of software, delivery systems, and regulating policies. In virtual environments, it is quite possible to design highly controlled courses, easily distributed to the masses by a reserve labor force of typically unemployed, underemployed, powerless, precarious academics (adjunct, non-tenure track faculty, lectures, visiting professors, etc.) (Standing, 2011). Such a reserve of highly educated academics makes this group easily controlled within the university settings where the administration is accountable to shareholders, politicians, or limited, stratified state budgets based on enrolment and/ or completion of degrees. Such practices result in devaluation of the role of the academics from responsible professionals to highly regulated facilitators (Smith, 1999; Ritzer, 2012).

When public, private, nonprofit, and for-profit universities and colleges move to common objective statements or adopt common textbooks for massively delivered courses, instructors and students lose their freedom and education runs the risk of becoming stale, routinized, and devalued. Such hegemony is supported by marketplace notions of standardization, quality assurances, and coercive manipulation of accreditation bodies and fabricated budgets. According to Lenn (1992), the process of quality assurance in higher education typically consists of institutional struggle over self-regulation and peer reviews. It resides on an outside, often government authority or a membership-based organization regulating the process of accreditation through judgments whether programs of study seek continued improvement and meet peer constructed standards and/or produce constructed documentation.

At all levels, monitoring and regulation relies on external "verification" of practices associated with teaching and learning, and the conflicts of interests are usually resolved through two main routinized tactics: absorption and co-optation.

Absorption and Co-optation

In early days, networked learning had been understood by many traditional educational institutions as just another form of distance learning—with a value similar to correspondence schools, extension schools, satellite TV courses, teleconferencing, videos, CD-ROMs, and tapes (Nasseh, 1997). However, the rising popularity of

online classes has flourished beyond initial expectations, thus contributing to the emergence of for-profit sector in higher education (Morey, 2004). The rising attractiveness of online learning may be contributed to the diminishing divide between Prensky's digital natives and digital immigrants (Prensky, 2001; Bayne & Ross, 2011) and to the increasingly open nature of the Internet. With the advent of Web 2 technologies such as blogging and video podcasting, free online instruction has become a prominent tool for learning. Market manipulations of knowledge and education through the textbook industry have been extended to virtual environments through canned and processed knowledge presented via controlled proprietary websites. This type of subversive epistemology creates major divides between course designers, who spend their time constructing, creating, and manipulating sites for student learning, and teachers/facilitators, who merely monitor and administer prepackaged courses.

The hijacking of virtual environments by administrators and market forces leaves students and educators in a precarious position where seeking the external rewards (grades and credentials for students; a pay check or monetary compensation for the educator) dominates over the intrinsic rewards of knowledge, knowing, teaching, learning, and service (Smith, 1999). Consequently, students may find themselves with a degree but without knowledge, skills, and experience; underemployed faculty may worry about the ability to earn a living, provide for their families, and ultimately retire with security. Standing (2011) describes the precariat as a new dangerous class. Can students and faculty fit in this category? According to Bourdieu,

> it is the struggle of all against all at all levels of the hierarchy, which finds support through everyone clinging to their job and organisation under conditions of insecurity, suffering, and stress. Without a doubt, the practical establishment of this world of struggle would not succeed so completely without the complicity of all of the precarious arrangements that produce insecurity and of the existence of a reserve army of employees rendered docile by these social processes that make their situations precarious, as well as by the permanent threat of unemployment. (1998)

For-profit universities have found a market in the precariat student populations, and groups that were historically ignored or rejected from traditional universities and colleges have been seduced into marketplace educational enterprises. By employing online coursework, student populations that were traditionally, culturally, and economically unlikely to leave home and work to attend a university found a means to achieve the educational goals of earning a college degree with the hope of using that degree as a means to acquire secure employment with benefits. In recent years, however, such secure college level employment has declined in the United States (Carnevale & Cheah, 2013) as well as in many European countries (Thompson, 2013).

Within their lifecycle, subversive epistemologies move from subversive constructions to hegemonic reconstructions. The process of absorbing and co-opting networked learning models by traditional universities (previously subversive epistemologies that are then absorbed and co-opted to create different hegemonic epistemologies) happens in two main ways: offering online or hybrid versions of the existing courses, and allowing open access to learning materials. Many top-tiered universities offer free open online courses without credit towards any degree.

For instance, the MOOCs strongly resemble the gaming worlds and MMORPGs (Massive Multiplayer Online Role-Playing Game) where anyone, anywhere can participate. This practice can be construed as a strategy to maintain a premier status in education. Additionally, a handful of "top-tier" traditional universities in the United States contemplate offering a selection of online courses similar to a study-abroad program from similarly rated "top-tier" universities (Kolowich, 2012).

The key factor in absorption and co-optation of subversive epistemologies in constructing time and space in virtual environments may be the accountability of electronic communications. While electronic communications could certainly provide a voice for the once-excluded masses, asynchronous communications can have the effect of both disrupting social hierarchies or being absorbed and co-opted into mimicking authentic communications. In practice, they subvert the epistemology of constructing time and space in the nature of communication (see Rose, 2012 for a discussion of social networks and the restructuring of oppressions in virtual learning environments).

A Virtual Emancipatory Pedagogy for Networked Learning Environments

As subversive epistemologies become absorbed and co-opted, a conscious effort of creating an emancipatory pedagogy for networked learning becomes a central concern. Subversive pedagogies are often linked to nonstandard methods of teaching and learning, such as tricking or manipulating students into learning, providing options such as extra credit, revising substandard work, replacing standardized tests and exams with other options such as projects, presentations, performances, and completely eliminating the concept of grading. Subversions may be manipulated on multiple fronts (time and space), by multiple actors (students, educators, and administrators), and with various agendas (limiting student–educator interactions, increasing student–educator interactions, limiting required time, increasing required time). Subversive pedagogies are correlated with subversive epistemologies, inasmuch levels of monitoring and regulation are directly linked to one's understanding of the nature of knowledge.

"Critical pedagogy is a radical approach to education that seeks to transform oppressive structures in society using democratic and activist approaches to teaching and learning" (Braa & Callero, 2006). Virtuality has the potential to allow more democratic arrangements through a Freirean teaching process (1970, 1998) oriented towards creating a society where people can truly be free to learn what they are most interested in without the coercive nature of a degree program. If it eventually leads to elimination of the educational caste structure described by Illich (1971), offering educational opportunities online without the options for credentialism might be seen as emancipatory. However, for as long as one's ability to provide a living is tied to a labor market that utilizes credentialized education, there will be issues in implementing an emancipatory pedagogy in which students can learn what they see fit and educators can teach what they see fit.

Perhaps the extensive critical potential of networked learning is only a part of the broader image—service and praxis may be another segment of the same image. Human time is always linked to a certain space, and being connected online (in mind but with the body in stasis as we engage in technology) is a clear loss for the physical vicinity. Think of a social setting where there is an aggregate of people, who are all individually engaged with their phones, tablets, iPods or iPads, in a manner which excludes physically nearby people. This setting obviously provides a time and space for networked learning. However, while the potential for emancipation is quite possible, connectivity could also be a means of pacifying the masses to ignore their immediate circumstances without further engagement. "A fundamental premise of Neo-Marxist critical pedagogy is that the system of formal education in modern society functions, in part, to maintain and reproduce an exploitative capitalist system" (Braa & Callero, 2006). McLaren and Jandrić (2015) provide an extensive critique of these developments.

Under the circumstances, it is only with due diligence that we might seek subversive epistemologies to counter exploitation and implement an emancipatory pedagogy for networked learning. Time and space to live and learn online offer great potentials. Creating communities across borders, taking advantage of online networked learning opportunities, and sharing information and practices has the potential to help people understand one's own circumstances and create a better life. Placing action and praxis in the forefront of networked learning can bring about making informed decisions about addressing social issues in a collaborative manner—and such praxis is thoroughly subversive.

Internet offers great potentials for learning, but an emancipatory agenda is much more interested in what people do with the acquired skills and knowledge. The canned, structured manner in which knowledge is presented in networked environments has its benefits, and the potential of continually growing as lifelong learners may keep all of us in the loop of constructing and developing subversive epistemologies to create a counter hegemony that can resist injustices. This can be done personally, within our communities, and globally, through networked learning environments. According to Braa and Callero,

> from a critical pedagogical perspective, a successful education system will not only resist forms of capitalist reproduction but will necessarily take positive steps to facilitate social change by promoting the higher development of a counter hegemony (Braa & Callero, 2006).

Creating an emancipatory pedagogy for virtual environments involves doing more than monitoring and controlling the time and space of learning. In the tradition of Freire's *conscientizacao* (1970), one might begin by subverting one's own constructions of time and space. Creating strict controls with time and space, or requiring online interactions in different spaces within short time frames, is not the most emancipatory practice. However, such subversion has the potentials to lead to an emancipatory practice whereby increased social interaction might inspire students to soul search in more profound ways. Or, perhaps, such strict processes might subvert students' desire to move beyond mere quest for credentials and instead seek knowledge and knowing. A subversive pedagogy where students are manipulated into participating and resocialized to desire true learning may be both

oppressive and liberating. As new and different learning tools are developed, new spaces of learning might inspire a new desire for emancipation.

Critical pedagogy has a long history of countering inequalities and working to oppose their reproduction using subversive epistemologies. For example, Neville and Cha-Jua (1998) describe how Afrocentric scholars have turned curriculum into the primary site of contestation. They show that African-centered pedagogy shares with critical pedagogy an opposition to the "traditional" curriculum's "hidden" pre-suppositions and reproduction of social inequalities. Acknowledging networked nature of contemporary learning environments might begin the process of extending voices to students and faculty in ways which do not only contest how we know things (i.e., e-knowing) but also negotiate control over online curricula. Being on guard to oppose the reproduction of social inequalities via virtual environments is one step that may allow for the emergence of emancipatory pedagogy where students and instructors have strong voices in creating and moving the content and curriculum free from the pains and struggles of coercion.

