

Original citation:

Al Lily, A. , Foland, J., Stoloff, D., Gogus, A., Erguvan, I. Deniz, Awshar, M. Tomé, Tondeur, J., Hammond, Michael, Venter, I. M., Jerry, P. et al.. (2016) Academic domains as political battlegrounds : a global enquiry by 99 academics in the fields of education and technology. Information Development.

Permanent WRAP URL:

<http://wrap.warwick.ac.uk/78866>

Copyright and reuse:

The Warwick Research Archive Portal (WRAP) makes this work by researchers of the University of Warwick available open access under the following conditions. Copyright © and all moral rights to the version of the paper presented here belong to the individual author(s) and/or other copyright owners. To the extent reasonable and practicable the material made available in WRAP has been checked for eligibility before being made available.

Copies of full items can be used for personal research or study, educational, or not-for profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

Publisher's statement:

<http://dx.doi.org/10.1177/0266666916646415>

A note on versions:

The version presented here may differ from the published version or, version of record, if you wish to cite this item you are advised to consult the publisher's version. Please see the 'permanent WRAP URL' above for details on accessing the published version and note that access may require a subscription.

For more information, please contact the WRAP Team at: wrap@warwick.ac.uk

Academic Domains as Political Battlegrounds

A Global Enquiry by 99 Academics in the Fields of Education and Technology

Abdulrahman Al Lily
Jed Foland
David Stoloff
Aytac Gogus
Inan Deniz Erguvan
Mapotse Tomé Awshar
Jo Tondeur
Michael Hammond
Isabella M. Venter
Paul Jerry
Dimitrios Vlachopoulos
Aderonke Oni
Yuliang Liu
Radim Badosek
María Cristina López de la Madrid
Elvis Mazzoni
Hwansoo Lee
Khamsum Kinley
Marco Kalz
Uyanga Sambuu
Tatiana Bushnaq
Niels Pinkwart
Nafisat Afolake Adedokun-Shittu
Pär-Ola Zander
Kevin Oliver
Lúcia Maria Teixeira Pombo
Jale Balaban Sali
Sue Gregory
Sonam Tobgay
Mike Joy
Jan Elen
Mustafa Odeh Helal Jwaifell
Mohd Nihra Haruzuan Mohamad Said
Yeslam Al-Saggaf
Antoanela Naaji
Julie White
Kathy Jordan
Jackie Gerstein
İbrahim Umit Yapici
Camilius Sanga
Paul T. Nleya
Boubker Sbihi
Margarida Rocha Lucas
Victor Mbarika
Torsten Reiners
Sandra Schön
Laura Sujo-Montes
Mohammad Santally
Päivi Häkkinen
Abdulkarim Al Saif

Andreas Gegenfurtner
Steven Schatz
Virginia Padilla Vigil
Catherine Tannahill
Siria Padilla Partida
Zuo Chen Zhang
Kyriacos Charalambous
António Moreira
Mayela Coto
Kumar Laxman
Helen Sara Farley
Mishack T Gumbo
Ali Simsek
E. Ramganes
Rita Birzina
Catarina Player-Koro
Roza Dumbraveanu
Mmankoko Ziphorah
Nawaz Mohamudally
Sarah Thomas
Margarita Romero
Mungamuru Nirmala
Lauren Cifuentes
Raja Zuhair Khaled Osaily
Ajayi Clemency Omoogun
S. Sadi Seferoglu
Alev Elçi
Dave Edyburn
Kannan Moudgalya
Martin Ebner
Rosa Bottino
Elaine Khoo
Luis Pedro
Hanadi Buarki
Clara Román-Odio
Ijaz A. Qureshi
Mahbub Ahsan Khan
Carrie Thornthwaite
Sulushash Kerimkulova
Toni Downes
Lauri Malmi
Salih Bardakci
Jamil Itmazi
Jim Rogers
Soonil Rughooputh
Mohammed Ali Akour
Bryan Henderson
Sara de Freitas
PG Schrader

Notes for Practitioners

What is already known about this topic:

- This article sees an academic domain as a loose entity with a functional relationship between its human elements (i.e., scholars) and its non-human elements (i.e., structural configurations). These two kinds of elements collaborate with and compete against one another, and in so doing compose the identity of their academic domain. This conception seems not to have explicitly constituted a major component of the contemporary theoretical literature up to now.
- The article uses as a case study the academic domain of education and technology (E&T) to examine the relationship between its human and non-human components. It is therefore not an investigation into the *content* of E&T *per se*; rather, it is an examination of the daily *social* involvement of E&T scholars in their academic sphere. A literature review reveals a scarcity of texts devoted to this social involvement.
- A worldwide collection of academics (99 authors) have collaborated to co-author the article in a defined way. This authorship approach is innovative and is named in this article ‘crowd-authoring’.

What this paper adds:

- This article has shown the existence of a two-way (yet not necessarily balanced) power (and thus political) relationship between the human and non-human constituents of an academic realm, with the two forming one another. This turns academic realms into political (functional or dysfunctional) ‘battlefields’ wherein both humans and non-humans engage in political activities and actions that form the identity of the academic realm.
- This article has shown the value of going beyond the academic enquiry into merely the *content* of E&T to consider an enquiry into the *social* space of E&T researchers.
- This article has pointed out the usefulness of establishing an intellectual platform wherein a crowd of academics, from around the world, come together to compose an article in a systematic way.

Implications for practice and/or policy:

- This article has identified ways in which E&T scholars have shaped and have been shaped by the structural characteristics of their academic domain. An implication for theory development is that the non-human elements of an academic domain (i.e. its structural configurations) should be seen as political ‘actors’, just like human elements, having ‘agency’ that they exercise over humans. Seeing the E&T academic domain from such a political perspective of power is a novel approach.
- Although E&T academics have subjected others (i.e., the so-called ‘target audience’ or users of E&T systems) to detailed qualitative and quantitative investigation, they have not targeted themselves, their academic fellows and the structural attributes of their own academic domain. An implication for policy is that E&T academics should be encouraged to enquire into their own academic domain and see themselves as both the

conductors and subjects of their research, playing the dual role of the researcher and the researched.

- The innovation of crowd-authorship has turned out to be feasible and moreover beneficial. An implication for practice is that this innovation is expected to produce advances within E&T scholarship and scholarship in other fields, compared with authorship approaches found in the typical model of scholarly publishing.

Abstract

This article theorises the functional relationship between the human components (i.e., scholars) and non-human components (i.e., structural configurations) of academic domains. It is organised around the following question: in what ways have scholars formed and been formed by the structural configurations of their academic domain? The article uses as a case study the academic domain of education and technology to examine this question. Its authorship approach is innovative, with a worldwide collection of academics (99 authors) collaborating to address the proposed question based on their reflections on daily social and academic practices. This collaboration followed a three-round process of contributions via e-mail. Analysis of these scholars' reflective accounts was carried out, and a theoretical proposition was established from this analysis. The proposition is of a mutual (yet not necessarily balanced) power (and therefore political) relationship between the human and non-human constituents of an academic realm, with the two shaping one another. One implication of this proposition is that these non-human elements exist as political 'actors', just like their human counterparts, having 'agency' – which they exercise over humans. This turns academic domains into political (functional or dysfunctional) 'battlefields' wherein both humans and non-humans engage in political activities and actions that form the identity of the academic domain.

Keywords: education, technology, academia, power, organisational politics, academic domain.

1. Introduction

This article examines the ways in which scholars shape and are shaped by the structural characteristics of their academic domain. It uses as a case study the academic domain of education and technology (E&T) to investigate this issue. E&T is used in this article to signify, simply, the area that lies at the intersection of the discipline of education and the discipline of technology. This article is not an investigation of the *content* of E&T *per se*; rather, it is an examination of the daily *social* involvement of E&T scholars in their academic sphere. A literature review reveals an abundance of texts devoted to researching the content of E&T, yet there has been limited research about the social space of E&T researchers (Hammond *et al.*, 1992; Cornford and Pollock, 2003; Msweli, 2012). Put simply, although E&T academics have exposed *others* (i.e., the so-called ‘*target audience*’ or users of E&T systems) to detailed qualitative and quantitative investigation, they have not targeted themselves, their academic fellows and the structural attributes of their own academic domain. This article addresses this limitation by establishing an intellectual platform that has enabled 99 scholars from around the world to subject themselves and their academic peers to investigation, and to critically reflect upon their everyday social involvement with their scholarly community. These scholars have enquired, in particular, into the functional relationship between themselves and the structural features of their academic dominion.

2. Conceptual Framework

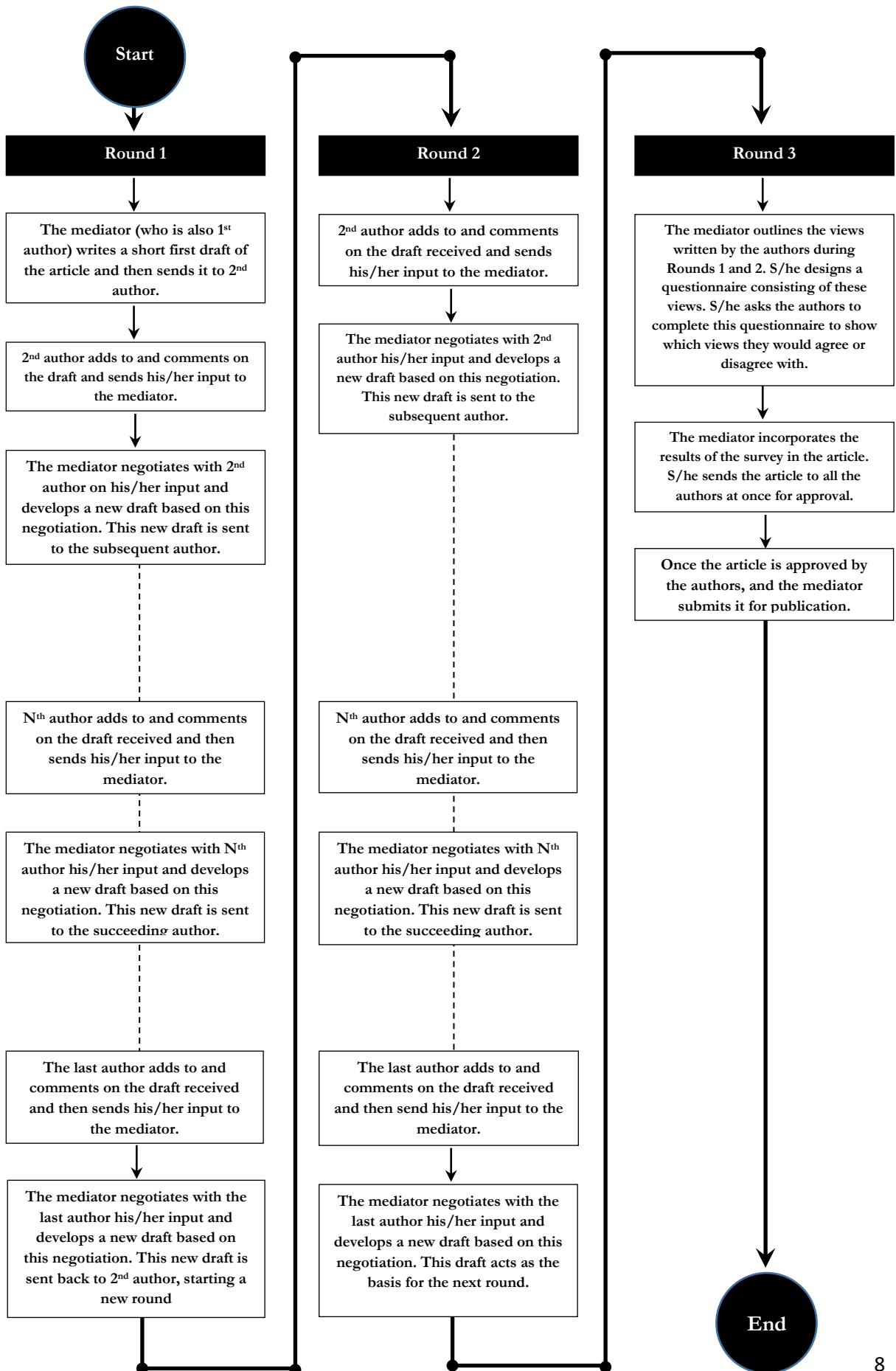
The conceptual framework of this article sees an academic domain as a ‘loose entity’ (Weick, 1976) with a functional relationship between its human elements (i.e., scholars) and its non-human elements (i.e., structural configurations) (Bertalanffy, 1969; Ellison *et al.*, 2007). These two kinds of elements collaborate with and compete against one another, and in so doing compose the identity of their academic domain (Giddens, 1984; Frozzi and Mazzoni, 2010; Sidhu *et al.*, 2011; Steinfield *et al.*, 2012). Part of the literature emphasises the ascendancy of human elements over non-human elements, showing the inability of structural configurations to exist without human agency (cf. Bhaskar, 1989; Rieber, 1998; Carr-Chellman, 2006). On the other hand, another aspect of the literature emphasises the implicit power of non-human elements over humans, pointing out the capability of structures to gradually appear to take on a life of their own, developing with the passage of time some inertia that is not necessarily the result of human

intentions, and which human intentions cannot always alter (Humphrey, 1924; Silber, 1970; Jones, 1999; IDT Futures Group, 2002; Balconi *et al.*, 2004; Ritzer, 2007). This article goes beyond this ‘either/or’ mentality to investigate the complexity within the interactive relationships and operational dynamics between human and non-human factors (cf. Holland, 1966; Biglan, 1973).

3. Methodological Framework

Echoing the established conceptual framework, the article examines the following question: in what ways have scholars formed and been formed by the structural configurations of their academic domain? Answering such a question is challenging, considering that structural configurations cannot speak for themselves and report how they have and have not been formed by scholars. Likewise, scholars cannot easily identify the ways in which they have and have not been formed by structural configurations. As these are well-established configurations, their influence over humans tends to be taken for granted, and thus is difficult to see (Schütz, 1944). A worldwide collection of academics (99 authors) have collaborated to address the proposed question based on their reflections on daily social and academic practices. These authors were sought via online profiles and publications. Figure 1 illustrates that this collaboration took the form of three rounds during 2014–2015, and ultimately led to the publication of the present article.

Figure 1: The Iterative Crowd-Authoring Process (Al Lily, 2016)



The first author acted as a mediator and negotiated the input of the 99 authors, creating ‘crowd authoring’ (Al Lily, 2016). He had the responsibility for merging and integrating the anonymous comments, and made the final decision about how to do so. At the very beginning of this project, the mediator wrote several paragraphs in which he critically reflected upon an issue, in line with the existing literature. These paragraphs were deliberately written to provoke and trigger ideological and intellectual conflict among the 99 authors. The mediator passed on these paragraphs to the other authors in three rounds, in the order illustrated in Figure 1. These authors sequentially made additions and comments. As these additions and comments were coming in, they were immediately subjected to a systematic analysis using an approach informed by the constructivist view of grounded theory (Glaser and Strauss, 1967; Mills *et al.*, 2006; Charmaz, 2014). As these accounts were coming in, the mediator was → generating codes from them → assembling codes of similar content to establish concepts → grouping similar concepts to create categories → assembling similar categories to generate a theoretical proposition. Figure 2 shows the final product of this analysis.

