Educational Technology and Polycontextual Bridging
Eyvind Elstad (Ed.)
University of Oslo, Norway

Technology has become ubiquitous in nearly every contemporary situation, while digital media have acquired considerable importance in the lives of young people. Alongside their interest in digital media, schooling constitutes a core component of the life of children and adolescents. Youth's use of digital media creates tensions between traditions and expectations of renewal within the school. The once-sharp divide between school and leisure time is eroding. How will the school as an institution relate to this comprehensive process of change known as the digital revolution? How can the school build a bridge between the world of youth and school material to enable students to learn in a new digital age? This endeavor is named polycontextual bridging in this book. What are the good examples of polycontextual bridging? What novel educational goals can be achieved by net-related activities when incorporated into the school, and how can out-of-school learning be successfully framed by educational purposes? These questions are addressed from different perspectives by several scholars in this book. The chapters in this volume offer the most thorough, up-to-date discussion on the challenges of technology use in school education. In tackling the critical issues created by technology, this book provides an important resource for student teachers, teachers, education scholars and those interested in a critical examination of digital expectations and experiences in school education.

This book is motivated by a pressing need to come to grips with the dilemmas caused by an apparent clash of learning cultures in the individual classroom, in the schools, in the education of teachers, and in the institutions of teacher education. The book is also a tribute to Gavriel Salomon and his research on the cognitive effects of media's symbol systems, media and learning, and the design of cognitive tools and technology-afforded learning environments. The book also contains his masterpiece “It's not just the tool, but the educational rationale that counts”. Further, three internationally recognized experts – Howard Gardner, David Perkins, and Daniel Bar-Tal – describe Salomon's remarkable academic contributions.

This book is an attempt to explicate, illustrate, and critically examine the idea of polycontextual bridging between youth's leisure cultures and school material to enable students to learn in a new digital age. The authors do not present a common front on the complex question of the proper use of information and communication technology in the school but instead present a diversity of arguments and viewpoints. The book is an attempt to raise questions and start a debate.
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Edited by

Eyvind Elstad
University of Oslo, Norway

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PREFACE

This book publishes results from a new research project funded by the Norwegian Research Council entitled Learning in the 21st century: Capitalising on students’ digital strengths; compensating for desired capabilities. The research project produces research and knowledge relevant to student teachers, teachers, school leaders, researchers and other individuals with an interest in the use of information and communication technology in school. The book is thus aimed at the academic world and the teaching field and at policy-makers and other socially minded individuals. The editor is grateful to two anonymous referees for their careful reading of the chapters. Their contributions to the improvement endeavour have been decisive. This project became the last fulfilled research project initiated by Gavriel Salomon. Gavriel Salomon—or Gabi among friends—died untimely on 4 January 2016. An up-to-date version of Salomon’s masterpiece “It’s not just the tool, but the educational rationale that counts” is included in this volume. The book ends with chapters which express tributes to Gavriel Salomon as an academic scholar.
Technology has become ubiquitous in nearly every contemporary situation, while digital media have acquired considerable importance in the lives of young people. Alongside their interest in digital media, schooling constitutes a core component of the life of children and adolescents. Youth’s use of digital media creates tensions between traditions and expectations of renewal within the school. The once-sharp divide between school and leisure time is eroding. Will and how can the school as an institution relate to this comprehensive process of change known as the digital revolution? How can the school build a bridge between the world of youth and school material to enable students to learn in a new digital age? This endeavour is named \textit{polycontextual bridging} in this book. What are the good examples of polycontextual bridging? What novel educational goals can be achieved by net-related activities when incorporated into the school, and how can out-of-school learning be successfully framed by educational purposes? These questions are addressed from different perspectives by several scholars in this book. The chapters in this volume offer an up-to-date discussion on the challenges, as well as the possibilities, of technology use in school education. In tackling the critical issues created by technology, this book provides an important resource for student teachers, teachers, education scholars and those interested in a critical examination of digital expectations and experiences in school education. This book is motivated by a pressing need to come to grips with the dilemmas caused by an apparent clash of learning cultures in the individual classroom, in the schools, in the education of teachers, and in the institutions of teacher education. The book is also a tribute to Gavriel Salomon and his research on the cognitive effects of media’s symbol systems, media and learning, and the design of cognitive tools and technology-afforded learning environments. The book consists also of his masterpiece “It’s not just the tool, but the educational rationale that counts”. Further, three internationally recognized experts – Howard Gardner, David Perkins, and Daniel Bar-Tal – describes Salomon’s remarkable academic contributions.