Conclusion

This chapter shows that subversive epistemological constructions of time, space, body, and mind in networked learning environments offer potentials for the development of subversive networked learning pedagogies. These constructions can be monitored and regulated in various ways. The hegemonic ways of knowing, or hegemonic epistemologies, leave the construction of time and space as a form of ontological equality. However, as people begin to experience time and space as inequitably distributed resources, subversive epistemologies emerge and gain popularity. In turn, popularity makes subversive epistemologies subject to absorption and co-optation, thus turning the once-subversive epistemology into a hegemonic epistemology serving global capitalist structure. Such manipulation creates further divides globally, locally, and within our classrooms.

The push and pull forces moving education from traditional classrooms to into the Internet arrive from all sides: students, professors, instructors/teachers, administrators, capital enterprises, governments, and nongovernment organizations. Globally, networked learning has become a new sector that challenges and disrupts long-standing traditions of educational elitism. However, educational elites do not take this challenge passively, and manipulate online teaching and learning practices into new hegemonic constructions.

The "anytime, anywhere" construction of virtuality in educational environments faces a plethora of issues in which constructions of time, space, body, and mind become sites of contestation. Possibly, they even make an unarticulated revolution that leaves many players outside the gates of the Ivory Tower even in cases when they have been invited via massive online open courses. Such an opportunity allows for an emancipatory pedagogy in virtual environments similar to bel hooks's engaged pedagogy which "does not seek simply to empower students. Any classroom

that employs a holistic model of learning will also be a place where teachers grow, and are empowered by the process" (1994, p. 21). Perhaps, such subversive pedagogies might take hold in networked learning environments and limit outside control over our time, space, body, and mind, thus creating time and space in which we all grow and are empowered.

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Chapter 10
The Critical Challenge of Networked Learning: Using Information Technologies in the Service of Humanity

Peter McLaren and Petar Jandrić

Peter McLaren is one of the most prominent critical educators of today. Wikipedia calls him "one of the leading architects of critical pedagogy" (Wikipedia, 2014a, b). Shirley Steinberg calls him "a teacher of all teachers" (2005, p. xiii), Paulo Freire calls him an "intellectual relative" (Freire, 1995, p. x). Peter has audited courses with Michel Foucault and Umberto Eco, actively worked on the project of critical education with Paulo Freire, and more recently has been working in support of Venezuela's Bolivarian revolution after meeting the late President Hugo Chavez in Miraflores Palace in 2006. He has authored and edited 45 books and hundreds of scholarly articles and chapters, and his writings have been translated into more than 20 languages. Peter has received numerous awards and several honorary doctorates. His work has inspired the foundation for several institutions, including *Instituto McLaren de Pedagogía Crítica* in Mexico and *La Cátedra Peter McLaren* at the *Bolivarian University* in Caracas. Peter actively blends his academic engagement with political activism.

As a fresh graduate of English literature, Peter spent 5 years as elementary teacher in suburban Toronto housing projects. In 1980, he wrote one of Canada's top-selling nonfiction books of the year *Cries from the Corridor*—later on, he was to expand it into the classic textbook of critical education, *Life in Schools*: *An Introduction to Critical Pedagogy in the Foundations of Education* (2014). After this success, he decided to leave elementary teaching and pursue an academic

P. McLaren (✉)
Chapman University, Orange, CA, USA
e-mail: peter.mclaren1@gmail.com

P. Jandrić
Polytechnic of Zagreb, Zagreb, Croatia
e-mail: pjandric@tvz.hr

career. Peter took his Ph.D. in education in Canada. After unsuccessful attempts at finding a university professorship in his native Canada, Peter moved to the USA where he worked with Henry Giroux at *Miami University's School of Education and Allied Professions* for the next 8 years. Finally, Peter settled at the *Graduate School of Education and Information Studies* at *University of California*, *Los Angeles*, where he worked for 20 years before moving to *Chapman University's College of Educational Studies* in 2014, where he is Distinguished Professor in Critical Studies and Co-director of the *Paulo Freire Democratic Project* where he also serves as International Ambassador for Global Ethics and Social Justice.

In this conversation, Peter's ideas about the wide spectrum of questions concerning the relationships between critical revolutionary pedagogy and virtuality are collected and challenged by a colleague from the other part of the world. Petar Jandrić is an educator, researcher, and activist. He authored two books, several dozens of scholarly articles and chapters, and numerous popular articles. Petar's books have been translated into English and Serbian. He regularly participates in national and international networked learning projects and policy initiatives. Petar worked at *Croatian Academic and Research Network*, the *University of Edinburgh*, *Glasgow School of Art*, and the *University of East London*. At present, he works as a senior lecturer at the *Polytechnic of Zagreb*.

Petar's first love was physics. However, his infatuation with mathematical descriptions of human reality was soon pushed aside by a growing interest in sociology and philosophy. During his studies at *Moray House School of Education* at the *University of Edinburgh*, Petar was introduced to critical pedagogy. Finally, he reconciled those interests at the intersections between technologies, pedagogies, and the society. In order to find its place under the sun, Petar's research took up the official label of "information and communication science." However, he strongly rejects boarders between traditional academic disciplines and believes that, while our research methods may still be grounded locally, "our eyes should be directed high into the blue skies of a unified explanatory framework for education and technologies" (Jandrić, 2014a, p. 168).

Critical Learning in Digital Networks

Petar Jandrić: Peter, it is a great pleasure to engage in this conversation with you. Back in 2011, when we first met at *The First International Conference on Critical Education* in Athens, we immediately agreed that education and virtuality live in a contested love–hate relationship. There is no doubt that information and communication technologies can be used as powerful means to good ends. More often than not, however, their educational implementations aim directly opposite: as excuses for commodification, market orientation, McDonaldization, and other evils produced by global neoliberal capitalism. A years later, we met at another conference and arrived to the conclusion that our discussions regarding critical education and technologies might benefit from a more structured approach. Therefore, we decided

to produce a written account of our conversations, which was completed through a vivid exchange of e-mails between 2012 and 2014.

Please allow me to kick off the discussion with a brief journey into the recent past. During the 1970s, the relationships between technologies, education, and society attracted a combination of positive curiosity and awe from important critical theorists such as Ivan Illich (1971, 1973) and Everett Reimer (1971). Kahn and Kellner situate economic development through technological modernization processes as the "fourth major platform of the Freirean program"—alongside literacy, radical democracy, and critical consciousness (2007, p. 434). Back in 2000, you wrote:

> The globalization of capital, the move toward post-Fordist economic arrangements of flexible specialization, and the consolidation of neoliberal educational policies demand not only a vigorous and ongoing engagement with Freire's work, but also a reinvention of Freire in the context of current debates over information technologies and learning, global economic restructuring, and the effort to develop new modes of revolutionary struggle. (2000, p. 15)

Thirteen years later, do you think that information and communication technologies are adequately represented in the contemporary discourse of critical education? More generally, what are the basic prerequisites for reinvention of critical education in the context of information and communication technologies?

Peter McLaren: I wouldn't describe capitalism in the same post-Fordist language today, preferring the concept by David Harvey of "accumulation by dispossession" and Marxist analyses of finance capitalism and the transnational capitalist class and transnational capitalist state by William I. Robinson. Schooling in most Western countries has been successful to the extent that it has refused to examine itself outside of the hive of capitalist ideology and its cloistered elitism and cold calculus of exploitation—its precepts, concepts, its epistemicides, and its various literacies of power through which ideas become slurred over time and actions on their behalf are guaranteed to remain as dissipated as a roistering fisherman lost at sea. It has accepted the fact that answers will remain predesigned before questions can even be formulated. The vision of democracy is inevitably preformed and must be engraved on the minds of its citizens through ideological state apparatuses such as schools (Althusser, 2008). As long as the ideas of the ruling class rule us, and they can certainly rule us with the help of new information technologies, we will be hapless apprentices to the anguish of the oppressed, and ideas will be guaranteed to remain vacant, hidden in a thicket of "feel-good" bourgeois aesthetics whose complicity with inequality bulks as large as its opposition to it, making it an appropriate ideological form for late capitalist society. Such ideas will be guaranteed not to transgress the "comfort zone" of those who tenaciously cling to the belief that with hard work and a steel-tempered will, we will reap the rewards of the American Dream—regardless our geographical location. The question for me is, therefore, what role do the new information technologies play in critical education? Do they enhance the mystification and control of dominant Western culture and its ruling factions or do they enable us to further penetrate such mystification and take action that is both necessary and sufficient to create a different kind of society—a socialist society that is not based on labor's value form?

I don't think that this question has been sufficiently addressed by critical educators. I believe that with a focused imagination, and the courage to suspend at least temporarily our faith in all that we hold dearly as immutable fact, that we can come to see how we see, that we can come to understand how we understand, that we can come to experience how we experience. That we can come to realize that our experiences are not transparent, they are not self-evident, and that they are, in fact, the effects of a constellation of economic, political, and social relationships. We read the world conjuncturally, and relationally, and according to the lexicons that are available to us and which we fight to make available, critical vernaculars and systems of intelligibility that have been stamped with the imprimatur of sociability and consent and those that have been deemed oppositional and counter-hegemonic/contestatory/revolutionary. But with a critical lexicon, borne in blood-soaked struggles by those who have over centuries fought against the forces of domination and exploitation through poetry, art, philosophy, literature, politics, science, technology, and a search for justice and equality, we can envision and create a new world. And finally, we can see those things which interdict a learner's ability to read the word and the world critically (Freire, 2000). The fulcrum of our exigency is cultivating critical consciousness and a categorical obligation to treat others as ends in themselves and not as a means to something else. Can the new information technologies help us to read the word and the world more critically? Can they become one of the new critical lexicons that can assist the current generation in creating a world less infused with the injustices that are evident everywhere that we look?