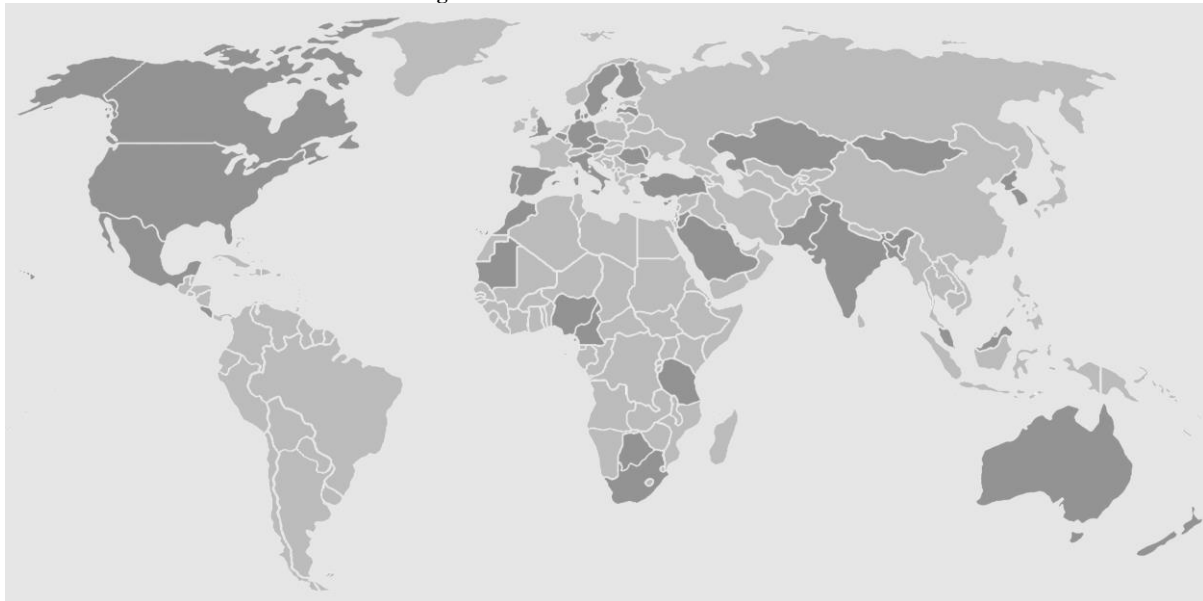
Figure 2: The Methodological Framework for the Analytical Process

Code →	Concept →	Category →	Theory
Continuity of structural arrangements due to <u>the social support lent to them</u>	Scholars’ formation of structural arrangements by <u>making these arrangements <i>historically sustainable</i></u> A	Scholars’ formation of structural arrangements	A mutually influential relationship between the human and non-human components of an academic domain, with the two shaping one another
Continuity of structural arrangements due to <u>the increasing number of associates</u>			
Scholars’ enhancement of <u>academic</u> diversity within structural arrangements	Scholars’ formation of structural arrangements by <u>making these arrangements <i>diverse</i></u> B		
Scholars’ enhancement of <u>geographical</u> diversity within structural arrangements			
Transition of <u>theoretical</u> structural arrangements across time	Structural arrangements’ formation of scholars by <u>the transition of these configurations across <i>time</i></u> X	Structural arrangements’ formation of scholars	
Transition of <u>technical</u> structural arrangements across time			
Transition of structural arrangements from one <u>intellectual</u> space to another	Structural arrangements’ formation of scholars by <u>transition of these configurations across <i>space</i></u> Y		
Transition of structural arrangements from one <u>cultural</u> space to another			

Moreover, a numerical aspect was added to the crowd-authored article. That is, after the second and third rounds, all the views expressed by the authors were outlined in a list. Then, a questionnaire setting out these views was designed. The authors were then asked to complete this questionnaire to show which views they would agree or disagree with. This made it possible to specify the percentage of the authors who would agree with a particular view. The

questionnaire was not used to carry out a true quantitative analysis, but was seen as a democratic means of conveying common views and achieving ‘crowd-voting’ (Howe, 2008). The results of this questionnaire are reported throughout the following section. Regarding demographic details, 20% of the authors are aged 30–39, 35% 40–49, 35% 50–59 and 10% 60 and above. The average amount of work experience in E&T is around 20 years. Figure 3 shows the locations of the authors, shaded in a darker colour.

Figure 3: Worldwide Locations of Authors



4. Findings and Discussions

This section takes in turn every code in Figure 2, summarising the related findings and discussing them in reference to the literature. Throughout this section, figures extracted from the main figure (i.e., Figure 2) are given, in which the code being discussed is highlighted (see the example in Figure 4).

4.1. Scholars’ formation of structural arrangements

Figure 4: Current Location (an extract from Figure 2)

Code →	Concept →	Category →	Theory
<p>YOU ARE HERE →</p> <p>Continuity of structural arrangements due to <u>the social support lent to them</u></p> <p>Continuity of structural arrangements due to <u>the increasing number of associates</u></p>	<p>Scholars’ formation of structural arrangements by <u>making these arrangements historically sustainable</u></p> <p>A</p>	<p>Scholars’ formation of structural arrangements</p>	<p>A mutually influential relationship between the human and non-human components of an academic</p>
<p>Scholars’ enhancement of academic diversity within structural arrangements</p> <p>Scholars’ enhancement of <u>geographical</u></p>	<p>Scholars’ formation of structural arrangements by <u>making these arrangements diverse</u></p>		

diversity within structural arrangements	B		domain, with the two shaping one another
Transition of <u>theoretical</u> structural arrangements across time	Structural arrangements' formation of scholars by <u>the transition of these configurations across time</u> X	Structural arrangements' formation of scholars	
Transition of <u>technical</u> structural arrangements across time			
Transition of structural arrangements from one <u>intellectual</u> space to another	Structural arrangements' formation of scholars by <u>transition of these configurations across space</u> Y		
Transition of structural arrangements from one <u>cultural</u> space to another			

The code highlighted in Figure 4 demonstrates the continuity of structural arrangements due to the social support lent to them. 90% of the authors expressed the belief that the E&T academic domain had gained an improved status in some countries owing to the many academic and non-academic advocates who had constantly argued in favour of this domain and established its reputation. Useful writings in this respect are Hawkrigde (1990), Capello (1999), Garris *et al.* (2002), Tondeur *et al.* (2007), Al Shae (2007) and de Freitas (2014). A point of agreement among 95% of the authors is that advocates in some regions have promoted the belief in E&T as the driving force in the 'transformation' (DeVillar *et al.*, 2013) of education and beyond, including workplaces, economy and wider society (Fisher, 2006). E&T has been, as argued by 95% of the authors, popularised in some countries through, and by, academic and non-academic articles, reports, policies, funding projects, movements, organisations and/or campaigns, made by individual and organisational efforts (Bates, 2008).

For 95% of the authors, promoters in some nations have established bodies of knowledge, rubrics, models, frameworks, journals, methods, research centres, associations, societies, offices, governmental agencies and/or open resources dedicated to E&T scholarship (Puntambekar, *et al.*, 2011; Bottino, 2013). 80% of the authors are in agreement that, in some areas, supporters have promoted E&T research as an inherently positive project, which has resulted in an optimistic rhetoric that is prevalent in research. Useful reads here are Cuban *et al.* (2001), Robertson (2003), Nivala (2009), Player-Koro (2012a) and Selwyn (2012). An understanding among 85% the authors is that commentators in some countries have anticipated further development in technology-based opportunities for education, which has helped with the marketing of the E&T academic domain. 85% of the authors reached a consensus that some E&T scholars' confidence with digital technology had made them more able to utilise social media to publicise their academic domain and to enhance its reputation (Priem *et al.*, 2012; Frey and Ebner, 2014). It may not be necessarily intended to promote or market the academic

domain, but activity on social networks (e.g., with hundreds of weekly education chats and thousands of education channels in use daily) promotes the academic domain.

65% of the article writers are of the view that the improved status of E&T in some countries has been partly the result of some academic and non-academic advocates constantly 'pushing' for the integration of technologies into education (Bigum, 1998), resulting in an unproductive process of 'reforming again, again and again' (Cuban, 1990: 3). E&T has, as 30% of the authors think, been over-advocated considering that the academic domain as a whole still does not have sophisticated methodological foundations and has been called 'methodologically limited' (Bulfin *et al.*, 2014: 403; Schön and Ebner, 2013). Moreover, believe 35% of the authors, E&T's findings are presented without rigorous evaluation, and/or their positive effect on learning is insufficiently verified or proved. And this perceived excessive use of technology in education does not necessarily help with learning but rather may result in negative cognitive and/or sociological consequences. The writings of Borgnakke (2007), Dunleavy *et al.* (2007), O'Donovan (2009), Carr (2010), Cifuentes *et al.* (2011), Goodwin (2011), Larkin (2011), Spitzer (2012), Tondeur *et al.* (2013) and Ertmer *et al.* (2014) constitute a valuable reading list in this regard.

Besides, 45% of the authors are of the opinion that the academic domain has suffered from shallow studies and findings with limited replication, partially because the constant evolution of technology has limited opportunities for longitudinal investigations (Adedokun-Shittu and Shittu, 2015). These authors judge that despite the effort of E&T advocates, there has been limited evidence of technologies resulting in a transformative educational experience. The exception is subject-specific technologies (see Lei and Zhao, 2007). Further arguments can be found in Kerimkulova (2010), Livingstone (2011), Kamylyis *et al.* (2012), Player-Koro (2012b), Sapargaliyev (2012), Tarelli *et al.* (2012), Bocconi *et al.* (2013), Skolverket (2013), Yuan-Hsuan *et al.* (2013) and Player-Koro and Beach (in press). Half of the authors argue that some aspects of the prestige that the E&T academic domain has gained in some populations comes from the hope and ambition of its academics that many educational problems could be addressed using more technology and less human action. In summary, this intensive advocating activity, which has managed to cultivate E&T over a short period of time, has promoted its symbolic fruits by enhancing its social status and building a history for it. This activity has arguably been undertaken not necessarily by scholars but by other academic and non-academic actors (Kling *et al.*, 2003; Meyer, 2006).

Figure 5: Current Location (an extract from Figure 2)

YOU ARE HERE →

Code →	Concept →	Category →	Theory
Continuity of structural arrangements due to the social support lent to them	Scholars' formation of structural arrangements by <u>making these arrangements historically sustainable</u> A	Scholars' formation of structural arrangements	A mutually influential relationship between the human and non-human components of an academic domain, with the two shaping one another
Continuity of structural arrangements due to the increasing number of associates			
Scholars' enhancement of <u>academic</u> diversity within structural arrangements	Scholars' formation of structural arrangements by <u>making these arrangements diverse</u> B	Scholars' formation of structural arrangements	
Scholars' enhancement of <u>geographical</u> diversity within structural arrangements			
Transition of <u>theoretical</u> structural arrangements across time	Structural arrangements' formation of scholars by <u>the transition of these configurations across time</u> X	Structural arrangements' formation of scholars	
Transition of <u>technical</u> structural arrangements across time			
Transition of structural arrangements from one <u>intellectual</u> space to another	Structural arrangements' formation of scholars by <u>transition of these configurations across space</u> Y		
Transition of structural arrangements from one <u>cultural</u> space to another			

The code in Figure 5 refers to the continuity of structural arrangements due to the increasing number of associates. It is inspired by Whalley *et al.* (2011) and Chang *et al.* (2012). Various actors have joined the 'E&T ship', including educational scientists with a goal of developing and evaluating E&T. This is in addition to technology developers, typically with a computer science background, who focus on building novel tools. Forming another group of actors are subject-related teachers who are interested in using E&T rather than developing it further. Pedagogical experts who promote E&T in faculty training are relevant actors too. There are also academic or school leaders who want to promote the use of E&T in their institutes. Furthermore there are politicians who want to promote E&T because they believe educational problems can be solved with technology. Despite this labelling of these archetypes of E&T actors, the borders between them are blurred.

60% of the authors contend that, because of the mentality that the education profession is 'easy', many individuals have come from sectors other than education to this profession, thus increasing the number of its allies. 80% of the authors believe that some of these allies did their

undergraduate degrees in science, but for their postgraduate studies, they shifted to the E&T domain. These authors hold that, although some technologists did not originally focus on education, they have broadened their interests to E&T. For these authors, the belief is that, although some people used to specialise in an aspect of education that was not technologically focused, they have turned to E&T as a preferred academic profession, integrating a technological aspect into their educational research to join the E&T community. This increasing number of E&T associates is, as agreed by 65% of the authors, the result of the aura that the domain has gained. It is also, as remarked by 80% of the authors, due to the lives of individuals and wider society rotating around technology. Useful reads in this respect are Kumar and Vigil (2011) and Purcell *et al.* (2013). A belief held among these 80% of authors is that the potential of E&T to improve the different aspects of education has made some non-E&T educators shift their focus to E&T.

65% of the authors contend that some non-E&T educators have felt they now have no choice but to be part of the E&T domain as it is hard not to consider technology when talking about teaching or learning. These authors have confidence that the increasing number of E&T associates is driven partly by the rest of the education academic domains building on E&T for their innovations, thereby making more non-E&T educators turn to E&T. A claim by 55% of the authors is that some non-E&T researchers have joined the E&T domain and undertaken research projects in this academic domain mainly because technological development receives more funding. 45% of the authors say that, nowadays, in some countries, academics without interests and skills in E&T have a harder time getting university positions. The contention of 55% of the authors is that some non-E&T educators have turned to E&T because this enables them to remain educators while still becoming involved with the industry and business sectors through their interest in technology.

It is reasoned by 80% of the authors that the E&T domain has gained more allies as more sectors (governmental, private, academic and/or industrial) in some contexts have become interested in the various profits that it can generate and the costs (e.g., travel and office) it can mitigate (Slaughter and Rhoades, 2004). Half of the authors hold that E&T is an academic domain that helps make human life 'easy', and hence, is apt to be exploited as a business and therefore to become allied to the business sector. 75% of the authors are of the belief that the wider context (i.e., technologising culture) and/or the well-marketed role of E&T in the 'knowledge-based economy' have influenced the number of members joining the E&T domain.

90% of the authors have the opinion that policy-makers have become interested in E&T partly because of its role in the knowledge economy and/or international competition. Another common opinion, held by 75% of the authors, is that the increasing number of E&T members is partially due to the active employment market in some countries, in which more and more technology-based and innovative opportunities, roles and/or responsibilities have emerged (Fidalgo-Neto *et al.*, 2009).

85% of the authors have the attitude that, in some countries, companies and universities, often at the request of governments, have banded together to develop digital resources for schools (Aris *et al.*, 2006; Nurgaliyeva, 2010). 80% of the authors make the case that some funding opportunities ask for public–private partnerships, and E&T seems a suitable place to achieve this partnership, since E&T is about education (dominated by the public sector) and technology (dominated by the private sector). For 60% of the authors, the involvement of E&T with the industry or business sector raises the bar of prestige within the E&T academic domain and therefore enhances people’s interest in joining this domain. 90% of the authors assert that some teachers, volunteers and communities have developed digital or open educational resources and have online platforms for teachers to share ideas and information on using technologies for innovative teaching and learning, thus increasing the number of allies in the E&T academic domain (Ebner *et al.*, 2014; Kostolanyova, 2014).

Figure 6: Current Location (an extract from Figure 2)

YOU ARE HERE →

Code →	Concept →	Category →	Theory
Continuity of structural arrangements due to <u>the social support lent to them</u>	Scholars' formation of structural arrangements by <u>making these arrangements historically sustainable</u> A	Scholars' formation of structural arrangements	A mutually influential relationship between the human and non-human components of an academic domain, with the two shaping one another
Continuity of structural arrangements due to <u>the increasing number of associates</u>			
Scholars' enhancement of <u>academic diversity within structural arrangements</u>	Scholars' formation of structural arrangements by <u>making these arrangements diverse</u> B	Scholars' formation of structural arrangements	
Scholars' enhancement of <u>geographical diversity within structural arrangements</u>			
Transition of <u>theoretical</u> structural arrangements across time	Structural arrangements' formation of scholars by <u>the transition of these configurations across time</u> X	Structural arrangements' formation of scholars	
Transition of <u>technical</u> structural arrangements across time			
Transition of structural arrangements from one <u>intellectual</u> space to another	Structural arrangements' formation of scholars by <u>transition of these configurations across space</u> Y		
Transition of structural arrangements from one <u>cultural</u> space to another			

The code in Figure 6 refers to scholars’ enhancement of academic diversity within structural arrangements. Most of the authors stressed the view that there are E&T associations more

connected to humanistic or social science fields, while other associations are more connected to science or technology fields. The majority of the authors speak of the boundaries that exist between the academic domain of E&T and that of computer science. Half of the authors refer to the confusion among some E&T scholars as to whether technology is part of the E&T academic domain or external to it. Most of the authors point out the borders that exist between *educational technology* programmes (i.e., the ones using technology to understand a subject) and *technology education* programmes (i.e., the ones teaching technology as a subject).

85% of the authors mention the boundaries that exist between the E&T academic domain and other educational academic domains, such as curricula and teaching methods, special education and/or educational administration and management (Karagiorgi and Charalambous, 2004). For 80% of the authors, the E&T academic domain has acted as an *academic* department (concerned with the production of theoretical knowledge) or as a *service* department (providing services to those who choose to apply technologies in their teaching and learning regardless of their academic discipline). 75% of the authors raise the point that there are E&T associations and societies that are more composed of E&T practitioners and technicians, whereas other associations and societies are more connected to E&T scholars and theorists (McKenney and Reeves, 2013; Ertmer *et al.*, 2015). In 95% of the authors' eyes, the E&T academic domain has been shaped by education-focused and technology-focused individuals. These authors state that E&T has branched into several sub-domains and communities with a variety of interests (Van den Akker, 2003). This is partly because scholars more strongly identify with their sub-domains than with the E&T academic domain as a whole; 55% of the authors propound this view.

The academic diversity of E&T associates could be seen as 'unity in diversity' and helps with the continuity of the E&T academic domain (Engeström *et al.*, 1999). Divisions have created silos with often competing interests, but bridges have been built between them. The E&T domain has, as it has argued earlier, received many members with different backgrounds and interests. 85% of the scholars welcome the influx of the different actors into the E&T academic domain given the different potential contributions that they can make to this domain. It seems to 65% of the authors that the entry of non-specialists and those from other disciplinary backgrounds have absolutely blurred the lines that set the academic domain apart from other academic domains and have enabled diverse definitions of the academic domain, which have resulted in many disparate E&T conferences, journals and organisations but no truly central gathering place. This, as remarked by 35% of the authors, may reflect unfavourably on its growth and evolution in

theory and/or practice. It may also lead to the loss of the identity of the academic domain, considering that becoming an academic domain with no defined identity and boundaries would reflect negatively on its acceptability in other academic domains and lead to loss of respect.