This book is an attempt to explicate, illustrate, and critically examine the idea of polycontextual bridging between youth’s leisure cultures and school material to enable students to learn in a new digital age. The authors do not present a common front on the complex question of the proper use of information and communication technology in the school but instead present a diversity of arguments and viewpoints. The book is an attempt to raise questions and start a debate.
The demise of traditional schooling has often been predicted based on the assumption that media-related developments will explode it apart and revolutionise thinking about education. The 21st-century student has experienced the shift from the world of writing and the book to the world of images and the screen. Political expectations for the modernisation of schooling through the use of information and communication technology and the allocation of funds in accordance with politically created agendas have led to perceived pressure on school staff to employ information and communication technology as a teaching aid.

The chapters in this volume offer a thorough, up-to-date discussion on the challenges of technology use in school education. In tackling the critical issues created by technology, this book provides an important resource for student teachers, teachers, education scholars and those interested in a critical examination of digital expectations and experiences in school education.

Why a New Book on Information and Communication Technology in the School?

Books dealing with the use of information and communication technology (sometimes abbreviated ICT) in the school have been published over the years. Is there any need for a new book on this phenomenon?

Firstly, this book publishes results from a new research project funded by the Norwegian Research Council entitled Learning in the 21st century: Capitalising on students’ digital strengths; compensating for desired capabilities. This research project produces research and knowledge relevant to student teachers, teachers, school leaders, researchers and other individuals with an interest in the use of information and communication technology in school. The book thus is aimed at the academic world and the teaching field and at policy-makers and other socially minded individuals.

Secondly, the nature of source criticism and critical thinking has changed in the digital world (Buckingham, 2013). A core goal of the school system is to prepare pupils to become citizens with critical-thinking ability, so they can better detect lies and manipulation in the digital world. Schools must help pupils become critical consumers of Internet services and electronic media, helping them make informed decisions and avoid harmful pitfalls. The emphasis on rhetoric in Norwegian courses is an example of such education: ‘The aims of the studies are to enable pupils to explain the argumentation employed in non-fiction texts by applying their knowledge of rhetoric’ (Directorate of Education and Training, 2006). In part I of this book, the interested reader will find several chapters on how schools can build bridges between the techno-fixated world of pupils and the mandate of the school.

The study of information and communication technology in the school needs constant renewal as the ways in which technology is used are constantly changing. Renewal is seen in the improvement of learning tools and the development of better analytical tools for understanding how a learner learns by using information and communication technology into use. For example, consider Norwegian educational...
authorities’ new focus on learning analytics (Ferguson, 2012; Siemens & Baker, 2012). The Ministry of Education and Research wishes to build a new area of expertise:

Learning analytics means measurement and analysis of learning while it takes place. The goal of this type of analysis is a better understanding of how learning occurs and of how provision can be made for the best and most effective possible learning. A variant of learning analytics relates to the use of digital tools. With the help of such analysis, computer programmes can, for instance, customise learning for the individual user. Learning analytics are thus of great interest to the researcher but may also be used to improve classroom teaching. (Ministry of Education and Research, 2015, p. 1)

The expectations for the use of educational technology in education are great. The development of innovative educational computer programmes in recent years is promising. For instance, some programmes simulate how a car engine works and what happens inside the engine when the car moves. This animation demonstrates how the internal combustion engine works and can help the learner to construct a mental model of the engine’s operation. Similar innovations simulate the operation of an electrical circuit (Kollöffel & de Jong, 2013), a macro-economic system (Pozo-Barajas et al., 2013) and gene mutation, which is usually hidden from observation (Smetana & Bell, 2012). Such technologies can work well in learning technical materials which it is generally not possible to observe in everyday life. However, the effect on learning depends on how the learner uses the digital representation to better understand complex phenomena (Freeman et al., 2014). Two chapters in this book discuss the use of educational games.