As Zygmunt Bauman (2007, 2012) and others have argued, vulnerability and uncertainty is the foundation of all political power. The protective functions of the state were once directed towards mitigating the extent that citizens were at the mercy of the vulnerability and uncertainty of the market but in the era of asset capitalism those protections for the unemployable were brutally rescinded by Thatcher and Reagan as the welfare state was systematically dismantled. Government restraints upon market forces and business activities were removed. The market regained its omniscience. Market generated insecurity which the state could no longer shield its citizens against had to be replaced by something more ominous—the zombies of the underclass—those who were not able to participate in the market. Into incarceration, the school-to-prison pipeline, or shot on the streets by policemen recruited into highly militarized law enforcement agencies. Entrenched and indomitable structures of privilege and power were no longer acknowledged as the poor and powerless were now held responsible for their own immiseration. They were not longer to be protected but instead had to be criminalized for the sake of order-building. Those who were unable to participate successfully in the market were held responsible for their own failure instead of being benevolently assisted as personalized solutions were now expected to challenge the systemic contradictions of the capitalist marketplace. The uncomplaisant and increasingly belligerent state had to augment the insecurity of the market by intensifying it, transferring its legitimacy to its ability to protect the public from terrorists through preemptive wars and drone assassinations, etc. and a profligacy of heinous acts justified as protecting its citizenry and its interests. Any state devoted to abolishing terror must itself inspire terror and in fact become more

terrifying that the terrorists whom it purports to be fighting. However, this crisis has been able to demonstrate to many that egalitarian justice can only be achieved against capitalism, that justice for all cannot be achieved within the framework of a capitalist market economy. For me, the question is—do new information and communication technologies help us or hinder us (or both) in our search for a democratic socialist world outside of the value form of labor?

P.J.: For some people, the Internet has brought dematerialization and deterritorialization of labor—for instance, I am writing this text on a beautiful terrace overlooking the Adriatic Sea in ancient Croatian city of Split—while you are, as my Facebook suggests this morning, just about to give keynote talk in Ensenada, Mexico. However, while the Internet provides us—two white male university teachers—with the opportunity to share ideas from restaurants and cafes throughout the world, people who serve our coffees and lunches (who, by the way, also make the majority of contemporary workforce) are still strongly tied to their kitchens and dining halls. Indeed, Peter, it is really hard not to notice strong ties between technology-driven changes in structure of employment and traditional sources of inequality including but not limited to class, race, and gender.

Similarly, the dominating discourse of e-learning does not seem to offer its main promise in increased quality, or personalized content, or creating virtual communities, or whatever information and communication technologies could actually contribute to critical education (in most cases, the contested notion of "quality" is nothing but a smokescreen for marketization of education). Instead, e-learning is usually advertised as "flexible," "suitable for various lifestyles," and "independent of time and space." Given that the majority of e-learners are still white and well-off—at least those enrolled in official accredited programs—it is just as hard not to notice traditional sources of inequality (Jandrić & Boras, 2012). However, let us take one step at a time. What are the leading ideas behind educational changes driven by contemporary information and communication technologies? Which gospel do they preach?

P.M.: The USA is, with good reason, counting on technology to serve as an ideological weapon of death by soft power, death by a thousand cuts across the digitalized brain. For State Department officials and the Pentagon, technology serves as a form of high-tech imperialism, a means to reshape the world's people geopolitically, to transform other populations and nations into likenesses of itself and these Washington warmongers turned imperial geeks who control the world's informational supply chain get themselves into a state of abject bewilderment when some of those peoples (usually those with darker complexions) refuse to take on the values and practices of the world's dominant superpower. The mind-makeover that technology has given us is really death by digital lobotomy because what consumer technology has done has removed the imagination and replaced it with the artificial dreamscape of Google-run-trend analysis—social network profiled—consumer fantasies and heralded it as open democracy. It has firewalled the self, interposing technologies of surveillance between "us" and "them" attempting to turn "them" into "us." It has replaced the struggle for critical citizenship with consumer

citizenship and rebranded it as "progress" and, furthermore, labeled any of the world's refuseniks of the American vision of world government as potential terrorists.

Here, I am modifying somewhat Tony Smith's four positions in the globalization debate: the Social-State, Neoliberal, Catalytic-State, Democratic-Cosmopolitan, and Marxist models of globalization (Smith, 2009). However, I am not arguing, as Smith does, that a market socialism is the way to go, since I have my doubts about whether the market can be democratized. Those that cannot be integrated into the economy, those who have neither the opportunity nor the means to sell their labor power nor to distribute knowledge, those who are permanently excluded from participation in the market and deemed redundant, are criminalized and made productive in the privatized prison system, becoming the guinea pigs for state experiments on spatial and racial apartheid, and technologies of discipline, control, and punishment, preparing the future for totalitarian regimes of which there will be no escape because they will be premised on epistemicide, the destruction of alternative languages of being and becoming the forced disappearance of indigenous ecologies of the mind. There will be no space outside the "what is." There will be no subjunctive mode of consciousness, no "what if?" There will only be the past of the future of the past – that which "will be" will already have come "to pass." We will all be living with an ideological version of Moebius syndrome.

The key concern for me is the monopoly–oligopoly control of the mass media through the ownership of the means of communication. Those who own the means of communication are obviously associated with other powerful interest groups that are linked to banks and investment firms, hedge funds, etc. Has the mass media ever sided with labor over capital, with the poor over the rich, with the popular majorities over the banks in any major way? The corporate media dominate the flow and access of information, and select what is viewed by the public and in what light. Have you ever seen the corporate media critique capitalism or the "free market?" Critical pedagogy provides a countervailing power of ideological critique and class-based organization and struggle. That's what we need for the struggle ahead for a socialist alternative to capitalism. When the term "robot" entered the english language a few year after the release of Czech playwright, Karel Čapek's *R.U.R. (Rosumovi Univerzālni Roboti* or *Rossum's Universal Robots)* in 1920, a fear was spawned that humans would become the servants of artificial intelligence. That fear was not unfounded.

P.J.: At the end of the day, obviously, what matters most is who owns the technology. However, Peter, ownership can take various forms. For instance, animal lovers know very well that cats and dogs relate with their human "owners" in very different ways—and those differences are built into the very nature of their species. Information and communication technologies are significantly different from their analog predecessors. In one of my favorite descriptions of the dialectical relationships between information and communication technologies and the network society, Manuel Castells asserts that

> The Internet is the fabric of our lives. If information technology is the present-day equivalent of electricity in the industrial era, in our age the Internet could both be linked to the

electrical grid and the electric engine because of its ability to distribute the power of information throughout the entire realm of human activity. (2001, p. 1)

On that basis, it seems reasonable to ask: What happens to ownership over technologies during the transition from the mass society to the network society? How does it relate to wider issues such as democracy, global economy, and the concept of the state?

P.M.: We have clearly entered into a knowledge-based society and are the unwilling servants of a knowledge-based economy. The free flow of information has certainly been hijacked by neoliberal capitalism in its development of informational restructuring of capital. There is a distinct concentration of corporate power and much of this is related, obviously, to the growth of Internet access and informatics. But, as Julian Assange put it recently: "The Internet, our greatest tool of emancipation, has been transformed into the most dangerous facilitator of totalitarianism we have ever seen" (Assange, Appelbaum, Müller-Maguhn, & Zimmermann, 2012, p. 1).

In *Cypherpunks*: *Freedom and the Future of the Internet* (Assange et al., 2012) described as a series of interview transcripts originally broadcast on Russian state-controlled TV channel *RT*, Assange puts forward an unambiguous—and I dare say poetic—indictment of government and corporate surveillance, anti-file sharing legislation and the social media phenomenon that has seen users willingly collaborate with sites such as *Google*, *Facebook*, and *Twitter* who wish to collect their personal data. Assange famously described the Internet as similar to "having a tank in your bedroom" (Assange et al., 2012, p. 33), and wrote that a mobile phone serves merely as a "tracking device that also makes calls" (Assange et al., 2012, p. 49). To me that sounded like early critics of television who said that television programs are just filler for the advertisements (which is essentially true today, perhaps even more so than in the past). Assange continues with the ominous prediction that "the universality of the Internet will merge global humanity into one giant grid of mass surveillance and mass control" (Assange et al., 2012, p. 6). Resistance must therefore include encrypting your online activity, so that it will be possible to create an information network that the state will not be able to decipher.

I am in agreement with Assange, essentially, that we are moving very quickly towards a transnational dystopia, in particular, a postmodern surveillance dystopia. Initially Assange was hopeful "that the nature of states, which are defined by how people exchange information, economic value, and force, would also change" (Assange et al., 2012, p. 2). There certainly was, at the dawn of the information society, the possibility that "the merger between existing state structures and the Internet created an opening to change the nature of states" (Assange et al., 2012, p. 2). That is, there appeared for a short time the possibility of rebuilding the state from the bottom up through the use of information technologies which would help to produce more participatory and direct forms of democracy.

Assange is clear about the violence brewing just below the surface of the state. He notes: "Most of the time we are not even aware of how close to violence we are, because we all grant concessions to avoid it. Like sailors smelling the breeze, we rarely contemplate how our surface world is propped up from below by darkness" (Assange et al., 2012, p. 3). He juxtaposes the platonic realm of the Internet to the

fascist designs of the state—designs given force by the seizure of the physical infrastructure that makes the global Internet culture possible—fiber optic cables, satellites and their ground stations, computer servers. We are no longer safe within Plato's cave. Everything produced inside the cave has been hijacked, stored in secret warehouses the size of small cities, and freighted by a cornucopia of codes and security firewalls vomited up by computer geeks who watch *Revenge of the Nerds* and *American Pie* in their spare time. Creating a frightening imbalance of power between computer users and those that have the power to sort through and control the information generated in networld. The only force that Assange sees capable of saving democracy is the creation of a "cryptographic veil" to hide the location of our cybernetic platonic caves and to continue to use our knowledge to redefine the state.