60% of the authors state that, as more people with different interests join the E&T domain, the domain becomes more politicised and fragmented (or specialised) by different interests. From its beginnings, E&T has often been led from the outside world, by consultants, inventors and entrepreneurs (Cuban, 1984). Flourishing variety in the academic domain, as 60% of the authors commented, creates difficulties in defining the ‘expert’ and core actors in the E&T academic domain and in identifying the skills needed for this domain. Related to this, 35% of the authors make the point that E&T has definitely turned out to be a technical field with a limited theoretical basis, not only because it is a new field, but also owing to those many ‘out-of-field players’ who have been introduced to the E&T field despite their limited knowledge of theoretical foundations.

However, according to 65% of the authors, the E&T academic domain is a field that should not and cannot have a fixed identity and clearly defined boundaries given its ‘enriched’ and progressive nature compared to ‘old’ and ‘conservative’ fields that cannot be renewed. A comment by 70% of the authors is that the E&T academic domain will remain well-respected with or without the fragmentation caused by the diversity of its actors, considering the role that technologies have played in teaching, learning and training. And 80% of the authors argue that people from different academic domains, interests and power joining the E&T domain can bring a holistic approach to the academic domain. 85% of the authors recommend that the intentional and critical use of technology for educational purposes in any academic domain be the binding force behind the coming together of various disciplines, resulting in a unique synergy in the interdisciplinary academic domain of E&T.

Figure 7: Current Location (an extract from Figure 2)

Code →	Concept →	Category →	Theory
Continuity of structural arrangements due to <u>the social support lent to them</u>	Scholars’ formation of structural arrangements by <u>making these arrangements historically sustainable</u> A	Scholars’ formation of structural arrangements	A mutually influential relationship between the human and non-human components of an academic domain, with the two shaping one another
Continuity of structural arrangements due to <u>the increasing number of associates</u>			
Scholars’ enhancement of academic diversity within structural arrangements Scholars’ enhancement of geographical diversity within structural arrangements	Scholars’ formation of structural arrangements by <u>making these arrangements diverse</u> B		
Transition of <u>theoretical</u> structural	Structural arrangements’	Structural	

YOU ARE HERE →

arrangements across time	formation of scholars by the transition of these configurations across time	arrangements' formation of scholars	
Transition of <u>technical</u> structural arrangements across time	X		
Transition of structural arrangements from one <u>intellectual</u> space to another	Structural arrangements' formation of scholars by transition of these configurations across		
Transition of structural arrangements from one <u>cultural</u> space to another	space Y		

The code in Figure 7 relates to scholars' enhancement of geographical diversity within structural arrangements, whether at local, national or international levels. Some E&T scholars in certain regions have assembled to establish their own region-specific organisational arrangements, be they associations, societies, offices, journals, conferences, seminars, definitions, or standards. Others have gone further, collaborating to form international arrangements (Bottino *et al.*, 2009). A reason for such organisational collectivism is, as reported by 70% of the authors, the power of technology-based global communication. This is in addition to, as agreed by 85% of the authors, the benefit of representing members, forming relationships between them, and validating or providing recognition for one's efforts (Buarki, 2015). A further reason, echoing the theory of regionalism (Fawcett and Hurrell, 1995), is a realisation on the part of their leaders that region-based entities (societies or associations) often cannot gain sufficient recognition and influence at the international level (65% of the authors agree). An additional reason is that science or social science is, almost by definition, international. However, from the standpoint of 45% of the authors, a risk or ramification of such coalitions is that regional identities have certainly been sacrificed in order to pursue and obtain international status and legislative influence.

For 90% of the authors, affiliation with regional groups has occurred because it has functioned as a mechanism for contributing to the growth of the academic domain, enhancing professional discussion, encouraging intellectual exchange, creating new knowledge, and/or allowing technologies and experiences to extend beyond local boundaries (Bottino, 2007). A further argument made by 55% of the authors is that education *per se* is surely regional, being associated with a particular language and culture, thereby bringing about region-specific arrangements for E&T (Krug and Arntzen, 2010). Due to developments of the academic domain, it is important for 80% of the authors to provide a nexus for the wide variety of programmes, initiatives and organisations that are active in this academic domain. E&T academics in developing countries are, as reported by 55% of the article contributors, the ones who particularly benefit from membership in and association with international organisations and societies, since developed countries are involved with these arrangements and therefore bring more advantages.

4.2. Structural arrangements' formation of scholars

Figure 8: Current Location (an extract from Figure 2)

Code →	Concept →	Category →	Theory
Continuity of structural arrangements due to <u>the social support</u> lent to them	Scholars' formation of structural arrangements by <u>making these arrangements historically sustainable</u> A	Scholars' formation of structural arrangements	A mutually influential relationship between the human and non-human components of an academic domain, with the two shaping one another
Continuity of structural arrangements due to <u>the increasing number</u> of associates			
Scholars' enhancement of <u>academic</u> diversity within structural arrangements	Scholars' formation of structural arrangements by <u>making these arrangements diverse</u> B		
Scholars' enhancement of <u>geographical</u> diversity within structural arrangements			
Transition of <u>theoretical</u> structural arrangements across time	Structural arrangements' formation of scholars by <u>the transition of these configurations across time</u> X	Structural arrangements' formation of scholars	
Transition of <u>technical</u> structural arrangements across time			
Transition of structural arrangements from one <u>intellectual</u> space to another	Structural arrangements' formation of scholars by <u>transition of these configurations across space</u> Y		
Transition of structural arrangements from one <u>cultural</u> space to another			

YOU ARE HERE →

The code in Figure 8 concerns the transition of theoretical structural arrangements across time. Some of the locally and internationally established E&T arrangements have promoted a sense of centralised academic authority that codifies terminology, reduces confusion, settles conflicts, and defines basic qualifications, roles, responsibilities, and desired ethical standards of experts and areas in relation to E&T expertise (see, for example, the Definitions and Terminology Committee of the Association for Educational Communications and Technology). This has contributed to the structural configuration and bureaucratisation (or, rather, to professionalisation) of E&T expertise, particularly in developing countries. As an academic domain becomes configured structurally, these configurations become increasingly rigid, taken for granted, and difficult to change or question. These configurations limit flexibility and cause the scholar to 'run' after specific types of recognition, which restricts creativity. This shows how the shifts in structural arrangements of an academic domain over time can shape scholars.

As the structural arrangements of the E&T academic domain grow larger and involve more and more literature, theories, specialised scholars, advocates, funding projects, logistical systems and

other equipment, they are likely to turn out more to be shaping scholars and less to be shaped by them (Hughes, 2009). It seems that the greater the structural stretching of the E&T academic domain across time and space, the more resistant it is to manipulation or change by any individual scholar (Giddens, 1984). 75% of the authors concur that, as the E&T academic domain becomes configured structurally, these structural configurations gradually frame the work of subsequent generations. 60% of the authors remark that, in an area such as E&T, it is difficult to transfer structural configurations from one generation to another because of the rapid changes due to the nature of this academic domain, which is associated with technology. 55% of the article writers, however, argue that there has actually been a sense of historical continuity regarding the E&T literature because of the well-established structure and infrastructure of higher education, wherein technologies have been developed merely *within* traditional practices. Collis and van der Wende (2002), Duderstadt *et al.* (2002) and Sife *et al.* (2007) expand this argument. It is important for 80% of the authors that the configurations of the E&T academic domain are sustained across time because building upon prior work lends stability and validity. Yet some may respond that stability is unhealthy in academia, where intellectual uncertainty and cognitive unrest should always be encouraged.

In the opinions of 80% of the authors, many E&T scholars have continued using certain theoretical notions and approaches, despite the changes caused by technology, reforms, funding projects and/or advancement of academic research. A similar case has been made by Maddux (1986), Mellon (1996), Molnar (1997), Schifter (2008) and Romero *et al.* (2014). Many E&T journals and other publication venues have arguably been ‘factories’ (i.e., tools) for the reproduction of many academic values and beliefs. This is a problematic issue for such a relatively young academic domain as E&T. This is challenging given the unclear distinction between what is ‘merely building on earlier works’ and what is ‘a cumulative nature of making science at its best’. Some may remark that much of the E&T research involves empirical methods, and theories in education can only grow stronger with accumulating empirical evidence, which calls for a certain degree of repetition or replication. Thus, this repetition is not the fault of academics but is an unavoidable consequence of the academic domain’s nature. This is an example of how academic domains and their nature can exert influence on academics and their academic behaviour.

It is a belief among 90% of the authors that many E&T scholars have been influenced by the values, perspectives, behaviours and decisions of earlier scholars. In this light, the E&T academic

domain should not be seen simply as an assembly of theories and findings, but rather as a means of building up a contextual framework within which current and future generations act and react. A perspective held by 85% of the authors is that academic attitudes and values are transmitted to E&T academics through the academic environment they evolve in, wherein they grow from the past and existing academic configurations of their academic domain and wider academia. 70% of the authors agree that the E&T academic domain has created a 'hat' or a 'mask' that its scholars wear, has established a language that they speak, and has developed a theoretical and conceptual 'lens' through which they approach their work in the academic domain. Such a view can be read about in Price and Maushak (2000), Edyburn (2001), Solomon (2002), Niederhauser *et al.* (2005) and Adedokun-Shittu and Shittu (2013). Since the structural configurations of academic domains have the capacity to frame academic and social actions, E&T scholars have performed *within* the context and potential of the available structural configurations. Besides, a perception held by 60% of the authors is that, while every human being (here, the E&T scholar) is unprecedented, unique and unrepeatable, by virtue of their genetic constitution and past experiences, the structural configurations of their academic environment determine at any given moment which of their academic potentialities are realised in their life (Dubos, 1970). As opined by 65% of the authors, while the structural arrangements of the E&T academic domain have not been self-creating, but have essentially been created by human beings (e.g., scholars), their creators have not afterwards had full freedom to decide how they develop. It is difficult for 80% of the authors to keep the structural norms of academic domains under social control once they have become far reaching, especially in the case of an academic domain such as E&T, which is not a very clearly defined field, has many sub-fields and is associated with the influx of technologies.

A point of view expressed by 65% of the authors is that the E&T academic domain will certainly not simply evaporate if its models and structures are no longer in line with the demands of society (i.e., the educational system); if a society no longer wants E&T, another society will continue to do so. Besides, not all cultures are able to adopt all innovations (theoretical and instrumental) at the same moment, and some types of novelties need time to become part of daily 'tools' to achieve objectives and develop strategies (Mazzoni, 2006; Perret and Mazzoni, 2006). For 55% of the authors, the human mind (here, the mind of the E&T scholar) sometimes becomes unable to manage what it has initially created; consequently, the same (theoretical and conceptual) structural frameworks that have extended humans' control over the world are themselves difficult to control, question and fight against (Winner, 1977). There appears to be a risk, therefore, of E&T scholars becoming the servants in thought, as in action, of the theories

they have been created to serve them (Galbraith, 1967). Hence, one might emphasise the importance of ensuring that theoretical structures always remain the servants of humans instead of their masters and, moreover, that theories are not allowed to subvert the rule of their masters.

The human–theory relationship (here, the relationship between E&T scholars and the theoretical structural configurations of their academic domain) seems to half of the authors extraordinary, with the theory framing a task that is beyond a human’s strength and capability of endurance, while the human watches over those aspects of the work that are beyond the theory’s processing powers. For 70% of the authors, there can be an unbalanced relationship between scholars and the structural arrangements of their academic domain, in that scholars may form their fields by establishing their configurations and parameters, but the fields may form the scholars, as their configurations and parameters may evolve across time and therefore frame the thoughts of following generations. This evolution across time might not yet be quite the case with the E&T academic domain, considering its ‘novelty’, but may be the case in the future. Yet novelty is a dynamic force in the academic domain and is a major influencer in its development, and therefore the academic domain would constantly remain novel. But novelty comes from scholars who must have the freedom to act and bring new ideas to the academic domain in a conscious way. This freedom has been mostly dysfunctional, and one need only look to the E&T academic domain and its dependence on practice reified from the 1950s to the 1970s by Kirkpatrick (1959), Gagne *et al.* (1974) and Dick *et al.* (1978) to see an example of an academic domain held hostage by the past.

Figure 9: Current Location (an extract from Figure 2)

Code →	Concept →	Category →	Theory
Continuity of structural arrangements due to <u>the social support lent to them</u>	Scholars’ formation of structural arrangements by <u>making these arrangements historically sustainable</u> A	Scholars’ formation of structural arrangements	A mutually influential relationship between the human and non-human components of an academic domain, with the two shaping one another
Continuity of structural arrangements due to <u>the increasing number of associates</u>			
Scholars’ enhancement of <u>academic</u> diversity within structural arrangements	Scholars’ formation of structural arrangements by <u>making these arrangements diverse</u> B		
Scholars’ enhancement of <u>geographical</u> diversity within structural arrangements			
Transition of <u>theoretical</u> structural arrangements across time	Structural arrangements’ formation of scholars by <u>the transition of these configurations across time</u> X	Structural arrangements’ formation of scholars	
YOU ARE HERE → Transition of <u>technical</u> structural arrangements across time			
Transition of structural arrangements from one <u>intellectual</u> space to another	Structural arrangements’ formation of scholars by <u>transition of these configurations across space</u> Y		
Transition of structural arrangements from one <u>cultural</u> space to another			

The code in Figure 9 is about the transition of technical structural arrangements across time. Earlier scholars engaged in three paradigms: *experimentation*, which was used for *theorisation*, which was then used in turn for *computation*. Such computation seems to have a life of its own, growing into a fourth paradigm (i.e., observational data) and producing an overwhelming flow of data (Baker, 2014). It has been proposed that ‘the only way to cope with this flow of data is a new generation of scientific computing tools to manage, visualise and analyse the data flood’ (Markoff, *The New York Times*, 14 December 2009). Following this line of thinking, computing tools can be handled only by other computing tools, and humans (with the possible exception of some scholars) may be out of the loop. A very extreme position is that scholars may have served their academic domain in the form of supporting it with computing tools, but their academic domains have ended up dominating and controlling their behaviour and actions and encouraging or moreover forcing them to generate more computing tools, which then appear to have a life of their own (Weizenbaum, 1976; Berker *et al.*, 2005). For 85% of the authors, in the last century the concern was whether to use technology for education; nowadays, education has no option but to take advantage of the potential of technology (Bowen, 2012). In this case, E&T has made a history for itself, going beyond human agency (Baiocco *et al.*, 2015).

An observation by 70% of the authors is that once some scholars hear of the release of a non-educational technology, they start acting responsively in relation to it by examining merely its *implications* for education. This means that existing technologies (i.e., existing structural configurations) direct the scholarly activity of E&T scholars, although these scholars should be the ones directing technological development by grounding new theories based on which technological innovations are established. In other words, the socio-technical system that E&T deals with should be defined and driven from the social side, not vice versa. In this case, the academic domain will be (and has sometimes been characterised as being) a matter of solutions seeking problems. Yet one may wonder if it is possible to conceive of a ‘scholar’ outside a technologically determined and structured context. A further argument is that human-structured systems should be driven by either social or structural factors, but that the social and the structural elements should be co-creators (Bottino *et al.*, 1999). For 90% of the authors, some E&T scholars are associated with the technical (i.e., structural) configurations of their academic domain, to the extent that they can be ‘out-of-date’ if their academic interest is essentially based on a particular technology that has been replaced by a completely different technology, and if the academic transition of these scholars from the early to later technologies is difficult. 65% of the authors hold that moving from one technology to another can force academics to change many

of their beliefs and philosophical standpoints if each technology preserves its own philosophical patterns.

60% of the authors believe that many E&T terms (i.e., terminological structures) have survived for decades and moved from one generation to another, although any carefully made attempt to question these terms would easily reveal their terminological limitations. This belief is further discussed in Heinich (1984), Loveless and Dore (2002), Sangrà *et al.* (2012) and Richey (2013). Some subsequent academics have taken many E&T terminological structures for granted without rationalising and challenging them and examining their ramifications. The previous generations should not be the only ones to be criticised for conveying arbitrary terminological structures to the current generation, since the current generation has chosen to maintain these terms and perpetuate uninformed terms, e.g., ‘e-learning 2.0’ and ‘school 2.0’ (Sbihi, 2009; Sbihi and El Kadiri, 2010). Such terminology has resulted in elaborate phrases, such as ‘E-Learning 3.0 = E-Learning 2.0 + Web 3.0?’ (Ebner, 2007; Hussain, 2012). Subjecting terminology to a sequential order and chain (e.g., e-learning 2.0, then e-learning 3.0 and so on, or education 2.0, then education 3.0 and so on) could be interpreted as a means of promoting and temporally assigning technical configurations and terminologies, but also can be perceived as evolving stages of the use of technology features in educational settings. It could also be understood as a way of encouraging following generations to join this chain and to take what has been inherited forward (Keats and Schmidt, 2007; Gerstein, 2014). This suggests the power of terminological structures as a means of enabling historical continuity of the E&T academic domain’s arrangements (Heeks, 2010; Thompson, 2013), although some recognise that terminology is dynamic and therefore changes over time.