Another justification of this book is the growing need of students’ critical assessment of use of information and communication technology (Salomon in Chapter 8):

Empowering young people to become full participants in today’s digital public space, equipping them with the codes and tools of their technology-rich world, and encouraging them to use online learning resources—all while exploring the use of digital technologies to enhance existing education processes …— are goals that justify the introduction of computer technology into classrooms. (OECD, 2015, p. 186)

Pupils need to be critical users, especially when using the Internet as a means of accessing information (Milson, 2012). For instance, in social studies, students can use the Internet to study authentic texts and make critical judgements of their validity (Shiveley & VanFossen, 2012). However, information available digitally might have been posted online with the express intent of propagating incorrect information. Therefore, the ability to critically analyse information is important for the individual, as well as society. The International Association for the Evaluation of Educational Achievement promotes a broad concept of this ability, defining
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computer and information literacy as ‘an individual’s ability to use computers to investigate, create, and communicate in order to participate effectively at home, at school, in the workplace, and in society’ (Fraillon, Schulz, & Ainley, 2013, p. 17).

The availability of information and communication technology in the school has a multitude of effects and provides no magical formula for attaining better and more intelligent learning. This, instead, emerges as deep, conceptual understanding and higher-order thinking. The endeavour to produce this learning ‘requires intensive teacher-student interactions, and technology sometimes distracts from this valuable human engagement’ (OECD, 2015:3). We clearly need greater knowledge of how we should make use of information and communication technology within the school, as well as how to avoid the unfortunate effects. This book is a contribution to meet this need.

DISSENTING OPINIONS ON TECHNOLOGY USE IN SCHOOLS

From time to time, heated debates regarding the use of information and communication technology in the school arise among parents, politicians and educators. This is as it should be in a democracy. Powerful commercial interests promote the idea of I-pads or tablets for all pupils and smart boards in all classrooms. Most people have strong views on information and communication technology, and many feel qualified to express these views. The purpose of this collection of chapters is to present research relevant to understanding of and debates on information and communication technology in the school. I have asked leading educational researchers to shed light on different aspects of this topic. The authors do not present a common front on the complex question of the proper use of information and communication technology in the school but instead present a wide diversity of arguments and viewpoints. Authors are responsible only for the content of their own chapter, but all the chapters are based on the academic principles of objectivity, restraint and investigative factuality. It is my belief that these qualities will improve the debate regarding the ideals of good education.

Differing opinions regarding the use of information and communication technology in the school abound: should it be introduced in small steps or great leaps? Are all forms of educational renewal based on information and communication technology beneficial? Does increased use of information and communication technology, in fact, lead to educational improvements? What implications does the use of technology within and outside the school have for the in-depth learning necessary to understand the material in core academic subjects? These are a few amongst many questions. Those who work in the school system—teachers and school leaders—have differences of opinion on these and many other issues. There also appear to be generational gaps in teachers’ views of using information and communication technology in teaching (Elstad, 2006). Generational differences, however, stand as only one of several different contributory factors. More knowledge
of teachers’ attitudes towards the potential use of information and communication technology in the school is needed.

It is tempting to believe that research can determine once and for all whether information and communication technology promotes better learning. Sadly, this is not the case as that general question is dependent on a large number of factors. By asking more specific questions, though, research can provide some insights into how information and communication technology can either serve as tools for better and smarter learning or stifle learning. Normative questions about the nature of future schooling depend on what values that, at the most fundamental level, we wish to promote. In considering this kind of question, researchers are on equal footing with other citizens in determining what constitutes a good school. It is our hope, however, that the interested reader will find in this book a better foundation for understanding the potential uses and pitfalls of using information and communication technology in the school.