So what are the costs of being part of social media networks? We give away our habits, our preferences, our demographics, our purchasing habits, and our cyber-history. Do we go the route of nanopayments—some kind of democratic remuneration for our intellectual and biometric property, for information we currently give away for free, in our attempt to remuneration create a humanistic and egalitarian information economy as Jaron Lanier suggests in his influential book *You are not a gadget* (2011), or do we take other forms of resistance?

So, I am certainly convinced that information technologies have certainly facilitated a global reorganization of the market, but to what ends? Markets have been reorganized but they still betray a global division of labor. Are we not still dealing with a relation of exploitation in which workers, separated from the means of production, are compelled to sell their living labor-power from which the capitalist extracts surplus value? And is not the laboring subject still the key protagonistic force with the greatest potential to bring down capital?

P.J.: Obviously, technologies have positive and negative impacts to our everyday lives and the society at large. Before moving on to its positive aspects, could you please briefly examine the dark side of technology?

P.M.: Erica Etelson has recently published a wonderful short piece on the perils of technology that I like very much, perils that include economic crisis, war, pandemic disease, and ecological collapse. While clearly technology has helped to sustain seven billion people on our planet, it is unlikely to be able to do so for much longer, even with anticipated innovations. Her point, of course, is that "modern communication technologies may have reached a tipped point where what is authentically created and shared is overshadowed by market-driven, corporate-generated content that is sold or imposed" (2014). I think by her definition I might be considered a neo-Luddite—a tradesman or artisan engaged in class protest against "all Machinery hurtful to Commonality"—or what Etelson (2014) describes as "forms of mechanization that damaged people and uprooted communities by forcing skilled workers to become wage slaves in factories."

Firstly, she argues forcefully that technology makes us less resilient, as we are "utterly dependent on the seamless functioning of a fabulously complex global superstructure with millions of impersonal moving parts, none of which most of us

have even passing acquaintance with." To illustrate that point, she cites the history of the Arctic Ihalmiut who lost the ability to hunt with bow and arrow after they acquired rifles. Secondly, she also notes that as techno-literacy expands, eco-literacy contracts. The more tech-savvy we become, the more eco-ignorant we become, as we now know more and more about less and less. Etelson also argues that environmental degradation created by technology spawns hubris, as we prefer our techno-nannies to care for us over human community and solidarity. She argues that technology fuels hyper-consumption, as products become cheaper and it diverts our focus "from natural to human-made wonders."

Thirdly, Etelson argues that "the wicked knot of inertia, corruption and hubris" in which we are inextricably trapped, which is part and parcel of our "techno-topian delusion" accelerates environmental ruin, resource depletion, and resource wars. We are at the cusp of the sixth mass extinction. Our nonrenewable resources are being depleted, atmospheric carbon is at the tipping point, and renewable resources like forests, aquifers, and fisheries are being stripped faster than they are being regenerated. World conflicts now center around natural gas, water, oil, minerals, metals, and food. Fourthly, she argues that technology carries very frightening risks. We can't presume products are safe until proven harmful. Etelson uses the example of cell phones and Wi-Fi, widely adopted despite 75 % of non-industry sponsored studies that claim that cell phones damage our DNA. Brain cancer in children has increased 1 % a year for the past 20 years. If the cleaning up of Fukushima goes amiss (this kind of cleanup has never occurred before), the entire West Coast of the USA might have to be evacuated, not to mention what will happen in Japan itself. And then there is hydrofracking and the endless contamination of our water sources.

Fifthly, Etelson argues that technology often diminishes rather than enriches our quality of life. We turn to machines rather than to people. Etelson's sixth point is that technology erodes our privacy—do we need to go further here than the revelations of Julian Assange and Edward Snowden? Seventh, technology deepens inequality. The US manufacturing worker productivity has increased more than eightfold since 1947, thanks to robotics, etc. But we haven't seen higher wages for workers. Or shorter working hours. Corporations own 46 % of global wealth. Even if we had a democratic socialist utopia, Etelson argues that too much productivity—even if the profits were shared more equitably—would lead to more pollution. Technology-induced unemployment is a serious problem. It would take five planet earths to enable everyone to have the same standard of living that we have in North America.

We already have most of the technologies we need to live comfortably and we don't need more unnecessary technologies. Etelson offers some strategies such as stripping corporations of constitutional personhood, replacing the Gross Domestic Product indicator with the Genuine Progress Indicator (which takes stock of the risk factors of technology) and she has some other suggestions, of course. But Petar, the situation is dire, our world is shattering, imploding, and crying out to us to stop!

P.J.: The question concerning technology inevitably brings us to the classic Marxist theme—the dichotomy between capital and labor—thus fully supporting your critique of postmodernism explored in the first part of this conversation

(McLaren & Jandrić, 2014). Having said that, let us not forget that traditional Marxism is also strongly based on substantive critique of technologies. Marx's attitudes towards technology are often generally outlined by the famous quote from *The Poverty of Philosophy—Answer to the Philosophy of Poverty by M. Proudhon*: "The windmill gives you society with the feudal lord; the steam mill, society with the industrial capitalist" (Marx, 1955). In order to reinvent his critique in the network society, therefore, it is reasonable to ask: What do information and communication technologies give us regarding the contemporary relationship between capital and labor?

P.M.: Capital's political command over labor-power is the central antagonism facing capitalist societies worldwide. I agree with some of the autonomist Marxists that capitalism does use technological renovation as a weapon to defeat the working class and that this certainly helps to explain capital's tendency to expand the proportion of dead or "constant" capital as against living or "variable" capital involved in the production process. The proliferation of information and communication technologies has to be understood in the context of the struggle between capital and labor. But capital still remains dependent on collective labor as the source of surplus value. So capitalism has to constantly reorganize itself through a recomposition of the state—today we find this as an inexorable push towards social fascism—and to recompose the workforce—whether under the umbrella of lifelong learning strategies, telecommunications, flexible labor policies, a growth of the service economy, and the criminalization of those who cannot complete in the workforce and then privatizing the prisons and turning them into sites of surplus value production.

Clearly, the world could be headed towards the type of informatics dystopia dominated by the guardians of the security state, as Assange notes. But that of course does not rule out entirely the use of information and communication technology to create sites of resistance and transformation. As technological innovation becomes a permanent feature of capitalist relations of production within the new network society, production becomes intensified around cultivating new consumers by producing "transhumans" with new needs, as countries in the global periphery are turned into a giant factory and others are turned into giant fortresses of consumption. Network society is trapped within structured inequalities and there is strong evidence that information and communication technology is further entrenching such structured inequality rather than abating it.

As long as capital governs technology (and not the other way around) in its attempts to commodify every niche of the lifeworld, technology will perilously serve as an instrument of converting all aspects of nature into commodity-form, and rupturing and turning into raw materials whatever planetary metabolism remains life-sustaining. The technoscientific agenda of capital is ominous and has resulted in epistemicide and the destruction of many indigenous approaches to the relationship between humans and planetary ecosystems. While there are efforts to create counter knowledge that take into account self-reflexivity and recursive interactions between nature and technology, how can they be de-linked from capitalist appropriation of social knowledge in all of its forms? Marx talked about the possibility of machines becoming organs of participation in nature. But capital will always hijack

this process which is why we need to create a social universe that is not ruled by the sovereignty of labor's value form.

The violently wielded dominative power of machine technology cannot be contested through the creation of a noncapitalist commonwealth based on democratic principles. We can't turn our intellectual activity into intellectual capital so that it becomes an appropriated commodity form by universities or other corporatized entities. The same with online teaching in virtual learning factories where what cannot be digitalized loses value and significance.

P.J.: What happens to human beings in the contemporary struggle between capital and labor?

P.M.: Petar, we have a responsibility for our personal role in history, and we need to know how it contributes, wittingly or unwittingly, to the oppression of the poor and the powerless. In our work we cannot romanticize the proletariat, and divide the world into some kind of brute, simplified Manichean divide—on the one side we have the good socialists and revolutionaries and on the other side we have the evil capitalists most of whom reside in the western democracies. Why? Because socialists and revolutionaries have woven into the tapestry of their subjectivity, their agency, capitalist desires. We are as contaminated by capitalism and imbued with the spirit of the bourgeoisie as much as the waters bathing the fuel rods from the storage pool at the Fukushima Daiichi nuclear power plant are saturated by radiation.

Revolutionaries can win by means of a seizure of power through protest—look what happened in Egypt, for example—but this is not enough since what often happens is that such an assault on power reproduces in greater proportions the logic of fascism and militarism that the revolution was intended to eliminate. Nor do I subscribe to the notion that before we engage in revolutionary struggle, we must undergo some kind of quasi-religious conversion to socialism, for that is merely a recipe for the indefinite postponement of the revolution. We are all accomplices to capitalism; we are bathed in the fetid and putrid waters of commercialism and imbibe the vapors of consumerism. Even if we are able to expropriate from the expropriators, what good will this do if we still are subjectively capital as Glenn Rikowski and others have noted? We have become capital! We are the enfleshment of capital!

We don't want to re-establish the bourgeois oppression we carry within ourselves, as both victim and victimizer. We must root out our desire for personal gain—founded on the illusion that we are guided by "self-interest" or personal gain—but that is not easy. What distinguishes us from self-interested animals is our obligation to serve others less fortunate, to treat all human beings as ends and not as a means for something else, to treat everyone with dignity. Witness so many revolutions that have turned into their opposite. This requires the development of a philosophy of praxis. Right now in the USA we are experiencing the slaying in cold blood of black men with impunity by the police. This to me cannot be resolved by simply examining our values or attitudes and trying to understand how racism is constructed by the media and throughout our everyday lives—although this is certainly an important task.