Figure 10: Current Location (an extract from Figure 2)

Code →	Concept →	Category →	Theory
Continuity of structural arrangements due to <u>the social support lent to them</u>	Scholars’ formation of structural arrangements by <u>making these arrangements historically sustainable</u> A	Scholars’ formation of structural arrangements	A mutually influential relationship between the human and non-human components of an academic domain, with the two shaping one another
Continuity of structural arrangements due to <u>the increasing number of associates</u>			
Scholars’ enhancement of <u>academic diversity within structural arrangements</u>	Scholars’ formation of structural arrangements by <u>making these arrangements diverse</u> B	Structural arrangements’ formation of scholars	
Scholars’ enhancement of <u>geographical diversity within structural arrangements</u>			
Transition of <u>theoretical</u> structural arrangements across time	Structural arrangements’ formation of scholars by the <u>transition of these configurations across time</u> X	Structural arrangements’ formation of scholars	
Transition of <u>technical</u> structural arrangements across time			
YOU ARE HERE → Transition of structural arrangements from one <u>intellectual</u> space to another	Structural arrangements’ formation of scholars by <u>transition of these configurations across space</u> Y		

The code in Figure 10 is about the transition of structural arrangements from one intellectual space to another. 85% of the authors observe that some of the configurations used in non-E&T academic domains (i.e., intellectual spaces) have been transferred to the E&T domain (i.e., another intellectual space), influencing the thoughts of E&T scholars. For 90% of the writers, many macro concepts, notions and theories (i.e., structural configurations) have come to the E&T academic domain from other domains. 61% of the authors speak of the limited ‘in-house’ macro theories set out by the E&T academic community specifically for E&T. That said, some may argue that E&T academics have used grounded theory to inductively ground theories. Yet although E&T academics claim that they have grounded a theory inductively from their own data, this grounding activity normally exists *within* the pre-established theoretical conceptions of other academic domains, and in addition they generate merely micro theories. Higher education in some countries does not establish departmental boundaries between the E&T academic domain and other educational domains (e.g., curricula and teaching methods, teacher education, special education, and educational administration and management), thus easing the transmission of foreign theoretical structures to the E&T academic domain (Karagiorgi and Charalambous, 2004).

81% of the authors state that English-speaking scholars (be they native or non-native but fluent) have constituted an intellectual space with its own structural arrangements, which have influenced the intellectual spaces of researchers who are not fluent speakers (Freire, 2000). For 70% of the article writers, English speakers tend to be symbolic leaders in the E&T academic domain while many non-English-speaking scholars have sought to gain legitimacy, credibility, prestige or success by following them. This means that the structural configurations of the E&T academic domain have moved from one intellectual space (here, the space of English speakers) to another, shaping its scholars and moreover its configurations. Due to the global domination of the structural configurations of the E&T academic domain by the English-speaking intellectual space, local structural configurations in the intellectual spaces of those who are not proficient writers of English tend to be overlooked and dominated.

Figure 11: Current Location (an extract from Figure 2)

Code →	Concept →	Category →	Theory
Continuity of structural arrangements due to <u>the social support lent to them</u>	Scholars' formation of structural arrangements by <u>making these arrangements historically sustainable</u> A	Scholars' formation of structural arrangements	A mutually influential relationship between the human and non-human components of an academic domain, with the two shaping one another
Continuity of structural arrangements due to <u>the increasing number of associates</u>			
Scholars' enhancement of <u>academic</u> diversity within structural arrangements	Scholars' formation of structural arrangements by <u>making these arrangements diverse</u> B		
Scholars' enhancement of <u>geographical</u> diversity within structural arrangements			
'Transition of <u>theoretical</u> structural arrangements across time	Structural arrangements' formation of scholars by <u>the transition of these configurations across time</u> X	Structural arrangements' formation of scholars	
'Transition of <u>technical</u> structural arrangements across time			
Transition of structural arrangements from one <u>intellectual</u> space to another	Structural arrangements' formation of scholars by <u>transition of these configurations across space</u> Y		
Transition of structural arrangements from one <u>cultural</u> space to another			

YOU ARE HERE →

The code in Figure 11 refers to the transition of structural arrangements from one cultural space to another. 55% of the authors consider the E&T academic domain to have undergone a 'core-periphery' dichotomy (Wallerstein, 1974), with feedback between the core and periphery. The core here indicates the cultural space of *native* English-speaking countries, and the periphery refers to cultural spaces of other countries (Rowley and Warner, 2011). 70% of the authors state that the E&T structural configurations of native English-speaking countries have taken advantage of globalisation through the (intentional or unintentional) domination of other cultures' E&T structural configurations. Despite this, some non-English-speaking countries are, as remarked by 80% of the authors, attempting to reach and influence the core, for example by funding projects, by benefiting from outstanding scholars worldwide, by hosting academic events and/or by collectively publishing in English (Zervas *et al.*, 2014). With such attempts, the English-speaking core might eventually move to the periphery (Westerberg, 2014). There is a need to be inclusive of a broader worldview, especially considering that the core-periphery structure is not static and would be expected to change. It may be in the best interests of native English speakers to promote that worldview before they become irrelevant. The structural

configurations of cultural spaces appear to have a life of their own, seeking to replace and shape the structural features of one another away from explicit human agency.

According to 60% of the authors, many E&T researchers in developing countries have sought sponsorships from English-speaking countries. This is when English-speaking domination comes into play, since sponsorships come with ideological and political biases (Ashraf, 2008; Adedokun-Shittu, 2014). Half of the authors note that, while the English-speaking domain of E&T dominates other domains, it does not actively seek to do so. That is, there have been indirect factors (e.g., having better funding) that have occasioned domination. Hence, one may dispute the general assumption that, as a speaker of English as a first language, one is always advantaged by this dominance of English; it may be instead a source of frustration. The English E&T scholar Selwyn (2013) agrees with McMillin (2007) that such a ‘core–periphery’ dichotomy ‘is a growing source of embarrassment’ (McMillin, 2007: 9) for some scholars in the core. The structural configurations of a cultural space may not only colonise those configurations of another cultural space and frustrate its scholars, but moreover may colonise its own scholars. This then supports the ‘agency’ of non-human elements and the power of structural configurations to shape scholars.

80% of the authors have noticed that, in non-English-speaking countries, many scholarly studies have researched E&T using structural configurations and frameworks from English-speaking countries, despite the cultural differences between the two contexts (Farrell, 2000; Ashraf *et al.*, 2008; Bardakci, 2013; Adedokun-Shittu and Shittu, 2014). 55% of the writers think that many studies of non-English-speaking contexts strive to confirm the studies of native English-speaking contexts rather than independently exploring their own contexts. Some may argue against this point, explaining that, in non-English-speaking countries, exploration is also a main component of academic research, but the reason that only the confirmation of research gets heard may be that only the confirmation can get accepted in international (i.e., English-speaking) journals. 75% of the authors state that some non-English-speaking countries have their own structural configurations (e.g., traditions, theories, experiences, lessons learnt and frameworks of E&T), which have not been translated into English and distributed globally and therefore have not had the chance to influence the core. Only those non-English-speaking structural configurations that the English-speaking world has decided to translate have therefore become popular and become part of the core, yet in their English version (half of the authors agree). One may remark that the dominance of certain structural configurations over others is not based on language issues (or, at

least, language issues alone) but based on resources and historical inequality. It is a matter of opportunity, voice and power. Thus, the transferability of E&T structural configurations across space is a matter of politics.

5. Concluding Remarks

This article has been guided by the conceptual framework wherein academic domains are viewed as loose entities whose human elements (here, scholars) and non-human elements (here, structural configurations) collaborate with or compete against one another to shape the identity of the academic domain. Based on this framework, the article has examined the functional relationship between scholars and structural configurations, using the academic domain of E&T as a case study. A worldwide collection of academics (99 authors) have been collaboratively engaged to look into this relationship based on their reflections on daily academic practices. Analysis of these scholars' reflective accounts was conducted, and a theoretical proposition has been established from this analysis. The proposition is that there exists a mutual (yet not necessarily balanced) relationship of power (which is therefore political) between the scholars and structural configurations of academic domains. That there is a tension between the individual and the collective in general is well-established (Ritzer, 2013), but what is emphasised here is the political perspective (Kullmann, 1991). This grounded proposition is a conclusion but more importantly a starting point for further research wherein different academic domains are investigated using this proposition.

It seems from the collected data that scholars choose to transfer their political and intellectual powers into structural configurations, which then exercise this power over these scholars. These scholars may then either challenge or acquiesce to this power, on an iterative basis (Amsterdamska, 1990; Unger, 2004). In other words, although scholars contribute to the development of structural configurations, the developed configurations grow and gain spatial strength and temporal value that shape scholars; yet the trend reverses as the eminence achieved by scholars starts to shape and develop the structural configurations of the academic domain, although the developed components, again, continue to grow and shape scholars. This process occurs in a continuous loop. The chance of contributing to an academic domain is significantly higher during the creation process, compared to a later stage where fundamentals are defined and where foundations are well-established. Changes are discouraged by these defined

fundamentals and well-established foundations, requiring stronger arguments and incentives to include new or different opinions.

Structural components get politicised by scholars to various degrees, but scholars also get politicised by structural components to various degrees. This activity of politicisation can be done silently or explicitly, for positive or negative reasons, and in healthy or unhealthy, ethical or unethical ways. At times, existing structural components go along with and can be ‘tamed’ by scholars, but at other times, they go beyond, above and against their intentions. Structural components could evolve into creatures unto themselves, existing as executive bodies that scholars merely *represent* – acting as merely a representative of something means limited exercise of one’s own agency. Although scholars may show no interest in ‘organisational politics’ (i.e., competition for space, authority, power and leadership; Jones, 1987), they may, whether intentionally or naturally, consciously or unconsciously, exercise it as part of their daily social engagement with their academic domain (Morgan *et al.*, 1997). This article has shown how scholars may (and should) compete against the structural configurations of their academic domain for space, authority, power and leadership. It is a matter of what – human or non-human components – is doing the shaping, and who is being shaped.

There is a possibility that organisational politics may take an interest in scholars, who could become merely ‘objects’ politicised by, and therefore function according to, the structural configurations of their academic domains (Latour, 2005; Silverstone *et al.*, 1992; Whittle and Spicer, 2008). Although the actions of individual scholars are taken in reference to the macro structure of their academic domain, these actions may or may not cause changes in the structure (Giddens, 1984; Coleman, 1986; Lave and Wenger, 1991). Scholars should be conscious of this political relationship with the structural configurations of their academic domains, and hence should always keep pushing the frontiers of academic domains, while limiting and continuously challenging the domination and control imposed by these configurations over them. This domination and control could be overcome by continuously problematising structural parameters. A political and cognitive ‘battle’ between scholars and the structural norms of their academic domains should be cultivated. This relationship between these two components, as well as other relationships that were realised throughout the research for this article, is illustrated in Figure 12.

Figure 12: Theoretical Proposition on the Relationship between the Human and Non-Human Components of an Academic Domain

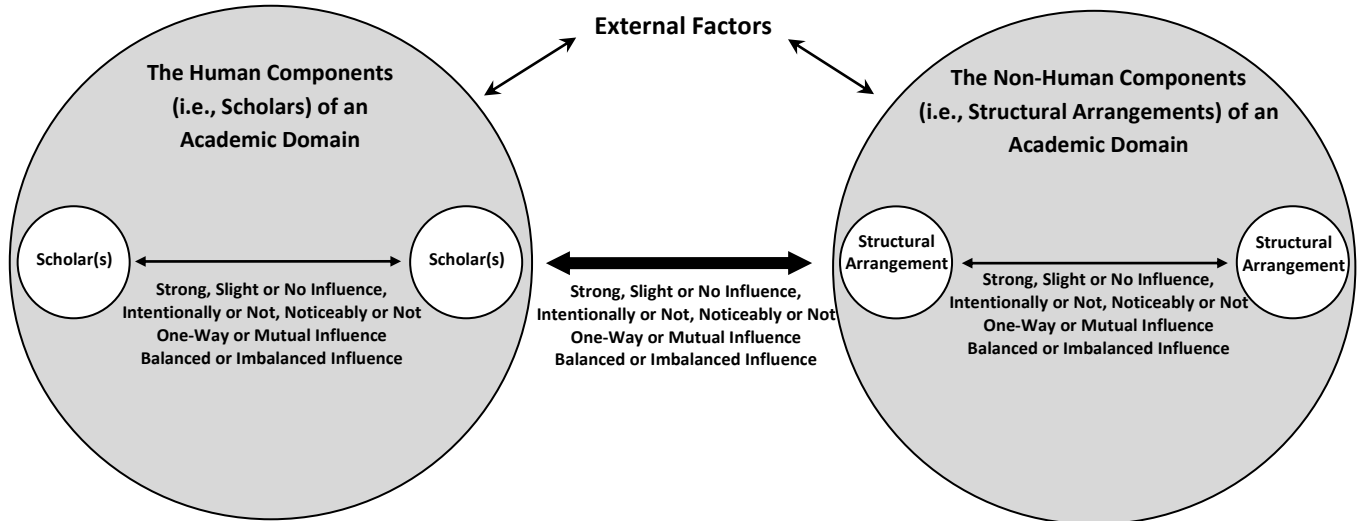


Figure 12 shows the limitations of the current article: although it addresses the relationship between the human and non-human elements of an academic domain, it does not explicitly cover other forms of relationships among human elements themselves, among non-human elements themselves and between the internal components of an academic domain and external components. To conclude, the current work has implications for theory development (i.e., that the non-human elements of an academic domain are ‘actors’, just like human elements, having ‘agency’ that they exercise over humans) and moreover for practice (i.e., that crowd-authorship is expected to produce advances within E&T scholarship and scholarship in other fields, compared with authorship approaches found in the typical model of scholarly publishing).

Acknowledgements

The authors would like to thank James Disley and the team at Isis Editorial Services (www.isiseditorial.com) for improving the language and style of the article.

Biographies

Abdulrahman E. Al Lily, DPhil (Oxford), is a Saudi Assistant Professor at King Faisal University and a Common Room Member at Wolfson College, the University of Oxford. His interests lie at the intersection of Education, Technology, Culture, Society and Organisational Politics. He is a self-starter, being the founder and director of the Academic Mall of Education and Technology in Arab Regions (moeat.wordpress.com), the founder of Crowd-Authoring (crowdauthoring.wordpress.com) and the founder and director of the Saudi Data Virtual Lab (sdvl.wordpress.com). He has ten years of experience in Education and Technology in the United Kingdom, the United States of America and the Arab Region. Contact information is Saudi Arabia, Al Ahsa, Post Code 31982, P.O. Box 346; allili55@hotmail.com. For more information, please visit the following webpage: abdulallily.wordpress.com.

Jed Foland, DPhil (Oxford), is a North American Technology Analyst at KPMG. His interests lie at the intersection of History, Technology, Gender, Cyber Security and Medicine. He has three years of experience in Education and Technology in the United States of America and the United Kingdom. Contact information is 38 Nelson Street, Oxford, OX2 6UD, United Kingdom; jed.foland@gmail.com.

David Stoloff, PhD (University of California), is a North American Full Professor at Eastern Connecticut State University. His interests lie at the intersection of Educational Technology, Comparative and International Education, Social Foundations of Education and Media, Politics of Education and Culturally Responsive Education. He has 39 years of experience in Education and Technology in the United States of America, Canada, Thailand and Israel. Contact information is Education Department, Eastern Connecticut State University, Willimantic, CT 06226, USA; stoloffd@easternct.edu. For more information, please visit the following webpage: stolofd.wordpress.com.

Aytac Gogus, PhD (Syracuse University), is a Turkish Associate Professor at Okan University. Her interests lie at the intersection of Technology Integration into Classroom Teaching, Instructional Design, Teacher Training, Mental Models, Assessment of Learning in Complex Domains, and Technology Acceptance. She has 20 years of experience in Education and Educational Technology in Turkey and the United States of America. Contact information is

Okan University, Faculty of Education, Akfirat, Tuzla, Istanbul, 34959 Turkey; aytac.gogus@okan.edu.tr. For more information, please visit the following webpage: egitim.okan.edu.tr/en/cv/aytac-gogus.

Inan Deniz Erguvan, PhD (Marmara University), is a Turkish Assistant Professor at Gulf University for Science and Technology. Her interests lie at the intersection of Transnationalisation and Privatisation of Universities, Academic Writing, Reading Skills and Information and Communication Technologies in Language Education. She has four years of experience in Education and Technology in Turkey and Kuwait. Contact information is Gulf University for Science and Technology, Kuwait; erguvan.d@gust.edu.kw. For more information, please visit the following webpage: www.gust.edu.kw/content/faculty_publication?name=Erguvan.D#/.