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REFERENCES


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PART I

EDUCATIONAL TECHNOLOGY AND
POLYCONTEXTUAL BRIDGING
1. EDUCATIONAL TECHNOLOGY AND POLYCONTEXTUAL BRIDGING

An Introduction

BRIDGING BETWEEN YOUTH CULTURES AND SCHOOL CULTURE

Digital media has a growing importance and it affects people’s communication habits and patterns and their attitudes towards school learning. We need greater understanding as to how learning takes place in various arenas, how these arenas dynamically interact, and how this affects the educational environments. The chapters in this part of the book contribute to our understanding of these phenomena. The underlying assumption is that the education system’s monopoly on knowledge is being challenged because information is readily available to a growing number of people, thus highlighting schools’ representations of knowledge, modes of learning, forms of practice and basic values in relation to knowledge production. Moreover, emphasis shifts today from simple mastery of knowledge to the mastery of 21st Century skills which school needs to prepare for (e.g., Griffin, McGaw, & Care, 2012; Pellegrino & Hilton, 2013; OECD, 2011; Thomas & Brown, 2011). With the prevalence of the new media, communication shifts from print to the visual, strongly affecting the modes of representation and with them – the nature of learning (e.g., Kress & Selander, 2012; Danielsson & Selander, 2016). We need more systematic knowledge of how educators in practice can integrate the life-world of children and adolescents, and the totality of their life experience, into pedagogical activity. It is necessary to study which ways help to increase motivation and improve learning outcomes.

NEW MEDIA, NEW SKILLS, NEW CHALLENGES FACING SCHOOL

Learning is often associated with what is going on in schools and universities, and in museums, galleries and science centers outside school. What need not be overlooked, however, are out-of-school activities and learning via various digital media. New media, such as Facebook, YouTube, Twitter, and the Internet in general, can be the sources of much learning (Beavis, 2013). However, it is radically different from and apparently greatly preferred by youngsters over regular, disciplined and
intellectually- and future-oriented school-based learning (e.g., Oblinger & Oblinger, 2005; Ito et al., 2010).

The differences between in-school traditional learning, designed to acquire disciplined knowledge and intellectual, rational skills, and out of school, net-related and friendship-driven learning is too large to be ignored. Thus, while school-based learning needs to capitalize on the current generation’s digital strengths, it has to compensate that generation for what it lacks: The acquisition of disciplined knowledge and scientific thinking skills.

An expected educational revolution is based on the idea that the 21st century student has experienced a shift from the world of writing to the world of images and from the world of the book to that of the screen (Bagdikian, 2014). That student has thus acquired a whole new set of skills, preferences, and knowledge, fundamentally different from the traditional print-based world. Teachers are seen as digital immigrants, as opposed to the students who are the digital natives (Palfrey & Gasser, 2013).

Important differences between education and other kinds of learning have been noted. School has long been criticized for developing inert knowledge as opposed to knowledge which is readily applicable in “real life” (Whitehead, 1929). Differences are identified between the primacy of “pure thought” activities in school vs. tool-based activities outside, and individual activities in-school vs. collaborative activities out-of-school (Resnick, 1987). Relatedly, learning from the new media is based on free choice, is often game-like, is rarely intellectually challenging, does not require the same kind of mental effort as school learning, and is often self-regulated and socially interest- or friendship- motivated. Unlike education, it is not future-oriented, it is voluntary and not governed by any adult authority; it is self-determined and its contents are concrete and highly contextualized. Moreover, the net-culture is based less on accumulated knowledge and more on skills such as games based problem solving and digital literacy. In contrast, education always entails a specific content that the students learn for particular reasons, and those involved learn from someone. This suggests that it is important to distinguish between learning cultures and educational cultures, where educational cultures are learning cultures framed by purposes (Biesta, 2016).