I want here to share some ideas summarized by the eminent sociologist William I. Robinson (2014). Robinson identifies three distinct types of racist structures— structures that scaffold relations between dominant and minority groups. He refers to the first structure as "middle men minorities," the second as "super-exploitation/ disorganization of the working class" and the third as "appropriation of natural resources." He is writing about these in relation to the current global war economy we are living amidst, what he refers to as "militarized accumulation to control and contain the downtrodden and marginalized and to sustain accumulation in the face of crisis" which Robinson believes are giving rise to fascist political tendencies and to a pre-genocidal politics. In the first racist structure,

> the minority group has a relationship of mediation between the dominant and the subordinate groups. This was historically the experience of Chinese overseas traders in Asia, Lebanese and Syrians in West Africa, Indians in East Africa, Coloureds in South Africa, and Jews in Europe. When "middle men minorities" lose their function as structures change they can be absorbed into the new order or can become subject to scapegoating and even genocide.

With respect to the second type of racist structure—"super-exploitation/disorganization of the working class"—we see the racially subordinate and oppressed sector within the exploited class occupying the lowest rungs of the particular economy and society within a racially or ethnically stratified working class. Robinson (2014) expands on this idea as follows:

> What is key here is that the labor of the subordinate group—that is, their bodies, their existence—is needed by the dominant system even if the group experiences cultural and social marginalization and political disenfranchisement. This was the historical post-slavery experience of African-Americans in the United States, as well as that of the Irish in Britain, Latinos/as currently in the United States, Mayan Indians in Guatemala, Africans in South Africa under apartheid, and so on. These groups are often subordinated socially, culturally and politically, either de facto or de jure. They represent the super-exploited and discriminated sector of racially and ethnically divided working and popular classes.

The third racist structure summarized by Robinson is exclusion and appropriation of natural resources. Here, the dominant system needs the resources of the subordinate group but not their labor—that is, their physical existence is not useful or needed. Robinson identifies this structure as the one most likely to lead to genocide. Robinson (2014) writes:

> It was the experience of Native Americans in North America. Dominant groups needed their land, but not their labor or their bodies—since African slaves and European immigrants provided the labor needed for the new system—and so they experienced genocide. It has been the experience of the indigenous groups in Amazonia—vast new mineral and energy resources have been discovered on their lands, yet their bodies stand in the way of access to these resources by transnational capital, literally, and are not needed, hence there are today genocidal pressures in Amazonia.
>
> This is the more recent condition that African-Americans face in the United States. Many African-Americans went from being the super-exploited sector of the working class to being marginalized as employers switched from drawing on black labor to Latino/a immigrant labor as a super-exploited workforce. As African-Americans have become structurally marginalized in significant number, they are subject to heightened disenfranchisement,

criminalization, a bogus "war on drugs," mass incarceration and police and state terror, seen by the system as necessary to control a superfluous and potentially rebellious population.

So here, you see, the African Americans are no longer needed for their labor. They have been replaced. They are superfluous and expendable. They are put in the school-to-prison pipeline. They serve as cheap labor in the prisons, that's all. The Palestinians are now superfluous populations in Israel, their labor has been replaced by African, Asian, and other migrants. Here in the USA, when you have an expendable population, it doesn't resort to genocide as we normally think of it, because the political and ideological conditions are not present, but perhaps we are in a kind of pre-genocidal state. What I am calling for is a philosophy of praxis grounded in the concrete and historical and its contemporary applicability. Julian Assange recently called Google the privatized arm of the NSA. How can we marshal a philosophy of praxis in the service of twenty-first century socialism in the face of twenty-first century fascism?

We Need to Stop Being Academics and Start Becoming Activists

P.J.: *The First International Conference on Critical Education* was held in Athens at the beginning of July 2011—during the short period of peace between two violent anti-government demonstrations. You, Dave Hill, Kostas Skordoulis, me, and few other comrades sat at a small terrace on Exarcheia square in Athens. The night was hot, and the square was full of broken glass. While we slowly sipped our drinks and discussed the political situation in the western Balkans, I remember looking down at my comfy flip-flops, then to your robust Dr. Martens boots, then again at my flip-flops, and feeling embarrassed: if the police arrive, how am I gonna run in those shoes?

During the past years, we have seen an upsurge in usage of information and communication technologies for social change in movements from Latin America to Arab Spring. Considering that the majority of physical Internet infrastructure lies in firm grasp of the establishment, how do you see the potentials of information and communication technologies for contemporary social struggles? Can they be compared to open flip-flops, comfy but too gentle for revolutionary activities, or to robust military boots, heavy but always ready for action?

P.M.: I like your use of metaphor! You capture the situation well. In the main, I would say that we need to strive for cooperative, freely associated labor that is not value-producing. We need to look to the new social movements and uprisings throughout the world for new organizational forms, including those of non-Western peoples. Socialism is not an inevitability, despite what teleologically driven Marxists might tell you. Right now capitalism is reorganizing itself and attempting to reconstitute the working class by criminalizing it and disaggregating its revolutionary potential through new information and communication technologies.

Can democracy survive this historical self-immolation? I would say, no, not without the rise of social fascism. And then what kind of democracy would that be? A democracy in name only—which is not far from what we already have in the USA at the moment. We are not assisted in our struggle by academicians, whether they are technical utilitarians, naturalist skeptics, ill-tempered empiricists or post-modern anti-foundationalists unless they are prepared to argue that ethical judgements comprise the fundamental condition of possibility for scientific reasoning of all sorts.

Let me rehearse a bit of what I said earlier on before I get into the potential of information and communication technologies to usher in some kind of meaningful alternative to capitalism. Clearly, immaterial labor does not escape circuits of capitalist exploitation and control. Reorganization of our lives through better self-management is not the answer because we need transnational movements of resistance. We can all now shop at second-hand stores and be bohemians and look cool and create blogs but so what? Working-class resistance is continually being undermined through information and communication technology. Immaterial production is not the production of ideas that float through space but the production of a class relation, the reproduction of a specific division of labor and we know who is winning the class war and it is not the working class.

Digitalized globalization has redivided labor on a transnational scale. We cannot make history through our own volition, that is, without the co-operation of the social world, which is the crucible in which our human will is forged. We are produced, let's face it, as market relations, objectified social relations, as commodity formations, and thus are de facto proletariats; we exist as human capital, as formations of bourgeois subjectivity, even if we prefer to (mistakenly) think of ourselves as cognitariats who work in realms autonomous or partially autonomous from capital. This notion that because we operate in collective decision-making networks that are supposedly free from the snares of capital, that we actually are free from the snares, is keenly wrong-headed. We have already consented to the rule of capital, even as we supposedly make "free" democratic choices in our exchanges and activities. We are not really free to make free exchanges although we mistake them as free exchanges because we do not see the objectified and impersonal forces that underlie such exchanges—we can resist capital only because we are constituted by it even as we caterwaul against it.

Glenn Rikowski notes that labor-power has a reality only within the person and "is generally under the sway of a potentially hostile will" (McLaren, 2006; McLaren & Rikowski, 2000). We are talking about labor-power here as socially average labor power that uniquely constitutes value—this is the foundation of the abstract labor that forms value. Human labor-power at the socially average constitutes value; concrete labor does not constitute value. No matter what the level of technological development, without human labor-power there is no value and no capital. However, as we undergo the process of schooling, we are being transformed into a new life form: capital. But our social existence as labor places limits on our existence as capital, making us a living contradiction in the social universe of capital—these are

the contingencies of consciousness and protagonistic action. We are in a process of becoming, and we have the capacity to struggle against that which society has made of us that we no longer want to be. We do this, Rikowski reminds us, by abolishing the social relations and forces that nurture and sustain capital and capitalist society. Rikowski makes the important point that technologies are concrete expressions of the social production of labor-power and the generation of value and the increase of relative surplus value in the labor process. We can fight for free expression of our productive capacities and free association with other workers in productive works. We need to use our labor capacity outside and beyond capitalist production relations. This is what critical pedagogy is all about—that is why it is often called revolutionary.

Of course capital has colonized spheres of circulation and reproduction as the social conditions for generating corporate profit have proliferated and intensified with the advent of the information society. I think much of the discussion of issues such as the economic wage versus the social wage, productive versus reproductive labor, and the factory versus the knowledge industry is useful, especially in the context of discussions of sexism and racism and how they are reconfigured within the new social factory and knowledge economy. And of course, we know that in order to fight back, social movements need to fight in global, regional, national, and transnational struggles—and the challenge is how to articulate them in our struggles against the global economy, multilateral financial institutions such as the *WTO* and the *IMF*, non-state actors such as corporations, and the transnational capitalist class.

P.J.: Contemporary media are packed with examples of various social movements powered by information and communication technologies… Perhaps that is the way to go?

P.M.: Yes, I know that the popular Korean boy band, *Dong Ban Shin Ki*, sparked a nationwide protest over the purchase of meat produced in the USA during fears of a "mad cow disease" epidemic, and almost destroyed the presidency of South Korea's Lee Myung-bak. That is true. And there are many other examples of Internet protest carrying tremendous power and force, but the truth is that just as in the case of analog media you need a break to get access to public attention in the digital media. Sure, you can publish all the time, and there are plenty of people out there who are worth listening to (we have what Clay Shirky (2011) calls "cognitive surplus") but who is going to listen to you unless you are already a celebrity or somebody that has some credibility? So do we get sports figures explaining the relationship between inequality and racism or Miley Cyrus showing us the path to socialism? We know that you need leverage to get a wide audience and not everybody will be able to affect such leverage, as Mathew Battles (2011) points out, because the transmedia conglomerates are more successful leveraging their power in the world media of scarcity. Basically, they dominate the traffic, as Battles puts it.