Mapotse Tomé Awshar, PhD (University of South Africa), is an African Associate Professor at the University of South Africa. His interests lie at the intersection of Technology Education, Electrical Technology, Mechanical Technology, Civil Technology, Processing and Design. He has 25 years of experience in Education and Technology in the United Kingdom, New Zealand, Saudi Arabia, Malawi, Canada and Botswana. Contact information is 467 Block M, Soshanguve, 0152, South Africa; mapotta@unisa.ac.za. For more information, please visit the following webpage: www.researchgate.net/profile/Tome_Mapotse.

Jo Tondeur, PhD (Ghent University), is a Belgian Post-Doctoral Associate at Ghent University. His interests lie at the intersection of Information and Communications Technologies, Design, Innovation and Professional Development. He has 12 years of experience in Education and Technology in Belgium. Contact information is Dunantlaan 2, Gent, Belgium; jo.tondeur@ugent.be. For more information, please visit the following webpage: ugent.academia.edu/JoTondeur.

Michael Hammond, PhD (Sheffield), is a British Assistant Professor at Warwick University. His interests lie at the intersection of Learning, Commentary, Technology, Social Psychology and Technology. He has 30 years of experience in Education and Technology in many countries globally. Contact information is the United Kingdom, Warwick University; m.hammond@warwick.ac.uk.

Isabella M. Venter, PhD (University of Pretoria), is a South African Associate Professor at the University of the Western Cape. Her interests lie at the intersection of Human–Computer Interaction and Computer Science Education. She has 30 years of experience in the field of education and technology in South Africa. She hails from Namibia. Contact information is iventer@uwc.ac.za.

Paul Jerry, PhD (University of Calgary), is a Canadian Full Professor at Athabasca University. His interests lie at the intersection of Psychotherapy, Mobile Technology, Professional Regulation, Virtual Worlds and Education. He has 22 years of experience in Education and Technology in Canada, the United States of America, the United Kingdom and Australia. Contact information is c/0 436 Belfast St SE Medicine Hat, Alberta, Canada T1A 0S4; +1.403.502.6961; pajerry@gmail.com, paulj@athabascau.ca.

Dimitrios Vlachopoulos, PhD (University of Barcelona), is a Cyprus Assistant Professor at European University Cyprus. His interests lie at the intersection of Educational Technology, Distance Education, Instructional Technology and Research methods. He has ten years of experience in Education and Technology in Greece, Cyprus and Spain. Contact information is d.vlachopoulos@euc.ac.cy.

Aderonke Oni, PhD (Covenant University), is a Nigerian Post-Doctoral Associate at Covenant University. Her interests lie at the intersection of System Analysis and Design, Electronic Commerce, e-Business, e-Government and Web Development. She has seven years of experience in Education and Technology in Nigeria, the United States of America and England. Contact information is the Department of Computer and Information Science, Covenant University, Nigeria; ronke.oni@covenantuniversity.edu.ng.

Yuliang Liu, PhD (Texas A&M University–Commerce), is a North American Full Professor at Southern Illinois University Edwardsville. His interests lie at the intersection of Online Course Design and Delivery, Technology Integration across Curriculum, Research Design, Statistics and International Partnerships in Higher Education between the United States of America and China. He has 15 years of experience in education and technology. Contact information is the Department of Educational Leadership Southern Illinois University Edwardsville, Illinois 62026, USA; phone: +1.618.650.3293; fax: +1.618.650.3808; yliu@siue.edu. For more information, please visit the following webpage: www.siue.edu/~yliu.

Radim Badosek, PhD (University of Ostrava), is a Czech Assistant Professor at University of Ostrava. His interests lie at the intersection of Education, Experimental Psychology and Computer Diagnostics of Mental Processes. He has eight years of experience in Education and Technology in the Czech Republic. Contact information is the University of Ostrava, Pedagogical Faculty, Department of Pedagogical and School Psychology, Ostrava - Mariánské Hory, Fr. Sramka 3, 709 00, Czech Republic; radim.badosek@osu.cz. For more information, please visit the following webpage: pdf.osu.eu/kpe/.

María Cristina López de la Madrid, PhD (Universitat Oberta de Catalunya), is a Mexican Researcher at the University of Guadalajara. Her interests lie at the intersection of Information and Communications Technology, Higher Education and Teacher Training. She has 15 years of experience in Education and Technology in Mexico, Spain and Latin American countries. Contact information is cristilm@cusur.udg.mx.

Elvis Mazzoni, PhD (University of Bologna), is an Italian Assistant Professor at the University of Bologna. His interests lie at the intersection of Education, Technologies, Social Capital, Social Network Analysis and Networked Flow. He has 15 years of experience in Education and Technology in Italy and Switzerland. Contact information is elvis.mazzoni@unibo.it. For more information, please visit the following webpage: www.unibo.it/docenti/elvis.mazzoni.

Hwansoo Lee, PhD (Korea Advanced Institute of Science and Technology), is a Korean Assistant Professor at Dankook University. His interests lie at the intersection of Information System, Security, Privacy, e-Learning and User Behaviour. He has five years of experience in Education and Technology in the Republic of Korea and East Asia. Contact information is 152 Jukjeon-ro, Suji-gu, Yongin-si, Gyeonggi-do 448-701, South Korea; hanslee992@gmail.com.

Khamsum Kinley, PhD (Queensland University of Technology), is an Information and Communications Technology Literacy Specialist and Sessional Academic at Griffith University. His interests lie at the intersection of Information Technology, Educational Technology, Learning, Social Media and Web Search Behaviour. He has ten years of experience in Education and Technology in Bhutan and Australia. Contact information is kinleyd@hotmail.com. For more information, please visit the following webpage: www.kinleyk.com.

Marco Kalz, PhD (Open University of the Netherlands), is a German Full Professor at the Open University of the Netherlands. His interests are focused on education in general. He has 13 years of experience in Education and Technology in Germany, Austria, the Netherlands and Belgium. Contact information is Welten Institute - Research Centre for Learning, Teaching and Technology, Open University of the Netherlands, P.O. Box 2960, 6401 DL Heerlen, The Netherlands; marco.kalz@ou.nl. For more information, please visit the following webpage: www.marcokalz.de.

Uyanga Sambuu, PhD (National University of Mongolia), is an Associate Professor at Department of Information and Computer Sciences, National University of Mongolia. Her research focuses on the use of communication and information technologies in education and technology education. She has broad work experience of 20 years in the education and technology sectors. She has participated in several international and nationwide education research, development and implementation projects and played a key role in the Mongolian technology education sector. Her publications comprise more than 60 papers in international conferences and academic journals and 20 books/book chapters. Contact information is uyanga@seas.num.edu.mn.

Tatiana Bushnaq, PhD (State Pedagogical University 'Ion Creanga' from Chisinau, Republic of Moldova), is a Moldovan Assistant Professor at AlAsmarya Islamic University, Zliten, Libya. Her interests lie at the intersection of Teaching English to Speakers of Other Languages, Education, Technology, Phraseology, Professional Development and Emotional Intelligence. She has four years of experience in Education and Technology in the Republic of Moldova and Libya. Contact information is AlAsmarya University, Zliten, Libya; tatianabushnaq@yahoo.com.

Niels Pinkwart, PhD (University of Duisburg-Essen), is a German Full Professor at the Humboldt University of Berlin. His interests lie at the intersection of Education, Computer Science, Human–Computer Interaction, Education and Technology and Collaboration Systems. He has 15 years of experience in Education and Technology in many countries worldwide. Contact information is Unter den Linden 6 10099, Berlin, Germany; niels.pinkwart@hu-berlin.de. For more information, please visit the following webpage: cses.informatik.hu-berlin.de.

Nafisat Afolake Adedokun-Shittu, PhD (International Islamic University), is a Nigerian Assistant Professor at Fountain University Osogbo. Her interests lie at the intersection of e-

Learning, Instructional Design, Technology Integration and Evaluation, Research Application in Education Technology, Education Theory and Technology. She has eight years of experience in Education and Technology in Nigeria and Malaysia. Contact information is Fountain University Osogbo, Osun State, Nigeria; +2349029200901; folaola@gmail.com.

Pär-Ola Mikael Zander, PhD (Lund University), is a Danish (resident, Swedish Citizen) Associate Professor at Aalborg University. His interests lie at the intersection of Educational Technology, Information and Communications Technologies for Development, Computer-Supported Cooperative Work, Computer-Supported Collaborative Learning and Activity Theory. He has ten years of experience in Education and Technology in Bhutan, Bangladesh, Sweden, Denmark, Nepal, Uganda and Kenya. Contact information is Rendsburgsgade 14, 9000 Aalborg C; poz@hum.aau.dk.

Kevin Oliver, PhD (University of Georgia), is a North American Associate Professor at North Carolina State University. His interests lie at the intersection of Distance Learning, Open Learning, Virtual Schooling, Learning Environments and Instructional Design. He has 16 years of experience in Education and Technology in the United States of America. Contact information is 402T Poe Hall, Box 7801, Raleigh, NC, USA, 27695-7801; kevin_oliver@ncsu.edu. For more information, please visit the following webpage: kevoliver.com.

Lúcia Maria Teixeira Pombo, PhD (University of Aveiro), is a Portuguese Assistant Professor at the University of Aveiro. Her interests lie at the intersection of b-Learning, m-Learning, Evaluation, Information and Communications Technologies in Science Education and Teacher Training. She has ten years of experience in Education and Technology in Portugal, Brazil, the United Kingdom and Spain. Contact information is Portugal, the University of Aveiro, Department of Education; lpombo@ua.pt.

Jale Balaban Sali, PhD (Anadolu University), is a Turkish Associate Professor at Anadolu University. Her interests lie at the intersection of New Media and Communication Technology. She has 20 years of experience in Education and Technology in the United States of America and the United Kingdom. Contact information is jbalaban@anadolu.edu.tr.

Sue Gregory, PhD (University of New England), is an Australian Associate Professor at the University of New England. Her interests lie at the intersection of Information and Communications Technologies in education, Teaching and Learning. She has 26 years of experience in Education and Technology in Australia. Contact information is School of Education, UNE, Armidale NSW 2351, Australia; sgregor4@une.edu.au. For more information, please visit the following webpage: www.virtualclassrooms.info.

Sonam Tobgay, PhD (Aalborg University), is a Bhutanese Dean of Academic Affairs at the Royal University of Bhutan. His interests lie at the intersection of Computer Networks, Wireless Networks, Ad-Hoc-Networks and Mobile Communications. He has 14 years of experience in Education and Technology in Denmark, India and Canada. Contact information is stobgay.sherubtse@rub.edu.bt.

Mike Joy, PhD (East Anglia), is a British Associate Professor (Reader) at the University of Warwick. His interests lie at the intersection of Educational Technology, Computer Science, Mathematics, Information Technology and Software Engineering. He has 20 years of experience in Education and Technology in the United Kingdom, Finland, Thailand and China. Contact information is the Department of Computer Science, University of Warwick, Coventry, CV4 7AL, UK; m.s.joy@warwick.ac.uk. For more information, please visit the following webpage: warwick.ac.uk/mikejoy.

Jan Elen, PhD (KU Leuven), is a Belgian Full Professor at KU Leuven and the current senior editor of *Instructional Science*. His interests lie at the intersection of Instructional Design, Teacher Education, Higher Education, Critical Thinking, Research Integration and Instructional Methods. He has 25 years of experience in Education and Technology in Belgium, the Netherlands, Peru, the United States of America, Ghana and Germany. Contact information is Dekenstraat 2, 3000 Leuven; jan.elen@ppw.kuleuven.be. For more information, please visit the following webpage: www.kuleuven.be/wiciswic/en/person/u0001489.

Mustafa Odeh Helal Jwaifell, PhD (Amman Arab University), is a Jordanian Assistant Professor at Al-Hussein Bin Talal University. His interests lie at the intersection of Expanded Learning Opportunities, e-Learning, Computer-Assisted Instruction, e-Portfolio, Instructional Design, Learning Management System and Information and Communications Technologies. He has 21 years of experience in Education and Technology in Jordan, the United Arab Emirates

and Oman. Contact information is the Department of Curriculum and Instruction, Faculty of Educational Sciences, Al-Hussein Bin Talal University, P.O Box 20, Ma'an, Hashimate Kingdom of Jordan; jwaifell@hotmail.com.

Mohd Nihra Haruzuan Mohamad Said, PhD (The University of Waikato), is a Malaysian Senior Lecturer at Universiti Teknologi Malaysia. His interests lie at the intersection of Educational Technology, e-Learning, Online Learning, Information and Communications Technologies in Education and Multimedia in Education. He has 14 years of experience in Education and Technology in the United Kingdom, New Zealand, Australia and Singapore. Contact information is Faculty of Education, Universiti Teknologi Malaysia, 81310 Johor, Malaysia; nihra@utm.my. For more information, please visit the following webpage: educ.utm.my/nihra.

Yeslam Al-Saggaf, PhD (Charles Sturt University), is an Australian Associate Professor at Charles Sturt University. His interests lie at the intersection of Social Network Sites, Ethics in Computing, Digital Media, Privacy and Technology for Learning and Teaching. He has 12 years of experience in Education and Technology in Saudi Arabia and Australia. Contact information is Boorooma Street Wagga Wagga, NSW 2678 Australia, yalsaggaf@csu.edu.au. For more information, please visit the following webpage: csusap.csu.edu.au/~yalsagga.

Antoanela Naaji, PhD (Politehnica University of Timisoara), is a Romanian Associate Professor at Vasile Goldis Western University of Arad. Her interests lie at the intersection of Information Technologies and Communication in Education, e-Learning, Web Technologies and Medical Informatics. She has more than 18 years of experience in Education and Technology in Romania and she is familiar with this field in Hungary, Slovakia, Germany and other European countries. Contact information is Bd. Revolutiei nr 94-96, Arad, Romania; anaaji@uvvg.ro. For more information, please visit the following webpage: dir.uvvg.ro/cv-naaji.

Julie White, PhD (The University of Melbourne), is an Australian Senior Research Fellow at The Victoria Institute, Victoria University. Her current research interests lie at the intersection of Education, Health and Disability. She has 35 years of experience in education and was formerly involved in employing contemporary learning technologies to teach research methodology and pre-service teacher education. Contact information is: The Victoria Institute, Victoria University,

Melbourne, Australia; julie.white@vu.edu.au. For more information, please visit the following webpage: www.vu.edu.au/contact-us/julie-white.

Kathy Jordan, PhD (La Trobe University), is an Australian Senior Lecturer at the Royal Melbourne Institute of Technology (RMIT) University. Her interests lie at the intersection of English Teaching, Educational Technologies, Pedagogy and Teacher Use of Information and Communications Technologies. She has many years of experience within the field of education and technology in Australia, the United States of America, the United Kingdom, Saudi Arabia and Vietnam. Contact information is School of Education, RMIT University, P.O. Box 71 Bundoora, 3083, Victoria, Australia; kathy.jordan@rmit.edu.au.

Jackie Gerstein, EdD (Northern Illinois University), is an American Adjunct Professor at Boise State, Walden and American InterContinental Universities. She has ten years of experience in Education and Technology. She is familiar with this field in the United States of America and Canada. Contact information is jaclyngerstein@boisestate.edu. For more information, please visit the following webpage: usergeneratededucation.wordpress.com.

İbrahim Umit Yapıcı, PhD (Dicle University), is a Turkish Assistant Professor at Dicle University. His interests lie at the intersection of Blended Learning, Web 2.0, Social Media, Biology Education and Web-Aided Collaborative Learning. He has eight years of experience in Education and Technology in Taiwan, England and the United States of America. Contact information is Dicle University, Faculty of Education Department of Biology Education 21280, Diyarbakır, Turkey; iuyapici@gmail.com.

Camilius Sanga, PhD (University of Western Cape), is a Tanzanian Associate Professor at the Sokoine University of Agriculture. His interests focus particularly on informatics. He has 12 years of experience in Education and Technology in Tanzania, India and South Africa. Contact information is Tanzania, P.O. Box 3218, Morogoro, Tanzania; csanga@gmail.com. For more information, please visit the following webpage: tinyurl.com/camiliusanga.

Paul T. Nleya, PhD (Wales), is a Motswana (Botswana) Associate Professor at University of Botswana. His interests lie at the intersection of Technology, Education, Geography and English. He has 29 years of experience in Education and Technology in Botswana, the United

States of America and the United Kingdom. Contact information is P.O. Box 70109 Gaborone, Botswana; nleyapt@mopipi.ub.bw.

Boubker Sbihi, PhD (ESI, Mohammed V University), is a Moroccan Full Professor at the School of Information Sciences. His interests lie at the intersection of e-Learning, Digital Pedagogy, Web2.0, Big Data, Cloud and Computing. He has 14 years of experience in Education and Technology in Morocco. Contact information is Ecole des Sciences de l'Information, Rabat, Morocco; bsbihi@esi.ac.ma.

Margarida Rocha Lucas, PhD (University of Aveiro), is a Portuguese Post-Doctoral Associate at the University of Aveiro. Her interests lie at the intersection of Education, Social Sciences, Technology-Enhanced Learning, Social Media and Knowledge Construction. She has six years of experience in Education and Technology in Portugal, the United States of America, the United Kingdom and Germany. Contact information is University of Aveiro, Department of Education, Campus de Santiago, 3810-191 Aveiro, Portugal; mlucas@ua.pt. For more information, please visit the following webpage: about.me/margarida.lucas.