Bernstein’s (2000) distinction between horizontal and vertical knowledge is relevant here. Horizontal knowledge, usually acquired out of school, is highly contextualized, concrete, embedded in actual practice, and directed at immediate and specific goals. Vertical knowledge, on the other hand, is more often school-based and thus principled, decontextualized, coherent, explicit, systematic and relatively abstract. The implication is that the two kinds of knowledge, distinguished from each other mainly by their respective structures, not just location, are incompatible in their pure form; horizontal knowledge, typical of the net-culture, does not prepare for systematic academic study and achievements (Bennett & Robards, 2014; Williamson, 2013). Similarly, it is claimed that the traditional school culture does not prepare for proper functioning in the 21st Century (Thomas & Brown, 2011).
On the one hand, there is the world of the printed word with its emphasis on logic, sequence, history, exposition, objectivity, detachment, and discipline. On the other, there is the world of “screens” with its emphasis on imagery, narrative, presentness, simultaneity, intimacy, immediate gratification, and quick emotional response. According to Postman (1993), children come to school and the world of the printed word having been deeply conditioned by the biases of “screens”. He states that “a sort of psychic battle takes place, and there are many casualties – children who can’t learn to read or won’t, children who cannot organize their thought into logical structure even in a simple paragraph, children who cannot attend to lectures or oral explanations for more than a few minutes at a time” (16) He claims they are failures, but not because they are stupid, but because there is a media war going on, and they are on the wrong side – at least for the moment.

In light of the alleged differences between the Net and the school cultures, a debate has emerged between those who advocate a total change of the school culture in line with the Net culture, and those who would rather find a way to bridge between the two. On the one hand we have those who argue that all knowledge can be acquired “on the fly” through the open-ended, voluntary Internet-based out-of-school activities. Based on the idea that the 21st Century student has acquired a whole new set of skills and knowledge, fundamentally different from the traditional print-based world, proponents of this view expect an educational revolution (Beavis, 2013).

Recent research on out-of-school settings focuses on how children and adolescents operate in the media ecology (Buckingham & Willett, 2013; Blumberg, Blades, & Oates, 2015). Variations in use are conceptualized as being associated with friendship-driven or interest-driven communities of practice (Ito, et al., 2010). School is being criticized for not including or valuing the emerging new media literacies and associated genres of participation. Some advocate the integration of new modes of learning, so-called game literacy, into school learning (Gee, 2014). And some consider new media literacy in light of active media participation (Mihailidis & Thevenin, 2013). Buckingham and Willett (2013) sees this as symptomatic of a much broader phenomenon – a widening gap between children’s everyday life worlds outside of school and the emphases of many educational systems. The overall message is that school cannot remain as it is today and has to confront the Net-culture.

On the other hand, there were those (e.g., Elstad, 2006; Elstad, 2016) who questioned, first, the extent to which one can speak of a whole generation of Net-natives while in fact only a few may have truly developed different needs, preferences, abilities and ways of learning. Also, large socio-economic differences have been observed (Ito et al., 2010). Second, Bennet and Maton (2010) argue that similar claims to totally convert school to fit the new media have been made in the past in light of the visual dominance of TV. Yet, school succeeded to beneficially incorporate the new media of that time without losing its adherence to its main mission. And third, the kinds of out of school Net-related activities are unlikely to
prepare students for academic learning as they are not applicable to tasks requiring systematic thinking and critical evaluation of semi-abstract material (e.g., Vavik & Salomon, 2015). In short, as stated by Bennett and Maton (2010), trying to make school more like the Net-based culture de-privileges it, teachers and knowledge, “while valorizing the attributes of the tech-savvy student” (p. 325).

IN- AND OUT OF SCHOOL LEARNING

An important rationale for introducing ICTs in schools was to bridge the gap between in- and out of school learning. ICT offered new possibilities for students to work collaboratively in solving authentic problems beyond the limits of the school environment (Brown, Collins, & Duguid, 1989). Across many countries schools have equipped themselves with information technologies, Internet access and mobile devices so they can teach on the students’ technological territory. There were high expectations, promising profound improvements in education as a function of technology afforded pedagogy. However, with the exception of a few islands of excellence (e.g. Linn 2013), findings repeatedly show that the infusion of ICT into school learning is relatively disappointing (e.g., OECD, 2015).