P.J.: Your example hits the nail on the head. Obviously, the problem is much deeper than simple instrumental inquiry into the possible ways of using technology in order

to produce this or that social outcome. In this place, it is worthwhile to revisit a famous passage from Martin Heidegger's book *The Question Concerning Technology*:

> Likewise, the essence of technology is by no means anything technological. Thus we shall never experience our relationship to the essence of technology so long as we merely conceive and push forward the technological, put up with it, or evade it. Everywhere we remain unfree and chained to technology, whether we passionately affirm or deny it. But we are delivered over to it in the worst possible way when we regard it as something neutral; for this conception of it, to which today we particularly like to do homage, makes us utterly blind to the essence of technology. (Heidegger, 1977, p. 4)

Information and communication technologies are dialectically chained to our reality and cannot be either dismissed or idealized. Therefore, the only remaining option is to try and position them appropriately in the wider fabric of our everyday praxis. On such basis, please allow me to reformulate my question and ask more broadly: What happens next with revolutionary critical pedagogy in the context of the network society?

P.M.: My goal is to develop transnational interactions from below—from the exploited and the excluded—and this may be called a counter-hegemonic globalization process if you want. These are local struggles that need to be globalized—and we know what they are. Boaventura de Sousa Santos has listed some of these as transnational solidarity networks, new labor internationalism, international networks of alternative legal aid, transnational human rights organizations, feminist movements, indigenous movements, ecological movements, alternative development movements and associations, literary, artistic, and scientific movements on the periphery of the world system in search of non-imperialist, anti-hegemonic cultural and educational values (Dalea & Robertson, 2004). As to the issue of how to struggle and how information technologies could help, let me repeat some recent comments I made with respect to my trip to Turkey in 2013 (McLaren & Fassbinder, 2013).

For one thing, all of the movements that I have witnessed of late—the Occupy Movement, the uprising in Greece, protests of university students in Mexico, the Indignados, etc.—are making more than minor demands. They are struggling for an entirely different kind of future, and the originality and creativity of their protests speak to that future. They are not just about negating the present but about reclaiming space—parks, public squares, university buildings, and other spaces, where they can enact a new, more horizontal form of governance and decision-making. They are moving beyond narrow sectarian interests and seeking to put participatory democracy into practice as an alternative to vertical forms of organization favored by liberal, representative democracy. And, of course, they are fighting state authoritarianism. They are seeking to challenge consumer citizens to become critical citizens again, as many citizens strove to become before the era of asset capitalism, or neoliberal capitalism.

But the movement goes beyond nostalgia for the past—since most of the youth have only known neoliberal capitalism all of their lives. The youth have also figured out that parliamentary forms of representation can no longer suffice in creating democracy in a social universe of asset or finance capitalism which requires a

neo-fascist reorganization of the state in order to preserve massive profits for the transnational capitalist class. Youth protesters today are struggling for participatory forms of association using new social media and new convergent media production as digital tools, as technological literacies to educate themselves and their comrades to link their experiences of struggle to goal-directed actions. They are struggling for different forms of social life through their protests against neo-extractivism, unequal ecological exchange rates, high tuition fees in education and the chaos the capitalist class has decreed into law by treating rabid corporations as people.

P.J.: You said that most of the youth have only known neoliberal capitalism all of their lives—and I would add that most of the youth have only known information and communication technologies all of their lives. Those observations deeply resonate with the shared experience of my generation in Croatia—we had the "privilege" to live in communism and capitalism, in the world of analog television and in the world of broadband Internet, in the world sharply divided between two major blocs and in the globalized world of today, in the mass society, and in the network society. However, not everyone has had the opportunity to experience various political systems and technologies. Actually, Eastern Europe seems to be an exception. Most countries such as the USA, Cuba, France, or China have only experienced one political system; the majority of world's population is still on the non-privileged side of the digital divide and has never seen a computer.

Based on biological age at which information and communication technologies have been introduced into people's lives, in the seminal article *Digital Natives, Digital Immigrants* (2001) Marc Prensky divides contemporary population in two distinct categories. Digital natives are people who were born into the world of information and communication technologies—for them, using computers, i-thingies, and touch screens comes as naturally as acquisition of mother tongue. Digital immigrants are people who encountered information and communication technologies later in their lives, and had to put conscious effort in order to learn how to use them—therefore, their command of digital artifacts will always bear traces of pre-digital ways of thinking. Certainly, this is a principled rather than analytic distinction, which has recently provoked a lot of debate (i.e., Bayne & Ross, 2011)—the global South is populated by hundreds of millions of underage digital immigrants, while the global North sports a smaller but equally impressive number of digital natives in their 20s and 30s. Despite theoretical imprecision, however, Prensky's distinction opens several interesting questions. What are the main strategies of using information and communication technologies in contemporary social movements? Are they digitally native or digitally immigrant?

P.M.: In contemporary youth social movements, the digital media do not become ends in themselves but augment or supplement real-world experiences of struggle for popular sovereignty—and in the case of the Zapatistas in Chiapas or the Purépecha nation in Cherán, Mexico, an autonomous community within the state. As a result of these struggles, these tools become more integrated as part of an effort to creative a collective intelligence with multiple visions of a socially just or at least fairer world. As Greek scholar and activist, Panagiotis Sotiris, wrote recently,

contrary to the supposedly post-modern tendency towards virtual communities digitally connecting fragmented individuals, as expressed in various cyberspace trends, but also in the whole concept of a potential 'online "democracy" and "consultation," nothing can beat the appeal and the power of people meeting in the street, joining forces, creating communities of struggle and resistance. (Sotiris, 2013)

According to the semiofficial Anadolu Agency news service, during a recent protest in Izmir, police have arrested 25 people on accusations of using social media networks such as Twitter to spread false details about the anti-government protests and police reaction to them. Many youth can see that the survival of neoliberal capitalism requires the state to reorganize itself in more fascist formations—and this is no less true of the youth in Turkey, where many secular young people are fearful of the intolerance of criticism and diverse lifestyles by the Islamist-rooted government. Again, as Panagiotis Sotiris lucidly proclaims:

The importance of youth in all these movements should not lead us to treat them as student or youth movements. Rather, youth who are at the epicentre of the current capitalist attempt to change the balance of forces in favor of capital, and are being treated in some cases as a "lost generation," and almost always as the generation that will receive the full blow of capitalist restructuring, act like the vanguard of more generalized and deeper forms of discontent. This has to do with the particular quality of youth as potential labor power. Contemporary youth are more educated, more skilled and at the same time face precarization and the consequences of the economic crisis. However, they have the communication skills to make their discontent more evident than ever and are in a position to create networks of struggle and solidarity, thus making themselves more than instrumental for the creation of new public spaces, both real and virtual. (Sotiris, 2013)

I strongly agree with this observation of Sotiris and with his conviction that these movements are also productive sites of knowledge and potentially counter-hegemonic projects. He makes profound sense when he argues, additionally, that the left needs to be more proactive in helping to transform such movements from spontaneous uprisings to historical blocs in the Gramscian sense that involve

combinations between social forces, new forms of political organization and new social configurations as alternative narratives that do not simply repeat historical left-wing projects, but actually attempt to think how to move beyond neoliberal capitalism…from the current "age of insurrections" to a new "age of revolutions." (Sotiris, 2013)

That said, I do believe there is an ongoing danger of communitarian popular fronts. Think of Poland and Iran in 1979–1981. Mass movements in these countries were taken over by Catholic reactionaries in the former and Islamic fundamentalists in the latter, and both movements had progressive elements such as women's movements and workers' councils. Political parties have a history of taking over various forms of spontaneous movements. I think popular-frontism could become reified as the "lost generation" versus the bankers and hedge fund profiteers (Sotiris, 2013). We have to be wary of the struggle becoming the "good capitalists" who are against monopolies, etc. versus the unproductive parasites in the finance sector who accumulate their fortunes on the shoulders of others who are forced to sell their labor power for a wage. We must begin to wage a struggle for an alternative to capitalism based on the creation of real wealth rather than the value form of labor.

Who Wants to Be Downloaded?

P.J.: A bit earlier, you briefly mentioned that education is opposed to schooling—and I simply could not let this passing remark unnoticed. Radical thinkers have always heavily despised schools. Schools have been accused—and completely rightfully—for many evils such as social reproduction, indoctrination, failing to respect individual needs of their patrons, stupefying… In order to fight against those evils, radical educators have developed an impressive body of educational alternatives which have replaced institutionalized schools by less formal approaches. However, only the rare have dared to challenge the very essence of the concept of schooling.

Far on the fringes of educational praxis, much further than "regular" radicals who oppose traditional schools because they inculcate the wrong ideas or fail to respect pupils' personality, there is a small stream of educators which wants to completely abandon the concept of schooling. Those people agree that education is an intrinsic part of human nature: we all learn and unlearn from cradle to grave. However, they point out that schooling is an institutionalized process of meeting certain educational outcomes. They are not against education: they merely claim that the process of education is completely detached from the process of schooling, and that schools should be replaced in favor of more efficient educational processes. In the recent study, Joseph Todd describes the project of deschooling as follows: "Anarchists and deschoolers, as well as educational theorists, argue for the creation of networks, as opposed to institutions, that are temporary, autonomous, and non-hierarchical, and facilitate a variety of diverse models of learning and community interaction" (Todd, 2012, p. 78).

The genesis of argument against schooling can be traced in several major works such as Everett Reimer's *School is Dead* (1971), Paul Goodman's *Compulsory Miseducation* (1973) and Matt Hern's *Deschooling our Lives* (1998). Back in the 1971, however, the small book called *Deschooling Society* has provoked wide worldwide debates about the future of schooling and has placed Ivan Illich on the unofficial throne of the project of deschooling. Such positioning of Illich's work has not arrived from thin air. According to Atasay, "what distinguishes Illich's work from other critiques of industrial everyday life (…) is that Illich offers us alternatives, tools that can influence power and offer individuals and communal settings the potential for alternative vernacular practices to emerge in culture" (2013, p. 58). In order to replace traditional schools, Illich proposes creating large-scale noninstitutional educational infrastructure which consists of a set of four interlocking educational networks: reference services to educational objects, skill exchanges, peer-matching, and reference services to educators-at-large (1971).