Victor Mbarika, PhD (Auburn University), is a Cameroon Full Professor at Southern University. His interests lie at the intersection of Information Technology, Adoption, e-Health and e-Learning. He has 20 years of experience in Education and Technology in the United States of America, Nigeria, Cameroon, Uganda and South Africa. Contact information is ICITD, Southern University, Baton Rouge LA, USA; victor@mbarika.com.

Torsten Reiners, PhD (Curtin University), is a German Senior Lecturer at Curtin University. His interests lie at the intersection of Immersion, Authenticity, Emerging Technologies, Virtual Experiences and Logistics. He has 11 years of experience in Education and Technology in Australia and Germany. Contact information is School of Information Systems, Curtin University, Kent St, Bentley, WA, 6102, Australia; t.reiners@curtin.edu.au. For more information, please visit the following webpage: torsten-reiners.de.

Sandra Schön, PhD (University of Munich), is a German Researcher at Salzburg Research. Her interests lie at the intersection of Open Educational Resources, Maker Movement, E-Learning and Massive Open Online Courses. She has a 16-year experience in Education and Technology in Austria, Germany and Switzerland. Contact information is

sandra.schoen@salzburgresearch.at. For more information, please visit the following webpage: sandra-schoen.de.

Laura Sujo-Montes, PhD (Northern Arizona University), is a dual Mexican and American Full Professor at Northern Arizona University. Her interests lie at the intersection of Online Learning Environments, Technology and Professional Development, Technology and English Language Learners, Systems Theory and Technology Integration in education. She has 18 years of experience in Education and Technology in the United States of America and Mexico. Contact information is the Northern Arizona University, College of Education, P.O. Box 5774, Flagstaff, AZ 86011-5774, USA; phone: +1.928.523.0892; laura.sujo-montes@nau.edu.

Mohammad Santally, PhD (University of Mauritius), is a Mauritian Associate Professor at the University of Mauritius. His interests lie at the intersection of Education Technology, Information and Communications Technologies, Mobile Learning and Web Technologies. He has 12 years of experience in Education and Technology in Mauritius, the United Kingdom, Canada, South Africa and Australia. Contact information is m.santally@uom.ac.mu. For more information, please visit the following webpage: vcilt.blogspot.com.

Päivi Häkkinen, PhD (University of Eastern Finland), is a Finnish Full Professor at the University of Jyväskylä. Her interests lie at the intersection of Educational Technology, Collaborative Learning, Computer-Supported Collaborative Learning, Teacher Education and Assessment of Collaborative Problem Solving. She has 25 years of experience in Education and Technology in Finland and the United Kingdom. Contact information is P.O. Box 35, 40014 University of Jyväskylä, Finland; paivi.m.hakkinen@jyu.fi. For more information, please visit the following webpage: ktl.jyu.fi/en/staff/hakkinen-paivi.

Abdulkarim Al Saif, PhD (Wayne State University), is a Saudi Associate Professor at Qassim University. His interests lie at the intersection of Instructional Design, Evaluation, e-Learning, Distance Learning and Web Application in Learning. He has 15 years of experience in Education and Technology in the United States of America and Saudi Arabia. Contact information is P.O. Box 3124, Buridah Qassim, Saudi Arabia; manahij@gmail.com. For more information, please visit the following webpage: www.manahij.net.

Andreas Gegenfurtner, PhD (University of Turku), is a German assistant professor at Maastricht University. His interests lie at the intersection of Expertise, Meta-Analysis, Motivation, Simulations and Transfer of Learning. He has seven years of experience in Education and Technology in Germany, Finland and the Netherlands. Contact information is Maastricht University, Department of Educational Development and Research, Universiteitssingel 60, 6229 ER Maastricht, The Netherlands; a.gegenfurtner@maastrichtuniversity.nl. For more information, please visit the following webpage: andreasgegenfurtner.wordpress.com.

Steven Schatz, PhD (Indiana), is an American lecturer at the University of Massachusetts, Boston. His interests lie at the intersection of Learning Theory, Information Capture and Retrieval, Instructional Design, Evaluation and Project Management. He has 25 years of experience in Education and Technology in the USA. Contact information is 23 Prentice Place, Becket, MA 01223, USA; steven.schatz@umb.edu. For more information, please visit the following webpage: powerstart.com.

Virginia Padilla Vigil, PhD (University of New Mexico), is an American director at New Mexico Highlands University. Her interests lie at the intersection of Multicultural Education, Curriculum and Instruction, Educational Leadership, Technology in Education, Diversity and Sociocultural Studies. She has 27 years of experience in Education and Technology. She is familiar with this field in the United States of America. Contact information is 1700 Grande Blvd. Southeast, Rio Rancho, NM 87124, USA; vpadillavigil@nmhu.edu.

Catherine Tannahill, PhD (Texas Tech University), is an American full professor at Eastern Connecticut State University. Her interests lie at the intersection of Education, History, Social Studies and Technology Integration. She has 20 years of experience in Education and Technology. She is familiar with this field in the United States (both North-Eastern and South-Western regions). Contact information is ECSU 83 Windham St, Willimantic, CT 06226, USA; tannahillc@easternct.edu.

Siria Padilla Partida, PhD (Universitat Oberta de Catalunya), is a Mexicana tenured professor at Universitat Oberta of Catalunya. Her interests lie at the intersection of Information and Communications Technologies, Learning Constructivism and Innovation. She has ten years of

experience in Education and Technology in Spain, Chile and Colombia. Contact information is siria79@hotmail.com or siriapadilla@gmail.com.

Zuochen Zhang, PhD (University of British Columbia), is a Canadian Associate Professor at the University of Windsor. His interests lie at the intersection of Information and Communications Technologies Integration into Curriculum, e-Learning, International Education, Teacher Education, and Teaching English as a Foreign/Second Language. He has 13 years of experience in Education and Technology in Canada, China and the United States of America. Contact information is Faculty of Education and Academic Development, University of Windsor, Windsor, ON N9B 3P4, Canada; zuochen@uwindsor.ca.

Kyriacos Charalambous, PhD (The University of Birmingham), is a Cypriot Assistant Professor at Frederick University. His interests lie at the intersection of Implementation of Information and Communications Technologies in Special Education and particularly Visual Impairment, Teaching and Learning, Educational Administration and Management, Teacher in-Service Training, e-Learning and Environmental Studies. He has 21 years of experience in Education and Technology in Cyprus, Greece, the United Kingdom and the United States of America. Contact information is 16 Dionysou Street, 2123 Nicosia, Cyprus; pre.ck@frederick.ac.cy.

António Moreira, PhD (University of Aveiro), is a Portuguese Associate Professor at the University of Aveiro. His interests lie at the intersection of Information and Communications Technologies, e-Learning, Cognitive Flexibility Theory, Web 2.0 Learning Tools, Social Web and Virtual Identity. He has 30 years of experience in Education and Technology in Portugal, the United States of America, Cape Verde, Mozambique and East Timor. Contact information is Department of Education, Campus de Santiago, University of Aveiro, 3810-193 AVEIRO, Portugal; moreira@ua.pt.

Mayela Coto, PhD (Universidad Nacional de Costa Rica), is a Costa Rican Full Professor at Universidad Nacional. Her interests lie at the intersection of Computer-Supported Collaborative Learning, Education and Technology, Open Educational Resources and Pedagogical Approaches. She has 15 years of experience in Education and Technology in Costa Rica. Contact information is P.O. Box 959-2050 San Pedro Montes de Oca, San José, Costa Rica; mayela.coto.chotto@una.cr.

Kumar Laxman, PhD (Macquarie University), is a Singaporean Associate Professor at the University of Auckland. His interests lie at the intersection of Educational Technology, Instructional Design, Holistic Education, Organisational Learning and Mobile Learning. He has ten years of experience in Education and Technology in Singapore, Oman and New Zealand. Contact information is 74 Epsom Avenue, Auckland, New Zealand; +64220881601; k.laxman@auckland.ac.nz.

Helen Sara Farley, PhD (University of Southern Queensland), is an Australian Associate Professor (Digital Futures) at the University of Southern Queensland. Her interests lie at the intersection of Educational Technology, Education, Equity in Education, Digital Literacies and Social Media. She has 15 years of experience in Education and Technology in the United Kingdom and Australia. Contact information is 4 Boyce Court, Toowoomba Q 4350, Australia; helen.farley@usq.edu.au. For more information, please visit the following webpage: www.usq.edu.au/research/research-at-usq/institutes-centres/adfi/team/helen-farley.

Mishack T Gumbo, PhD (Vista University), is a South African Full Professor at the University of South Africa. His interests lie at the intersection of Technology Education, Distance Education and E-Learning, Indigenous Knowledge Systems, Multicultural Education and Cultural Studies. He has four years of experience in Education and Technology in Canada, the United States of America, Romania and South Africa. Contact information is P.O. Box 42308, Boordfontein 0182, South Africa; gumbomt@unisa.ac.za.

Ali Simsek, PhD (University of Minnesota), is a Turkish Full Professor at Anadolu University. His interests lie at the intersection of Educational Technology, Instructional Design, Distance Education, Social Media and Virtual Communication. He has 30 years of experience in Education and Technology in Turkey, the United States of America and Cyprus. Contact information is Department of Communication Design and Management, Faculty of Communication Sciences, Anadolu University, Eskisehir-Turkey; fax: +90.222.335.2651; asimsek@anadolu.edu.tr. For more information, please visit the following webpage: <http://asimsek.home.anadolu.edu.tr>.

E. Ramganes, PhD (Alagappa University), is an Indian Full Professor at Bharathidasan University. His interests lie at the intersection of Educational Technology, Mathematics, Research Methodology, Evaluation and Psychology. He has 23 years of experience in Education

and Technology in Singapore and Malaysia. Contact information is Professor and Head, Department of Educational Technology, Bhathidasan University, Tiruchirapalli 620 023, India; eramganes68@gmail.com.

Rita Birzina, PhD (University of Latvia), is a Latvian Leading Researcher at the University of Latvia. Her interests lie at the intersection of Adult Education, e-Learning, Information and Communications Technology Literacy, Biology and Didactics of Education. She has 20 years of experience in Education and Technology in Korea, Thailand, Slovakia, Denmark and India. Contact information is Riga, Latvia; rita.birzina@lu.lv.

Catarina Player-Koro, PhD (University of Borås), is a Swedish Senior Lecturer at the University of Borås. Her interests lie at the intersection of Mathematics Education, Educational Technology, Policy Studies, Ethnography and Teacher Education. She has ten years of experience in Education and Technology in the United Kingdom, Norway, Sweden and Denmark. Contact information is Faculty of Librarianship, Information, Education and IT, Allégatan1 50190 Borås, Sweden; catarina.player-koro@gu.se. For more information, please visit the following webpage: http://lincs.gu.se/members/catarina_player_koro.

Roza Dumbraveanu, PhD (State University of Moldova), is a Moldovan Associate Professor at Ion Creangă Pedagogical State University. Her interests lie at the intersection of Didactics of Disciplines, Implementation of Technology in education, e-Learning, Web Design and Project Management. She has 20 years of experience in Education and Technology in Sweden, Portugal and Moldova. Contact information is Ion Creanga 1 str. Chisinau, Republic of Moldova, MD2069; r.dumbraveanu@gmail.com.

Mmankoko Ziphorah, PhD (University of South Africa), is a South African Associate Professor at the University of South Africa. Her interests lie at the intersection of Education Technology, Research Methodology, Socio-Pedagogy, Music and Mathematics. She has 14 years of experience in Education and Technology in the United States of America, Australia, Zimbabwe, Namibia and South Africa. Contact information is University of South Africa, Mucleneuk Ridge, Pretoria, 0003; +27.12.429.6965; mmankokoz@gmail.com.

Nawaz Mohamudally, PhD (University of Science and Technology Lille 1) is a Mauritian Associate Professor at the University of Technology, Mauritius. He has 20 years of experience in

Education and Technology in Mauritius, South Africa, Oman, Sudan and France. Contact information is +23052542939; alimohamudally@utm.intnet.mu.

Sarah Thomas, EdD (Boston University), is a North American Assistant Professor at Bridgewater State University. Her interests lie at the intersection of Education, Literature, Technology, Sociology and Writing. She has two years of experience in Education and Technology in the United States of America. Contact information is Bridgewater State University, 125 Plymouth Street, Tinsley 207, Bridgewater, MA 02325, USA; +1.508.531.1943; sarah.thomas@bridgew.edu.

Margarita Romero, PhD (Université de Toulouse) is a Spanish Associate Professor at Université Laval. Her interests lie at the intersection of Games, Educational Technology, Education, Learning and Gamification. She has 11 years of experience in Education and Technology in France, Spain and Canada. Contact information is 2320 rue des Bibliothèques, local 1112 | Québec (Québec, Canada) G1V 0A6 ; margarida.romero@gmail.com. For more information, please visit the following webpage: www.fse.ulaval.ca/cv/margarida.romero.

Mungamuru Nirmala, PhD (University of Allahabad), is an Indian Assistant Professor at Adama Science and Technology University, Ethiopia. Her interests lie at the intersection of Information and Communications Technology for Education, Technology Management and Educational Leadership. She has 15 years of experience in Education and Technology in India, Eritrea, Ethiopia and Korea. Contact information is P.O. Box 5122 Adama Science and Technology University, Adama, Ethiopia; nirmala.mungamuru@gmail.com.

Lauren Cifuentes, PhD (University of North Carolina), is a North American Full Professor at Texas A&M University - Corpus Christi. Her interests lie at the intersection of Instructional Design, e-Learning, Design and Development Research, Visual Literacy and Distance Education. She has 34 years of experience in Education and Technology in the United States of America, China and Turkey. Contact information is 6300 Ocean Dr. Unit 5779, Corpus Christi, TX, USA 78412-5779; +1.979.825.7806; lauren.cifuentes@tamucc.edu.

Raja Zuhair Khaled Osaily, PhD (Ain Shams University), is a Palestinian Associate Professor at Alquds Open University. Her interests lie at the intersection of Basic Education, Creativity, Behaviour Modification, Communication and Leadership. She has six years of experience in

Education and Technology in Palestine, the United States of America, Canada, Greece, Tunisia and Jordan. Contact information is Alquds Open University, Hebron, Palestine, P.O. Box 33; rajaosaily@yahoo.com. For more information, please visit the following webpage: rajaosaily.com.

Ajayi Clemency Omoogun, PhD (University of Nigeria), is a Nigerian Associate Professor at the University of Calabar, Nigeria. His interests lie at the intersection of Teacher Education, Educational Technology, Curriculum Studies, Environmental Education and Environmental Ethics. He has ten years of experience in Education and Technology in the UK and Saudi Arabia. Contact information is the Department of Curriculum and Teaching, University of Calabar, Nigeria-PMB 1115; omoogun.ajayi@yahoo.com.

S. Sadi Seferoglu, PhD (Columbia University), is a Turkish Full Professor at Hacettepe University, Ankara-Turkey. His interests lie at the intersection of e-Learning, m-Learning, Instructional Design, Technology Policies and Internet Threats. He has 30 years of experience in Education and Technology in the United States of America and Turkey. Contact information is Hacettepe University, Faculty of Education, Department of Computer Education and Instructional Technology, 06800, Beytepe-Ankara, Turkey; sadi@hacettepe.edu.tr. For more information, please visit the following webpage: yunus.hacettepe.edu.tr/~sadi/sadi_english.html.

Alev Elçi, PhD (Aksaray University), is a Turkish Assistant Professor at Aksaray University. Her interests lie at the intersection of Faculty Development, Technology-Enhanced Learning and Social Networks. She has 16 years of experience in Education and Technology in North Cyprus, Turkey and the United States of America. Contact information is Aksaray University, the Department of Management Information Systems, Aksaray 68100, Turkey, dr.alevelci@gmail.com. For more information, please visit the following webpage: aksaray.academia.edu/alevelci.

Dave Edyburn, PhD (University of Illinois), is a North American Full Professor at the University of Wisconsin-Milwaukee. His interests lie at the intersection of Special Education Technology, Instructional Design, Educational Technology, Universal Design for Learning and Access to Text. He has 30 years of experience in Education and Technology in the United States of America. Contact information is edyburn@uwm.edu. For more information, please visit the following webpage: people.uwm.edu/edyburn.

Kannan Moudgalya, PhD (Rice University), is an Indian Full Professor at the Indian Institute of Technology Bombay. His interests lie at the intersection of Control, Simulation, Education Technology and Low Cost Education Techniques. He has 5 years of experience in Education and Technology in the United States of America, the United Kingdom and India. Contact information is the Department of Chemical Engineering, IIT Bombay, Powai, Mumbai 400 076, India; kannan@iitb.ac.in. For more information, please visit the following webpage: www.che.iitb.ac.in/online/faculty/kannan-m-moudgalya.