In light of these findings we need to distinguish between the adoption of ICT open tools into school culture which does not really change, and the transformation of school which takes into serious account the Net-culture. The difference between in- and out-of-school practices is thus not primarily about whether or not technology is used, but the overall cultural, social and situational context of usage and the anticipated learning trajectories and outcomes. We are familiar with adoption of tools, but far less so with school transformation.

In formal school settings, digital technologies are usually seen in relation to the attainment of well accepted educational goals, or the exploration of novel educational objectives, e.g. new semiotic modes of expression (Kress, 2015). Of particular interest is mind-tools as a set of open-ended tools for constructivist learning by students using dynamic modeling tools, multimodal construction, conversation tools, information interpretation tools, hypermedia construction and semantic organization tools (Yang et al., 2015; Spector et al., 2013; Rucker, 2013). However, do these examples constitute the transformation of the school culture? Indeed, the concept of school transformation requires much explication based on the examination of existing exemplary cases. One of the purposes of the chapters in this book is to analyse such cases of schools and classrooms where the school has become transformed, thus bridging between the two cultures.

Several basic assumptions must be emphasized. The first assumption is that education is not about the adjustment to ‘what is,’ but requires judgments about whether ‘what is’ is educationally desirable. As Symour Sarason (1984) argued: “Not everything that is possible is necessarily also desirable”. This is why it is important to ask to what extent, in what ways, and under what conditions the opportunities
offered by the global networked society are educationally beneficial and when they are not (Biesta, 2016).

The second assumption is that mastery of disciplined knowledge, together with socialization and person-building, are still essential for proper and intelligent functioning in the knowledge society (Biesta, 2016; Gardner, 2012). As Selton-Green (2004) declares in his conclusions, “Nothing is going to replace the importance of schools in educating the young in our society, not is any other system likely to be able to play a role in overcoming social inequalities” (p. 32). Or as stated by Biesta (2011): “If you don’t know anything you fall for everything”. As pointed out by Larry Sanger (2010), for accessing knowledge one needs an organized knowledge base without which one would not know what to search for. Access greatly depends on existing knowledge. Participation (Greeno, 2011) does not function for its own sake but for the purpose of learning which it can support and scaffold. Thus, serious attention to both the participation and the acquisition metaphors of learning (Sfard, 1998) is required. Each of the two metaphors has something of value to offer and not looking at both give exclusivity or dictatorial dominance to one.

A third assumption, related to the second one above, is that the acquisition of 21st Century skills is currently becoming increasingly important and their mastery is going to serve as the main focus in international assessment of education by the OECD and its PIACC program, and hence – the new emphasis in schools. Among the skills mentioned are problem solving, critical thinking, team work, creativity, research, local and global citizenship, and more (OECD, 2011). 21st Century skills of the kind mentioned above are acquired via the active acquisition of the scientific disciplines, not independently of them (e.g., Biesta, 2016; Sanger, 2010).

Based on these assumptions, the conception of bridging can be taken into consideration how formal education can utilize the genuine engagement and motivation, skills and knowledge acquired in the media ecology in an educational context. In the process of selection and refinement of elements from the informal to the formal sphere, what needs to be filtered out, what elements lose their original sense of meaning and motivation when framed in a school context, and what gems remain? Youth’s use of digital media creates tensions between traditions and expectations of renewal within the school. The once-sharp divide between school and leisure time is eroding. Will and how can the school as an institution relate to this comprehensive process of change known as the digital revolution? How can the school build a bridge between the world of youth and school material to enable students to learn in a new digital age? This endeavor is named polycontextual bridging in this book. What are the good examples of polycontextual bridging? What novel educational goals can be achieved by net-related activities when incorporated into the school, and how can out-of-school learning be successfully
framed by educational purposes? These questions are addressed from different perspectives by several scholars in this book.

With the prevalence of the new media, communication shifts from print to the visual, strongly affecting the modes of representation and with them – the nature of learning (e.g., Danielsson & Selander, 2016). This book contributes to a better understanding of how teachers in practice can integrate the life-world of children and adolescents, and the totality of their life experience, into pedagogical activity. The aim of part II of the book is to discuss ways in which to bridge the alleged gap between learning in informal and formal contexts, what novel goals can they serve, and how can educational cultures be developed in the digital age towards sustainable educational learning. In other words, the purpose is to see how school can capitalize on students’ web-based strengths while compensating them for that which the net-culture does not provide: Vertical and disciplinary knowledge. There are developed research and development projects which attempt to bridge the alleged gap, and do so in interesting ways.