Based on that proposition, Hart concludes that "it is not too far-fetched to assert that Illich predicted the World Wide Web" (2001, p. 72). In my recent work, I have thoroughly analyzed various features of contemporary information and communication technologies and concluded that they provide adequate technical infrastructure for Illich's educational networks (Jandrić, 2011; Jandrić & Boras, 2012, pp. 72–74, Jandrić, 2014b). During a recent conversation, your former student Tyson Marsh told me that you extensively used Illich's work during doctoral

seminars. Another former student of yours, Richard Kahn, has recently founded *The International Journal of Illich Studies* (Jandrić, 2014b). Could you please evaluate contemporary potentials of deschooling for critical revolutionary pedagogy?

P.M.: Here perhaps I have more questions for you than answers. I have been blessed with former students like Tyson and Richard. We obviously are all invested pedagogically in the following question: How can we help students teetering on the precipice of despair? A well-tempered chorus of answers has been forthcoming from a variety of perspectives, as we all know. But my questions are as follows: Can the technological infrastructure of which you speak realize the goal of Illich's deschooling society such that the youth of today are not simply left to generate individual solutions to problems produced by and enmeshed within the structural inequalities wrought by capitalism? How can you avoid such infrastructure remaining tethered to capitalism without first creating spaces in which capitalist relations of production and consumption are not reproduced? Can the Internet help produce such spaces? Do they exist, and where? If the subjectivities produced in your Illich-inspired infrastructure remain trapped in the thrall of the value form of labor, then the pedagogical imperative guiding the construction of such an infrastructure cannot remain consistent with its own principles since it will remain hospitable with the view that social justice is possible within a capitalist society; so how can your infrastructure remain autonomous from capital? There is no solution on the horizon that commands uncontested authority, I admit, so that we must continue to experiment. We cannot prevent the future by banning a priori the admissibility that another form of education is possible, perhaps a new digital humanism can be created through forms of post-symbolic communication which breach the prescribed boundaries between bodies and minds, but are such forms possible only within infuriatingly rare niche "online" communities? And what would the environmental costs be of the manufacturing of your infrastructure? Would it perhaps prolong adolescence, as Jaron Lanier (2011) warns?

Illich wrote in *Deschooling Society* (1971) that "Man now defines himself as the furnace which burns up the values produced by his tools. And there is no limit to his capacity. His is the act of Prometheus carried to an extreme." Is network society another Promethean fallacy? Near the end of *Deschooling Society,* he again writes:

> The Pythia of Delphi has now been replaced by a computer which hovers above the panels and punch cards. The hexameters of the oracle have given way to 16-bit codes of instructions. Man the helmsman has turned the rudder over to the cybernetic machine. The ultimate machine emerges to direct our destinies. (*Illich,* 1971)

If humankind is the helmsman then who builds the ship? And in *Tools for Conviviality* Illich writes:

> Honesty requires that we each recognize the need to limit procreation, consumption and waste, but equally we must radically reduce our expectations that machines will do our work for us or that therapists can make us learned or healthy. The only solution to the environmental crisis is the shared insight of people that they would be happier if they could work together and care for each other. Such an inversion of the current world view requires intellectual courage, for it exposes us to the unenlightened yet painful criticism of being not only anti-people and against economic progress, but equally against liberal education and scientific and technological advance. We must face the fact that the imbalance between man

and the environment is just one of several mutually reinforcing stresses, each distorting the balance of life in a different dimension. In this view, overpopulation is the result of a distortion in the balance of learning, dependence on affluence is the result of a radical monopoly of institutional over personal values, and faulty technology is inexorably consequent upon a transformation of means into ends. (Illich, 1973)

P.J.: You touched upon a very interesting and urgent matter: the relationships between online and offline public spheres, between online and off-line participation in the society …

P.M.: Here is the problem, as I see it. The Internet and social media provide a kind of limbic cave, a space of refuge for us to vent our emotions, reactivate our most torpid memories, and quiet our most primal fears, and eventually to focus our rage on everything and everyone we hate. We find people who share our beliefs and who resent the same people and situations and we communicate with them on a daily basis, and given that the Internet is so vast, we can tap into a considerable number of like-minded people. We can shut out opposing groups, and not be called upon to debate and defend our ideas. We isolate ourselves in a fiber optic cocoon; we form our own hive, where we protect ourselves from being accountable for our opinions. We are uncomfortable going out into the real world because suddenly we are being asked uncomfortable questions that we really don't know how to answer. We feel threatened by the real world of public participation because we have just been living this rage through our self-confirming, self-affirming group of Internet companions. This has a polarizing effect on the national culture. People are drawn into camps and barricade themselves from participating in the public sphere. People think they are participating, but they are merely communicating in an echo chamber with people who reflect their own ideas. Even when people do debate real issues, they do so in formats where their ideas are reduced to sound bytes. I was once on a TV talk show, where the producer asked me to overturn a table in anger. I refused to do it. And I refused to let the host set the terms of the discussion. The show was never aired. So what does this tell us about public participation in reinvigorating the public sphere?

P.J.: During the hippie revolution, computers had been developed and used primarily in isolated basements of scientific institutes (more often than not, with strong military presence dating at least from World War II and Alan Touring's hacking of *Enigma*). During college days of 1970s and 1980s, they slowly gained commercial applications in large-scale industry and service sector institutions such as banks and insurance companies. Finally, sometime during 1990s, marriage between the personal computer and broadband Internet has inspired numerous applications in the broadest field of education from informal language courses to accredited university degrees. At the brink of millennia, the next big thing in education had been called numerous names such as "multimedia learning, technology-enhanced learning (TEL), computer-based instruction (CBI), computer-based training (CBT), computer-assisted instruction or computer-aided instruction (CAI), Internet-based training (IBT), web-based training (WBT), online education, virtual education, virtual learning environments (VLE) (which are also called learning platforms), m-learning, and digital educational collaboration" (this list is purposefully taken from (Wikipedia, 2014b), which seems to reflect the latest changes in the field).

The "new" approaches to education have seemed to offer a lot of promise regarding optimization of educational processes. However, the past few decades have brought a growing body of research which has explored the dark side of the marriage between education and information and communication technologies. In their Foucauldian analysis of education, Fejes and Nicoll have succinctly summarized its main problems in the conclusion that "discourses of e-learning have tended largely to construct the area of study as about the mechanics of its implementation (the appropriate use of technology in education, the effective delivery of educational messages, the efficient systems for materials production and so on)" (2008, p. 174).

Rooted deeply within the framework of critical theory, this book reaches far beyond the level of application which is usually associated with the aforementioned concepts and explores critical approaches to networked learning defined as "learning in which information and communication technology is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources" (Goodyear, Banks, Hodgson, & McConnell, 2004, p. 1). As our Call for Chapters says,

> Complex and rapid transformations of contemporary educational systems are dialectically intertwined with information and communication technologies and, more generally, with wide social changes commonly known as globalisation. Those transformations equally affect all levels of educational praxis including, but not limited to, theory, practice, policy and politics of teaching and learning, social roles of contemporary educational systems, private lives of teachers and students and the very understanding of the process of education. During the past few decades, therefore, understanding of the complex relationships between education, globalisation and information and communication technologies has become prerequisite for critical engagement in wide range of activities such as primary, secondary and tertiary education, staff development in public and private enterprises, policy making, education research and development.

In this conceptual framework, let me finally ask the common question: What about online education?

P.M.: Many of my colleagues in various universities who have fallen prey to digital settlers are out there creating new learning management systems for all of us, professors, to jump on board and become part of the new techno-utopia of e-learning. I don't think cybernetic systems of information are the best way to apprehend reality and I don't buy into the cyber-armageddon-cataclysm eschatology that humans will become obsolete when machines get more sophisticated and we are run by non-human or meta-human nanorobots. Call me "old school" if you wish.

Developments in information and communication technologies and the creation of cyberinfrastructures certainly effect the production and dissemination of knowledge—knowledge flows, and new modalities of teaching and learning—Open Learning and Open Innovation, E-learning and Cyberlearning, user-generated and user-created media, networked learning, etc. provides opportunities for more customized and individualized learning. This is all good and exciting as far as our imagination is concerned. Social networks like Facebook, LinkedIn, Flickr, Second Life, World of Warcraft, Wikipedia, Ning, and YouTube and Peer-to-Peer (P2P) networks are part of the new wave of knowledge production and consumption. Some would herald this as the new communism in the sense that the rhizomatic network has

replaced the isolated individual as the unit of analysis and has the potential to bring about new ecologies of participation and meaning-making and perhaps a new digital socialism for the twenty-first century. My concern is that it will bring about new formations of ideological production in which each process of our identity formation will be re-territorialized and re-wired to the initiatives and interests of the state.