Martin Ebner, PhD (Graz University of Technology), is an Austrian Associate Professor at the Graz University of Technology. His interests lie at the intersection of e-Learning, m-Learning, Social Media, Open Educational Resources and Learning Analytics. He has 15 years of experience in Education and Technology in Austria, Germany, Switzerland, the United Kingdom and the United States of America. Contact information is Münzgrabenstraße 35a, 8010 Graz, Austria; martin.ebner@tugraz.at. For more information, please visit the following webpage: www.martinebner.at.

Rosa Bottino (CNR – Istituto Tecnologie Didattiche), Italian, is the Director of the Institute of Educational Technology (ITD) of the Italian National Research Council (CNR). Her interests are in Educational Technology and, in particular, Innovative Learning Environments, New Skills for the Knowledge Society, Games Based Learning and Mathematics Education. She has 33 years of experience in Education and Technology in Italy and has promoted and chaired both national and European projects and European Networks of Excellence in this context. She has organised and participated in many national and international conferences and is a member of international research associations, journal editorial boards and panels for the evaluation of international projects. Contact information is ITD-CNR Via de Marini 6, 16149 Genova, Italy; bottino@itd.cnr.it. For more information, please visit the following webpage: www.itd.cnr.it.

Elaine Khoo, PhD (The University of Waikato), is a Senior Research Fellow at the University of Waikato, New Zealand. Her interests lie at the intersection of Teaching and Learning in Information and Communication Technologies and Online Learning Environments at the Classroom and Tertiary Levels. She has 17 years of experience in Education and Technology in New Zealand and Malaysia. Contact information is Wilf Malcolm Institute of Education, Faculty of Education, University of Waikato Private Bag 3105, Hamilton 3240, New Zealand; phone:

++64.7.838.4466x6260, fax: ++64.7.838.4712; ekhoo@waikato.ac.nz. For more information, please visit the following webpage: www.waikato.ac.nz/wmier/about-us/people/elaine-khoo.

Luis Pedro, PhD (University of Aveiro), is a Portuguese Assistant Professor at the University of Aveiro. His interests lie at the intersection of Communication, Social Media, Personal Learning Environments, Badges and Social Networks. He has 10 years of experience in education and technology. Contact information is Campus Universitário de Santiago, Aveiro, Portugal, lpedro@ua.pt. For more information, please visit the following webpage: about.me/lpedro.

Hanadi Buarki, PhD (Loughborough University), is a Kuwaiti Assistant Professor at the Public Authority for Applied Education and Training. Her interests lie at the intersection of Information and Communications Technologies in Education, Professional Development and Information and Communications Technologies Skill. She has seven years of experience in Education and Technology in Kuwait, the Middle East, Africa and the United Kingdom. Contact information is hjbuarki@hotmail.com.

Clara Román-Odio, PhD (UNC-Chapel Hill), is a North American Professor of Spanish at Kenyon College. Her interests lie at the intersection of Educational Technology, Globalisation, Gender and Literary Studies, Language Acquisition and Community-Engaged Learning. She has 24 years of experience in Education and Technology in the United States of America, Canada, Puerto Rico and Costa Rica. Contact information is 202 College-Park St, Ascension Hall 110, Dept, MLL, Kenyon College, Gambier, OH 43022, USA; romanodioc@kenyon.edu. For more information, please visit the following webpage: www.kenyon.edu/directories/campus-directory/biography/clara-roman-odio/.

Ijaz A. Qureshi, PhD (Argosy University), is a Pakistani Full Professor at the University of Lahore. His interests lie at the intersection of Radio Frequency Identification, Management Information System, Bring Your Own Device, m-Learning and Learning through Social Media. He has 20 years of experience in Education and Technology in the United Kingdom, the United States of America and Pakistan. Contact information is S House No 805, Street No 77, I-8/3, Punjab, Pakistan; ijaza.queshi@gmail.com. For more information, please visit the following webpages: www.IjazConsulting.com and sites.google.com/site/ijazaqueshi/jfk-institute-islamabad/Home?pli=1.

Mahbub Ahsan Khan, PhD (Universiti Sains Malasia), is a Bangladeshi Associate Professor at University of Dhaka. His interests lie at the intersection of Learning and Information and Communications Technology, Language Education, Online Professional Development and e-Portfolio. He has ten years of experience in Education and Technology in Bangladesh and Malaysia. Contact information is Institute of Education and Research, University of Dhaka, Dhaka-1000, Bangladesh; +8801911384936; makhanrajib@yahoo.com.

Carrie Thornthwaite, EdD (Vanderbilt University), is a North American Full Professor at Lipscomb University. Her interests lie at the intersection of Educational Technology, Teaching and Learning, Mathematics, Physics and Spanish. She has 20 years of experience in Education and Technology in the United States of America and Peru. Contact information is Lipscomb University, 1 University Park Drive, Nashville, TN 37204, USA; carrie.thornthwaite@lipscomb.edu.

Sulushash Kerimkulova, PhD (Academy of Pedagogical Sciences), is a Kazakh Associate Professor at Nazarbayev University. Her interests lie at the intersection of Education Context and Reform in Kazakhstan, Higher Education, Globalisation/Internationalisation of Higher Education, Educational Technology and Language Education. She has 35 years of experience in Higher Education and Technology in Kazakhstan, the United States of America and the United Kingdom. Contact information is 53 Kabanbay batyr avenue, Astana Kazakhstan 010000; skerimkulova@nu.edu.kz.

Toni Downes, PhD (University of Western Sydney), is an Australian Full Professor at Charles Sturt University. Her interests lie at the intersection of Education and Technology, Gender, Early Literacy and Teacher Education. She has 35 years of experience in Education and Technology in Australia, the United Kingdom, the United States of America, Canada, Thailand, Vietnam, Papua New Guinea and Indonesia. Contact information is Faculty of Education, Charles Sturt University, Bathurst, NSW 2795, Australia; tdownes@csu.edu.au.

Lauri Malmi, PhD (Helsinki University of Technology), is a Finnish Full Professor at Aalto University. His interests lie at the intersection of Computing Education Research, Educational Technology, Engineering Education Research, Programming and Educational Psychology. He has 25 years of experience in Education and Technology in Finland, the United Kingdom, the United States of America, Spain, Germany, Italy, New Zealand and Lithuania. Contact

information is P.O. Box 15400, 00076 AALTO, Finland; lma@cs.hut.fi. For more information, please visit the following webpage: www.cs.hut.fi/~lma/.

Salih Bardakci, PhD (Ankara University), is a Turkish Assistant Professor at Gaziosmanpaşa University. His interests lie at the intersection of Information and Communications Technologies Integration in Education, Online Social Interaction, Collaborative Learning Environments, Cultural Impacts on Educational Technology Usage and Teacher Education. He has 12 years experiences with the field of education and technology in Turkey. Contact information is Gaziosmanpasa University, Faculty of Education, Department of Computer and Instructional Technology Education, Tasliciftlik Campus, Tokat-Türkiye; salihbardakci@hotmail.com.

Jamil Itmazi, PhD (Granada University), is a Palestinian Associate Professor at Palestine Ahliya University. His interests lie at the intersection of e-Learning, Software Engineering, Programming, Scientific Research Methodology and Computers in Education. He has 13 years of experience in Education and Technology in Palestine, Jordan and Spain. Contact information is P.O. Box: 1041, Bethlehem, West Bank-Palestine; j.itmazi@gmail.com. For more information, please visit the following webpage: sites.google.com/site/jamilitmazi.

Jim Rogers, PhD (Utah State University), is a North American Full Professor at Utah State University. His interests lie at the intersection of Technology, Sociocultural Theory, Language Learning and Mediation. He has 15 years of experience in Education and Technology in the United States of America, Canada, China, the Netherlands, Belgium and France. Contact information is 0715 University Blvd, Logan, UT 84322-0715, USA; jim.rogers@usu.edu.

Soonil D.D.V. Rughooputh, PhD (University of London), is a Mauritian Full Professor at the University of Mauritius. His current interests lie at the intersection of Physics, Education Technology, Waves, Information Technology and Geographical Information Systems. He has six years of experience in Education and Technology in Mauritius, South Africa, the United Kingdom, Malaysia and India. Contact information is Department of Physics, University of Mauritius, Reduit, Mauritius, 80837; rughooputh.sddv@gmail.com. For more information, please visit the following webpage: <https://sites.google.com/site/physphysphys/home>.

Mohammed Ali Akour, PhD (The University of Oklahoma), is a North American Assistant Professor at A'Sharqiyah University. His interests lie at the intersection of Mobile Learning,

Using Learning Management Systems, Interactive Courseware and Database Development. He has 18 years of experience in Education and Technology in the United States of America, Jordan and Oman. Contact information is ali_akour@asu.edu.om.

J. Bryan Henderson, PhD (Stanford University), is a North American Assistant Professor at Arizona State University. His interests lie at the intersection of Educational Technology, Argumentation, Assessment, Peer Learning and Science Education. He has ten years of experience in Education and Technology in the United States of America. Contact information is P.O. Box 871811, Tempe, AZ 85287-1811, USA; jbryanh@asu.edu.

Sara de Freitas, PhD (University of Sussex), is a British Full Professor and Pro Vice Chancellor of Learning and Teaching at Murdoch University. Her interests lie at the intersection of Educational Technology, Learning Analytics, Computer Science, Information Science and Cultural Studies. She has 20 years of experience in Education and Technology in the United Kingdom and Australia. Contact information is 90 South Street, Murdoch, Western Australia, WA6150; s.defreitas@murdoch.edu.au. For more information, please visit the following webpage: profiles.murdoch.edu.au/myprofile/sara-de-freitas/.

PG Schrader, PhD (University of Connecticut) is a North American Associate Professor at University of Nevada, Las Vegas. His interests lie at the intersection of Videogames, Cognition, Motivation, Presence and Immersion. He has ten years of experience in Education and Technology in the United States of America and Germany. Contact information is 4505 S. Maryland Pkwy, Las Vegas Nevada, USA 89154-3005; pg.schrader@unlv.edu. For more information, please visit the following webpage: schrader.education.unlv.edu

References

- Adedokun-Shittu, N.A. and Shittu, A.J.K. (2013). ICT impact assessment model: An extension of the CIPP and the Kirkpatrick models. *International HETL Review*, **3**(12).
- Adedokun-Shittu, N.A. and Shittu, A.J.K. (2014). Evaluating the impact of technology integration in teaching and learning. *The Malaysian Online Journal of Educational Technology*, **2**(1).
- Adedokun-Shittu, N.A. and Shittu, A.J.K. (2015). ICT impact Assessment in education: An operational model for developing countries. In: M. Khosrow-Pour (edits.) *Encyclopedia of Information Science and Technology*. 3rd edition. IGI Global.

- Al Lily, A.E.A. (2016). A Crowd-Authoring Project on the Scholarship of Educational Technology. *Information Development*. x(x),xxx-xxx.
- Al Shae, A.I. (2007). Education for all programmes in the Kingdom of Saudi Arabia. Background paper prepared for the *Education for All Global Monitoring Report 2008 Education for All by 2015: Will We Make it*.
- Amsterdamska, O. (1990). Surely You're Joking, Mr Latour! *Science, Technology, Human Values*. **15**(4), 495-504.
- Aris, B., Ali, M.B., Harun, J., Tasir, Z., Atan, N.A. and Noor, N.M. (2006). E-learning research and development experiences related to learning computer science, information technology and multimedia subjects. *Paper presented at 3rd International Conference on University Learning and Teaching (InCULT 2006)*, Shah Alam, Malaysia.
- Ashraf, M., Swatman, P. and Hanisch, J. (2008). An extended framework to investigate ICT impact on development at the micro (community) level. *In: Proceedings of the 16th European Conference on Information Systems* (Galway, Ireland).
- Baiocco, L., Benvenuti, M., Cannata, D., Fossi, E., Mazzoni, E. and Zanazzi, L. (2015). Vita ONline e vita OFFline: come Internet influisce Sul nostro agire quotidiano. *Media Education*, **5**(2), 131-48.
- Baker, R. S. (2014). Educational data mining: An advance for intelligent systems in education. *Intelligent Systems, IEEE*, **29**(3), 78-82.
- Balconi, M., Breschi, S. and Lissoni, F. (2004). Networks of inventors and the role of academia: an exploration of Italian patent data. *Research Policy*, **33**(1), 127-45.
- Bardakci, S. (2013). *ICT Integration in education: An Investigation of Different Purposes, Policies, Practices, Effects and Criticisms*. Unpublished Doctoral Dissertation. Ankara Universty Graduate School of Educational Sciences, Ankara, Turkey.
- Bates, D.T. (2008). The continuing evolution of ICT capacity: the implications for education. *The Changing Faces of Virtual Education*. 29-46.
- Berker, T., Hartmann, M., Punie, Y. and Ward, K. (2005). *Domestication of Media and Technology*. McGraw-Hill International.
- Bertalanffy, L.V. (1969). *General System Theory*. New York: George Braziller.
- Bhaskar, R. (1989). *Reclaiming Reality: A Critical Introduction to Contemporary Philosophy*. London: Verso.
- Biglan, A. (1973). The characteristics of subject matter in different academic areas. *Journal of applied Psychology*, **57**(3), 195.
- Bigum, C. (1998). Boundaries, barriers and borders: teaching science in a wired world. *Australian Science Teachers Journal*, **44**(1), 13-24.

- Bocconi, S., Kamylyis, P. and Punie, Y. (2013). Framing ICT-enabled Innovation for Learning: the case of one-to-one learning initiatives in Europe. *European Journal of Education*, **48**(1), 113-30.
- Borgnakke, K. (2007). 'Nye læringsstrategier i de gymnasiale uddannelser.' *In: E. Damberg (ed.) GYMNASIEPÆDAGOGIK*. Odense: Institut for Filosofi, Pædagogik og Religionsstudier.
- Bottino R.M., Artigue M., Noss R. (2009), Building European Collaboration in Technology-Enhanced Learning in Mathematics, in N. Balacheff et Al. (Eds.): *Technology Enhanced Learning*, The Netherland, Springer Science, 73-87.
- Bottino R.M., Chiappini, G., Forcheri P., Lemut E., Molfino M.T. (1999), Activity Theory: A framework for design and reporting on research projects based on ICT, *Education and Information Technologies*, **4**(3), 281-295.
- Bottino, R.M. (2007). On-line learning networks: Framework and scenarios. *Journal of Education and Information Technology*, **12**, 93–105.
- Bottino, R.M. (2013). 'Reflections on educational technology, research and school innovation'. *In: M.D. Lytras et al. (eds.) WSKS, CCIS 278*. Springer-Verlag Berlin Heidelberg.
- Buarki, H. (2015). *ICT Skills Evaluation of Faculty Members in Kuwait: Preliminary findings*. Information Development.
- Bulfin, S., Henderson, M., Johnson, N. F. and Selwyn, N. (2014). Methodological capacity within the field of “educational technology” research: an initial investigation. *British Journal of Educational Technology*, **45**(3), 403-414.
- Capello, R. (1999). Spatial transfer of knowledge in high technology milieu: Learning versus collective learning Processes, *Regional Studies*, **33**(4), 353-65.
- Carr, N. G. (2010). *The Shallows: What the Internet is Doing to our Brains*. New York: W.W. Norton.
- Carr-Chellman, A.A. (2006). Where do educational technologists really publish? An examination of successful emerging scholars' publication outlets. *British Journal of Educational Technology*, **37**(1), 5-15.
- Chang,L.W., Mwanika, A., Kaye, D., Muhwezi, W.W., , Nabirye, R.C., Mbalinda, S. Okullo, I., Kennedy, C.E., Groves, S., Sisson, S.D., Burnham, G. and Bollinger, R.C. (2012) Information and communication technology and community-based health sciences training in Uganda: perceptions and experiences of educators and students. *Informatics for Health and Social Care*, **37**(1), 1–11.
- Charmaz, K. (2014). *Constructing Grounded Theory*. London: Sage
- Cifuentes, L., Alvarez-Xochihua, O. and Edwards, J. C. (2011). Learning in Web 2.0 environments: Surface learning and chaos or deep learning and self-regulation? *The Quarterly Review of Distance Education*, **12**(1), 1-21.
- Coleman, J. S. (1986). Social theory, social research, and a theory of action. *American Journal of Sociology*, 1309-35.