The purpose of the following chapters of this part of the book is to examine these issues in depth, as well as the cultural context in which they operate. Kristiina Kumpulainen and Anna Mikkola discuss in Chapter 2 the discontinuities between in- and out-of-school learning in the digital age. While drawing on the sociocultural, ecological and discursive perspectives, they identify attributes of ‘formality’ and informality’ in social activity, explore their relationships, and identify their effects on learning and education. In doing so they propose a hybrid learning model to education that creates bridging, navigational and transformative spaces for educational engagement, learning, identity, educational conditions and consequences of hybrid learning.

Kumpulainen’s and Mikkola’s chapter relies on a research project entitled ‘Learning Bridges’ at University of Helsinki. The project named ‘Learning Bridges: Learning and Teaching at the Intersection of Formal and Informal Learning Environments’ investigated and developed teaching and learning practices and models at the intersection of formal, informal and non-formal contexts. Of specific interest are learning environments situated within and across schools, museums, science centers and libraries. The Learning Bridges project develops pedagogical approaches and models in order to enhance productive collaboration between participants and contexts. The aim of this research project was to bridge gaps between formal and informal learning environments so that the funds of knowledge as well as social practices developed in one setting can become resources in the other.

Lisbeth M. Brevik (Chapter 3) present an analysis of a group of boys in upper secondary school who are poor readers in Norwegian as their first language (L1), but good readers in English as the second language (L2); a highly unusual combination. These students present a challenge to reading research as well as reading instruction, since the analysis indicates that these boys clearly separate between in- and out-of-school uses of English. Based on this study, Brevik argues
that, since the students do not seem to transfer their English reading skills from one context to another, teachers need to make this connection for them. As argued in this chapter, the students can profit from instruction that to a greater extent draws upon their interests and engagement, particularly their daily use of English in online gaming activities.

Ingvill Rasmussen’s chapter (Chapter 4) reports on research projects in which researchers, technology developers and teachers designed a microblog service to support teachers’ subject practices and create a greater number of good-quality dialogues in the classroom. The specific aim was to draw on the message format called microblogging to support the teachers’ work as discussion facilitators by providing awareness of the pupils’ work and to provide a representation of this for whole-class conversations. The analysis reveals how the teacher appropriated microblogging and identifies features that were particularly central in creating a productive culture for learning. The teacher used the blogs as a partner and participant to act and interact through to pursue the goals of the session and the students’ microblogs provided a representation of the groups’ collective thinking and, as a product made visible, this was referred to and elaborated on in the collective whole-class discussion. This chapter originated in the TWEAK project (acronym of “Tweaking Wikis for Education and Advancement of Knowledge” which is funded by ITU). This project develops models that balance learner exploration and negotiation with more goal directed efforts to bring knowledge advancement more up front in school subjects. The objectives TWEAK are to match collectively oriented tools such as wikis with tasks that require collaborative efforts and to address the role of the teacher as a most vital force in designing and supporting activities conducive to knowledge advancement.

Furberg and Dolonen’s chapter (Chapter 5) focuses on the significance of teacher support in settings where primary school students engage with technology-based learning in the context of school science. They particularly scrutinise the roles of procedural and conceptual support. Procedural support involves guidance in the form of helping students regulate their work processes, whereas conceptual support refers to guidance in the form of helping students make sense of the scientific content (i.e., the concepts or processes) associated with the scientific theme at issue. By taking a dialogic approach, the study aims to explore the role of teacher support in technology-based learning in science education by directing the analytical attention towards the various forms of teacher support, and their potential roles in supporting students’ development of conceptual understanding. The empirical basis of the study is a science project about the human body involving a class of primary school students and their teacher. Based on detailed analyses of student – teacher interactions taking place through various learning activities within the project, the study demonstrates some of the potentials and challenges accompanying these types of learning settings. This chapter originates from the research project ARK&APP – funded by The Norwegian Directorate for Education and Training. This project investigates the use of educational resources in the planning, conducting
and evaluation of teaching in four school subjects; Mathematics, Natural science, English (as a foreign language) and Social science. This project investigates 12 qualitative cases via observing how educational resources are used during lessons, with particular attention to how different resources generate engagement in different forms of student-teacher interactions. However, in this book contributions on the use of educational resources in Mathematics, and Natural science are represented.