I like what Brian McKenna says in his recent wide-ranging article on this topic. In *The Predatory Pedagogy of Online Education*, McKenna (2013) quotes the author of *Digital Diploma Mills*, David Noble, who writes:

> Once faculty and courses go online, administrators gain much greater direct control over faculty performance and course content than ever before and the potential for administrative scrutiny, supervision, regimentation, discipline and even censorship increase dramatically. At the same time, the use of the technology entails an inevitable extension of working time and an intensification of work as faculty struggle at all hours of the day and night to stay on top of the technology and respond, via chat rooms, virtual office hours, and e-mail, to both students and administrators to whom they have now become instantly and continuously accessible. The technology also allows for much more careful administrative monitoring of faculty availability, activities, and responsiveness. (Noble, 1998)

In support of Noble's comment, McKenna (2013) makes the following lucid observation: "With the introduction of advanced corporate learning platforms many teachers will watch what they say in class. There are topics and dialogic digressions that many will not want recorded and made available for administrators to scrutinize." McKenna also cites Richard Sennett (2012), who makes a case for face-to-face interaction, drawing from the work of Saul Alinsky and Jane Addams. Sennett writes that "modern society is 'deskilling' people in practicing cooperation" (2012, p. 8). In other words, "people are losing skills to deal with intractable differences as material inequality isolates them, short-term labor makes their social contacts more superficial and activates anxiety about the Other" (Sennett, 2012, p. 9). For McKenna, online education offers capital another avenue for appropriating the process of knowledge production. He is worth quoting at length:

> A rereading of Harry Braverman's classic, Labor and Monopoly Capital (1974: 1998) is necessary. Braverman conducted an ethnographic analysis of the labor process and revealed how capital (1) appropriates all historical knowledge from the craftsmen, (2) separate conception from execution and (3) employs the new found monopoly of knowledge to control every step of the labor process and hire unskilled workers who are interchangeable and cheap. It's called Taylorization, or scientific management. The new technology makes this amazingly simple. Joanne Bujes points out one aspect of this invasion: "they will pick 100 teachers and get them on tape for e-learning. And then professors will be reduced to grad students leading a discussion section once a week. Are people going to go into debt half their lives for this?" (McKenna, 2013)

P.J.: This dark note resonates with many important topics such as literacy, morality, and self-realization…

P.M.: I agree with Barry Sanders in his book, *A Is for Ox* (1995), that oralicy, the precursor to literacy and abstract thinking, demands human interaction, and was often nurtured by storytelling mothers and this helped develop the imagination so necessary to reading readiness; now, however, the development of vernacular language is being replaced by video games and Internet culture and Silicon Valley dreams, and youth today are less likely to engage in print literacy through

books—which contributes mightily to violence in today's society. Sanders, a student of Ivan Illich, is, of course, on to something important when he argues that we are seeing among our youth the disappearance of self-literacy through an engagement with reading books and the creation of the inner space of morality. Reading books provides the foundation for self-reflexive moral choices and that foundation has been eroded through Internet culture. I have always supported critical media literacy in schools, and of course, teacher education programs. Of course, we can argue that students acquire multiple literacies today via Internet culture and social networking—in their formation as transhumans within the metaverse of the Internet—but we have to keep examining how these multiple literacies fare in creating the foundations of moral reasoning, as distinct from engaging in print literacy—all of which takes me back to my days in Canada listening to Marshall McLuhan. He was the first choice for my outside reader for my dissertation but he had a stroke and I switched my focus to comparative symbology and the study of rituals.

My own take is quite similar to Sanders in many respects, however, as I do feel what makes us human through our social interactions—creating a "haptic" sense of life—is slowly dying. Sanders links the rise of humanity's disembodiment to the industrial revolution, and he draws our attention, for instance, to the technology-enabled slaughter of the American Civil War and the First World War. Sanders makes the claim that modernity and the enlightenment confronted the disappearance of human beings and their commodification. Postmodernity only produced a more tragic state. What began to connect us—the telephone, the telegraph, fax machines, and the Internet—can now be seen in hindsight as the formation of a world, where we became more connected but in ways that actually produced more isolation from our humanity—something Sherry Turkle has noted in her new book, *Alone Together* (2012). As we fall prey to the all-pervasive influence of corporations and their attempts to re-create us into a desiring-machine (desiring what the corporations have to sell us), we have become a less mindful, less vigilant citizenry, watching passively as civil life becomes swallowed up by the logic of capital, consumption, and corporatism. People no longer want to become actors—they want to become celebrities.

Our rhizomatic culture has become corralled by capital, so that it appears as if we are autonomous and in a constant state of self-actualization but in reality we are making ourselves more vulnerable to the crippling control of *Big Brother*. But of course it is easy to sink into a dystopian malaise and to be so fearful of the future than we end up in the thrall of paralysis. For me, technologies are not something to be feared for the electric age has brought us wonderful treasures. The problem is how they have been harnessed by capital, and how we have been harnessed along with them, how we have been capitalized, how we have become capital and how these technologies have helped in that process.

Recently the *New York Times* carried a front page story by Claire Cain Miller on the rise of the robot work force. The article mentions how so-called experts maintain the view that technology has made human beings more productive—i.e., making office workers more productive through word processing, or making surgeons more productive through robotics in the operating room; and the argument is always that new jobs unheard of today will be made possible by the technology of tomorrow. Other experts are not so sure. The article highlights how machines today are beginning

to be able to learn rather than follow instructions—for instance, some of them are now able to respond to human language and movement. We have self-driving vehicles that could eventually put truck drivers and taxi drivers out of work. Sales agents and pilots will decline as flying is more automated and as software does most of the selling and placing search ads. Telemarketers are also at risk. Even recreational therapists are at risk by machines that recognize and correct a person's movements. Machines are learning children's expressions and estimating their pain levels. The Thai government has a robot that tastes Thai food and estimates where it tastes sufficiently 'authentic.' The computer system called Watson advises military veterans on where to live and which insurance to buy. It also creates new recipes for chefs. A third of a panel of leading economists admitted that technology is centrally implicated in the stagnation of median wages. And all of this weak wage growth is occurring amidst surging corporate profits. The US government continually weakens what few safeguards there are left to help regulate the market and prevent the kind of savage inequality we are experiencing from getting exponentially worse. The photo that accompanied the article in the *Times* shows a robotic bellhop delivering an order of fresh towels to a room at Aloft Cupertino, which is a technologically advanced hotel in Silicon Valley. Are we entering the age of *Bladerunner*, among the most famous, perhaps of the dystopian films. I think that is the trajectory we are on. How far we will go depends upon social movements being about to intervene into and replace transnational capitalism with a socialist alternative.

P.J.: As far as I am aware, Peter, this is the first writing focused to the relationships between education and virtuality in your rich bibliography—I am sincerely honored by the opportunity to engage in such an important project! Could you please conclude this conversation with your last thoughts?

P.M.: As I have written elsewhere, capitalism as a discourse is self-validating and self-perpetuating and as a social relation works as a self-fuelling engine whose capacity to travel around the globe and devour everything in its path is expanding exponentially. As a discourse and social practice that in its current neoliberal incarnation shatters collective experience into monadic bits and pieces, bifurcating students' relationship to their bodies, brutally taxonomizing human behavior into mind and body, into manual and mental labor, capitalism is a colossus that bestrides the world, wreaking havoc. It possesses a terrible power of psychologizing entrenched and dependent hierarchies of power and privilege and reformulating them into homogeneous and private individual experiences. So the 99 % of the world are made to feel responsible for their plight.

To fight this juggernaut of cruelty that would profit from the tears of the poor if it knew how to market them effectively, critical pedagogy flouts the frontier between scholarship and activism and, as such, works to create a counterpublic sphere. We are askew to traditional academia and are not enmortgaged to its status and do not represent the ivory tower. We want to mediate human needs and social relations in publicly discussable form, so as to create a transnational social movement of aggressively oppositional power. However, critical pedagogy is not yet in a position to play a substantial role in the struggle for a socialist future. A more productive role for critical pedagogy needs to be discovered so that educators can become better

political functionaries and agents of revolutionary transformation. We need to move from a pedagogy of insurrection to a pedagogy of revolution.

The history of technology is that of a lost horizon, a forgotten future. Today, where we have seen our humanity swept away like a child's sigh in a tornado, we know that we—as humans—will reemerge again. We will reappear on the horizon again, one that is being reclaimed today in the smouldering haze of tear gas and struggle. A new revolutionary consciousness is being born that seeks to use technology in the service of humanity—to fight disease, to feed the poor, to eliminate poverty, to save the biosphere, to reclaim dignity for all of us. If you can silence your mind for a moment, take your eyes off your computer screen, and turn off your cell phone, you will hear it. In the darkness of an eclipsed moon, in the unfamiliar air of things-to-come, you will hear the gasp of a new humanity. Let us not dull our senses so much by extending them electronically such that we do not hear it. Let us listen with our imagination, remembering always that thought is spirit.

Note

Due to large amount of gathered material, this conversation is published in two complementary parts. The other part of the conversation is published in: McLaren, P., & Jandrić, P. (2014). Critical revolutionary pedagogy is made by walking—In a world where many worlds coexist. *Policy Futures in Education, 12*(6).

Sources

P.J.: This conversation is closely linked to both authors' previous research. On my side,

- Exposition of the dialectic between technologies and the society and elaboration of the main differences between education and schooling are expanded and significantly revised from: Jandrić, P. (2014). Deschooling virtuality. *Open Review of Educational Research, 1*(1). I want to thank Iva Rinčić, Michael Hayes, Sarah Hayes, and Shane J. Ralston for their valuable criticisms and suggestions on earlier versions of that paper.
- Several analyses and descriptions, including the interpretation of Marc Prensky's *Digital natives, digital immigrants* (2001), are loosely based on: Jandrić, P., & Boras, D. (2012). *Critical e-learning: Struggle for power and meaning in the network society*. Zagreb: FF Press/The Polytechnic of Zagreb.

P.M.: On my side, Petar, I have used the following previous publications:

- Overview of the relationships between contemporary social movements and information and communication technologies is expanded from: McLaren, P., & Fassbinder, S. (2013). His work, his visit to Turkey and ongoing popular struggles: Interview with Peter McLaren. *CounterPunch*.

- My path towards revolutionary critical pedagogy is revised and expanded from: McLaren, P. (2010). Revolutionary critical pedagogy. *InterActions: UCLA Journal of Education and Information Studies, 6*(2) and Sandlin, J. A., & McLaren, P. (Eds.). (2010). *Critical pedagogies of consumption: Living and learning in the shadow of the "shopocalypse"*. New York: Routledge.

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