Kluge’s chapter (Chapter 6) relies also on the research project named ARK&APP. Kluge argues that using games in school may be a way to bridge home and school activities for the gaming generation. Two classes (5th and 8th grade) are observed in this mainly qualitative study, as they use games to learn algebra. The investigation concerns engagement, relation between game learning activity and school learning, and how bridging happens and contribute to school learning goals. The study show engaged and active students on a level that is atypical in a Norwegian math class, yet the curriculum-relevant achievements are slim. The gaming mode of trial and error the pupils bring with them from leisure gaming seems to hamper reflective learning processes. An interesting and promising finding is that the pupils strive to find the logic governing the games.

In Chapter 7 Andreas Lund summarizes generalizable attributes of good examples of bridging and distils nuances and findings, for instance, that a long-recognised educational principle is that the starting point for teaching has to be the learner’s current situation. Lund shows that the chapters in this part of the book not just as separate studies, but also across in order to identify how cases demonstrate successful bridging as well as unfulfilled potential, one is struck by the complexity involved. He argues that bridging and the many forms of boundary work show that this is far too demanding to leave to pupils alone to handle and that successful bridging requires transformative agency and a view of technologies as artifacts, as well as environments where socialization and identity formation take place. He finds serious implications for teacher education, as well as for the professional development of practicing teachers and claims that successful bridging is very much a matter of teachers designing extended learning environments and trajectories where cultural resources and potential polycontextuality form the core of the design together with the learning object. An important endeavor is building on students’ strengths instead of mainly repairing their weaknesses as isolated traits. Such an effort is necessary if schools are to tap into the many social and material resources that abound and retain their ecological validity in a quickly progressing knowledge society.

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**ABOUT THE AUTHORS**

**Thomas Arnesen** is PhD student at Stord/Haugesund University College. Arnesen’s research interests are the use of ICT in education and human agency.

**Eyvind Elstad** is a Professor at the Department of Teacher Education and School Research, University of Oslo, Norway. Among his research interests are teachers’ work, teacher education, and teaching and learning in technology rich environments.
Gavriel Salomon was an Israeli educational psychologist who has conducted research in cognition and instruction, in particular the cognitive effects of media’s symbol systems, transfer of learning, and the design of cognitive tools and technology-afforded learning environments. He was a professor in the department of education at the University of Haifa and at the University College of Stord/Haugesund.

Lars Vavik is professor at Stord/Haugesund University College. Vavik’s research interests are the use of ICT tools in Mathematics and computer-based modelling.
wheel chair and with the oxygen tank. In the last months he was writing blogs about the moral deterioration of Israel. In his last activity he was recruiting prominent Jews, convincing them to support a movement of Save Israel – Stop the Occupation (SISO) of which he was an integral part.

I deeply believe that few people change the world. Gabi Salomon belonged to this category of individuals. He was charismatic with an ability to lead people. He was determined and motivated – led by his moral and humanistic values. His wisdom and intelligence allowed him to conceptualize goals and their rationales. He was a born leader for those in Israel who saw the tide of racism and nationalism with xenophobia and righteousness taking over the consciousness of the leaders and the majority of Jewish society members. His death is a loss for those who have the hope of changing the way Israel is moving.

REFERENCE

ABOUT THE AUTHOR

Daniel Bar-Tal is an Israeli academic, author and Branco Weiss Professor of Research in Child Development and Education at School of Education, Tel Aviv University. His research interest is in political and social psychology studying socio-psychological foundations of intractable conflicts and peace building, as well as development of political understanding among children and peace education.