- Collis, B. and van der Wende, M. (2002). *Models of Technology and Change in Higher Education: An International Comparative Survey on the Current and Future Uses of ICT in Higher Education*. University of Twente, Enschede: CHEPS.
- Cornford, J. and Pollock, N. (2003). *Putting the University Online: Information, Technology, and Organizational Change*. Buckingham: Open University Press.
- Cuban, L. (1984). *How Teachers Taught: Constancy and Change in American Classrooms, 1890-1980*. Research on Teaching Monograph Series.
- Cuban, L. (1990). Reforming again, again, and again. *Educational Researcher*, **19**(1), 3-13.
- Cuban, L., Kirkpatrick, H. and Peck, C. (2001). High access and low use of technologies in high school classrooms: explaining an apparent paradox. *American Educational Research Journal*, **38** (4), 813-34.
- de Freitas, S. (2014). *Education in Computer Generated Environments*. London: Routledge.
- DeVillar, R.A. Jiang, B. and Cummins, J. (2013). *Transforming Education: Global Perspectives, Experiences and Implications*. New York: Peter Lang
- Dick, W., Carey, L., and Carey, J.O. (1978). *The Systematic Design of Instruction*. Allyn and Bacon.
- Dubos, R. (1970). *So Human an Animal*. New York: Scribners.
- Duderstadt, J.J., Atkins, D.E. and Van Houweling, D. (2002). *Higher Education in the Digital Age: Technology Issues and Strategies for American Colleges and Universities*. Westport, CT: American Council on Education and Praeger.
- Dunleavy, M., Dexter, S. and Heinecke, W.F. (2007). What added value does a 1:1 student to laptop ratio bring to technology-supported teaching and learning? *Journal of Computer Assisted Learning*, **23**(5), 440-52.
- Ebner, M (2007). E-Learning 2.0 = e-Learning 1.0 + Web 2.0? In the *Second International Conference on Availability, Reliability and Security*, ARES 2007.
- Ebner, M., Kopp, M., Wittke, A. and Schön, S. (2014). Das O in MOOCs – über die Bedeutung freier Bildungsressourcen in frei zugänglichen Online-Kursen. *HMD Praxis der Wirtschaftsinformatik*, **52**(1), S. 68-80.
- Edyburn, D.L. (2001). Scholarly endeavors: Conducting a comprehensive review of the literature using digital resources. *Journal of Special Education Technology*, **16**(1), 49-52.
- Ellison, N. B., Steinfield, C. and Lampe, C. (2007). The benefits of Facebook “friends:” Social capital and college students’ use of online social network sites. *Journal of Computer-Mediated Communication*, **12**(4), 1143-68.
- Engeström, Y., Miettinen, R. and Punamäki, R.L. (1999). *Perspectives on Activity Theory*. Cambridge University Press.

- Ertmer, P., Ottenbreit-Leftwich, A. and Tondeur, J. (2015). 'Teachers' beliefs and uses of technology to support 21st century teaching and learning.' *In: Fives, H. and Gill, M. G. (eds.) International Handbook of Research on Teacher Beliefs*. Oxford: Routledge.
- Ertmer, P. A., Ottenbreit-Leftwich, A. T., & Tondeur, J. (2014). Teachers' beliefs and uses of technology to support 21st-century teaching and learning. *International Handbook of Research on Teacher Beliefs*. 403.
- Farrell, J. S. (2000). Why is educational so difficult? Similar descriptions, different prescriptions, failed explanations. *Curriculum Inquiry*, **30**(1), 83-103.
- Fawcett, L.L.E. and Hurrell, A. (1995). *Regionalism in World Politics: Regional Organisation and International Order*. Oxford: Oxford University Press.
- Fidalgo-Neto, A. A., Tornaghi, A. J. C.ç, Meirelles, R. M. S., Berçot, F. F.,Xavier, L. L., Castro, M. F. A. and Alves, L. A. (2009). The use of computers in Brazilian primary and secondary schools. *Computers & Education*,**53**, 677-85.
- Fisher, T. (2006). Educational transformation: Is it, like 'beauty', in the eye of the beholder, or will we know it when we see it? *Education and Information Technologies*, **11**(3), 293-303.
- Freire, P. (2000). *Pedagogy of the Oppressed*. Bloomsbury Publishing.
- Frey, J. and Ebner, M. (2014). 'Universitäten in sozialen Netzwerken - Wie Hochschulen die Chancen und Herausforderungen dieser sozialen Medien nutzen können.' *In: K. Wilbers & A. Hohenstein (Hrsg.), Handbuch E-Learning. Expertenwissen aus Wissenschaft und Praxis – Strategien, Instrumente, Fallstudien. Köln: Deutscher Wirtschaftsdienst (Wolters Kluwer Deutschland), 50. Erg.-Lfg. Jänner.*
- Frozzi, G., & Mazzoni, E. (2010). Riflessioni sull'efficacia del Social Networking nel supportare le transizioni degli adulti emergenti in differenti sistemi di attività. *Form@ re-Open Journal per la formazione in rete*, **10**(72), 11-7.
- Gagne, R.M., Briggs, L.J. and Wager, Walter W. (1974). *Principles of Instructional Design*. New York: Holt, Rinehart and Winston Inc.
- Galbraith, J.K. (1967). *The New Industrial State*. New York: The New American Library.
- Garris, R., Ahlers, R. and Driskell, J. E. (2002). Games, motivation, and learning: A research and practice model. *Simulation and Gaming*, **33**(4), 441-67.
- Gerstein, J. (2014). Moving from Education 1.0 through Education 2.0 towards Education 3.0. *Experiences in Self-Determined Learning*, 83-98.
- Giddens, A. (1984). *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley, CA: University of California Press.
- Glaser, B.G. and Strauss, A.L. (1967). *Discovery of Grounded Theory*. Mill Valley, Ca.: Sociology Press.

- Goodwin, B. (2011). One-to-one Laptop Programs Are No Silver Bullet. *Educational Leader*, **68**(5), 78-9.
- Hammond, N., Gardner, N., Heath, S., Kibby, M., Mayes, T., McAleese, R., Mullings, C. and Trapp, A. (1992). Blocks to the effective use of information technology in higher education. *Computers Education*, **18**, 155–62.
- Hawkridge, D. (1990). Who needs computers in school, and why? *Computers and Education*. **15**, 1-6.
- Heeks, R. (2010). Development 2.0: the IT-enabled transformation of international development. *Communications of the ACM*, **53**(4), 22-4.
- Heinich, R. (1984). The proper study of instructional technology. *Educational Communications and Technology Journal*, **33** (1), 9–15.
- Holland, J.L. (1966). *The Psychology of Vocational Choice*. Waltham, Mass.: Blaisdell.
- Howe, J. (2008). *Crowdsourcing: Why the Power of the Crowd Is Driving the Future of Business*. New York: Crown Publishing Group.
- Hughes, T. (2009). 'Technological momentum.' In: D.G. Johnson and J.M. Wetmore (eds.) *Technology and Society: Building our Sociotechnical Future*. London: MIT Press.
- Humphrey, G (1924). The psychology of the gestalt. *Journal of Educational Psychology*, **15**(7), 401–12.
- Hussain, F. (2012). E-Learning 3.0 = E-Learning 2.0+ Web 3.0? *International Association for Development of the Information Society*.
- IDT Futures Group (2002). Assessing the field of educational technology: what is the state of the field? Presentation to the *Annual Convention of the Association of Educational Communications and Technology (AECT)*, October.
- Jones, B. W. (1999). *A Differentiating Definition of Instructional Technology and Educational Technology*. Canyon, Texas: West Texas A&M University.
- Jones, S. (1987). Organisational politics-Only the darker side? *Management Learning*, **18**(2), 116-28.
- Kampylis, G. P., Bocconi, S. and Punie, Y. (2012). Towards a mapping framework of ICT-enabled innovation for learning. *European Commission, Joint Research Center-Institute for Prospective Technological Studies, Seville. EUR25445 EN*.
- Karagiorgi, Y. and Charalambous, K. (2004). Curricula considerations in ICT integration: Models and practices in Cyprus. *Education and Information Technologies*, **9**(1), 21-35.
- Keats, D., & Schmidt, J. P. (2007). The genesis and emergence of Education 3.0 in higher education and its potential for Africa. *First Monday*, **12**(3).
- Kerimkulova, S. (2010). ICT and Educational Reform in Kazakhstan. In Proceedings *CICE 2010 Canada International Conference on Education* (Toronto, Canada).

- Kirkpatrick D.L. (1959). Techniques for evaluating training programs. *Journal of American Society of Training Directors*, **13**(3), 21–6.
- Kling, R., McKim, G. and King, A. (2003). A bit more to it: scholarly communication forums as socio-technical interaction networks. *Journal of the American Society for Information Science and Technology*, **54**(1), 47-67.
- Kostolanyova, K., (2014). Simulating personalised learning in electronic environment. *10th International Scientific Conference on Distance Learning in Applied Informatics*. Praha: Wolters Kluwer, 105-115.
- Krug, D. and Arntzen, J. (2010). 'Ecologies of learning: Efficacious learning and ICT pedagogical and technological adaptability.' *In: S. Mukerji and P. Tripathi (eds.) Cases on Interactive Technology Environments and Transnational Collaboration: Concerns and Perspectives*. IGI Global.
- Kullmann, W. (1991). Man as a political animal in Aristotle. *In: D. Keyt and F.D. J.R. Miller (eds.) A Companion to Aristotle's Politics*. Oxford: Blackwell.
- Kumar, S. and Vigil, K. (2011). The Net generation as preservice teachers: Transferring familiarity with new technologies to educational environments. *Journal of Digital Learning in Teacher Education*, **27**, 144-53.
- Larkin, K. (2011). Informing one-to-one computing in primary schools: Student use of netbooks. *Australasian Journal of Educational Technology*, **27**(3), 514-530.
- Latour, B. (2005). *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.
- Lave, J. and Wenger, E. (1991). *Communities of Practice*. Cambridge: Cambridge University Press
- Lei, J. and Zhao, Y. (2007). Technology uses and student achievement: A longitudinal study. *Computers and Education*, **49**, 284-96.
- Livingstone, S. (2011). Critical reflections on the benefits of ICT in education. *Oxford Review of Education*, **38**(1), 9-24.
- Loveless, A. and Dore, B. (2002). *ICT in the primary school. Learning and Teaching with ICT*. Buckingham: Open University Press.
- Maddux, C. D. (1986). Issues and concerns in special education microcomputing. *Computers in the Schools*, **3**(3-4), 1-19.
- Markoff, J. (2009). A deluge of data shapes a new era in computing. *The New York Times*, 14 December 2009.
- Mazzoni, E. (2006). Dallo sviluppo degli artefatti web all'evolversi delle attività umane. *I processi del cambiamento. Italia*, Morlacchi Editore.
- McKenney, S. and Reeves, T. C. (2013). *Conducting Educational Research Design*. London: Routledge.
- McMillin, D. (2007). *International Media Studies*. Oxford: Blackwell.

- Mellon, C. A. (1999). Technology and the great pendulum of education. *Journal of Research on Computing in education*, 32 (1), 28-36.
- Meyer, E. T. (2006). 'Socio-technical interaction networks: A discussion of the strengths, weaknesses and future of Kling's STIN model.' *In: Social Informatics: An Information Society for all? In Remembrance of Rob Kling* (pp. 37-48). Springer.
- Mills, J., Bonner, A. and Francis, K. (2006). Adopting a constructivist approach to grounded theory: Implications for research design. *International Journal of Nursing Practice*, 12(1), 8-13.
- Molnar, A. R. (1997). Computers in education: a brief history. *Technology Horizons in education (THE) Journal*, 24 (11), 63-69.
- Morgan, G., Gregory, F. and Roach, C. (1997). *Images of Organization*. New York: John Wiley & Sons.
- Msweli, P. (2012). Mapping the interplay between Open Distance Learning and internationalisation principles. *The International Review in Research in Open and Distance Learning*, 13(3), 97-116.
- Niederhauser, D.S., Wetzel, K. and Lindstrom, D.L. (2005). From manuscript to article: Publishing educational technology research. *Journal of Technology and Teacher Education*, 13(4), 656-92.
- Nivala, M. (2009). Simple answers for complex problems: education and ICT in Finnish information society strategies. *Media Culture Society*, 31(3), 433-448.
- Nurgaliyeva, G. (2010). Применение ИКТ в высшем образовании Республики Казахстан: текущее состояние, проблемы и перспективы развития (The use of ICT in higher education of the Republic of Kazakhstan: current situation, problems and perspectives of development). Retrieved from <http://www.nci.kz/ru/content/primenenie-ikt-v-vysshem-obrazovanii-respubliki-kazahstan-tekushchee-sostoyanie-problemy-i>
- O'Donovan, E. (2009). Are one-to-one laptop programs worth the investments? *District Administration*, 149.
- Perret, J. F. and Mazzoni, E. (2006). Introduction. *In: L. O. Pochon, E. Bruillard, & A. Maréchal (eds.) Apprendre (avec) les progiciels. Entre apprentissages scolaires et pratiques professionnelles.*
- Player-Koro, C and Beach, D (in press). ICT-enabled innovation in technology rich schools?
- Player-Koro, C. (2012a). *Reproducing Traditional Discourses of Teaching and Learning Mathematics: Studies of Mathematics and ICT in Teaching and Teacher Education*. Göteborg: Department of applied IT, University of Gothenburg; Chalmers university of technology.
- Player-Koro, C. (2012b). Hype, hope and ICT in teacher education: A Bernsteinian perspective. *Learning, Media and Technology*, 38(1), 26-40.
- Price, R.V., & Maushak, N.J. (2000). Publishing in the field of educational technology: Getting started. *Educational Technology*, 40(4), 47-52.

- Priem, J., Piwowar, H. A. and Hemminger, B. M. (2012). *Altmetrics in the Wild: Using Social Media to Explore Scholarly Impact*.
- Puntambekar, S., Erkens, G. and Hmelo-Silver, C. (2011). *Analyzing Interactions in CSCL*. Springer.
- Purcell, K., Heaps, A., Buchanan, J. and Friedrich, L. (2013). *How Teachers Are Using Technology at Home and in Their Classrooms*. Washington, DC: Pew Research Center's Internet & American Life Project.
- Richey, R. (Ed.). (2013). *Encyclopedia of Terminology for Educational Communications and Technology*. Springer.
- Rieber, L. (1998). The proper way to become an instructional technologist: 1998 Peter Dean lecture for the division of learning and performance environments. Presented at the *Annual Conference of the Association for Educational Communications and Technology*, St. Louis, February.
- Ritzer, G. (2007). *Modern Sociological Theory*. New York: McGraw-Hill.
- Ritzer, G. (2013). *Sociological Theory*. Tata McGraw-Hill Education.
- Robertson, H.-J. (2003). Toward a theory of negativity: Teacher education and information and Communications technology. *Journal of Teacher Education*, **54**(4), 280-96.
- Romero, M., Usart, M. and Ott, M. (2014). Can serious games contribute to developing and sustaining 21st century skills? *Games and Culture*.
- Rowley, C. and Warner, M. (2011). Publishing in an era of 'publish or perish': SSCI status. *Asia Pacific Business Review*, **17**(3), 263-64.
- Sangrà, A., Vlachopoulos, D. and Cabrera, N. (2012). Building an inclusive definition for e-learning: an approach to its conceptual framework. *The International Review of research in Open and Distance Learning*. **13**(2), 145-59.
- Sapargaliyev, D. (2012). E-Learning in Kazakhstan: Stages of formation and prospects for development. *International Journal of Advanced Corporate Learning*, **5**(4), 42-5.
- Sbihi, B. (2009). Web 2+: Vers une nouvelle version du web 2.0. *Journal of Information and Communication Technologies*. **35**, 12-24.
- Sbihi, B. and El Kadiri, K. (2010). Towards a participatory E-learning 2.0: A new E-learning focused on learners and validation of the content. *International Journal on Computer Science and Engineering*. **2**(1), 1-7.
- Schifter, C.C. (2008). *Infusing Technology into the Classroom Continuous Practice Improvement*. Philadelphia: Information Science Publishing.
- Schön, S. and Ebner, M. (2013). 'Forschungszugänge und -methoden im interdisziplinären Feld des technologiegestützten Lernens.' In: Ebner, M. & Schön, S. (Hrsg.) *Lehrbuch für Lernen und Lehren mit Technologien*. (2. überarbeitete und ergänzte Auflage). ePubli. Berlin.
- Schütz, A. (1944). The stranger: An essay in social psychology. *American Journal of Sociology*, **49**(1944), 499-507.

- Selwyn, N. (2012). Bursting out of the 'ed-tech' bubble. *Learning, Media and Technology*, **37**(4), 331-4.
- Selwyn, N. (2013). *Education in a Digital World: Global Perspectives on Technology and Education*, Routledge, Abingdon Oxon United Kingdom.
- Sidhu, J.S., Ansari, S.M., Volberda, H.W. and Oshri, I. (2011). Managing organisational politics for effective knowledge processes. *RSM Insight*, **8**(4), 12-4.
- Sife, A., Lwoga, E. and Sanga, C. (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International Journal of Education and Development using ICT*, **3**(2). pp. 57-67
- Silber, K. H. (1970). What field are we in, anyhow? *Audiovisual Instruction*, **15**(5), 21-24.
- Silverstone, R., Hirsch, E. and Morley, D. (1992). Information and communication technologies and the moral economy of the household. In: R. Silverstone and E. Hirsch (eds.) *Consuming Technologies: Media and Information in Domestic Spaces*. London: Routledge.
- Skolverket. (2013). It-användning och it-kompetens i skolan. Stockholm.
- Slaughter, S. and Rhoades, G. (2004). *Academic Capitalism and the New Economy: Markets, State and Higher Education*. JHU Press.
- Solomon, G. (2002). Get that grant: Before and after pointers. *Technology and Learning*, **22**(11), 50-1.
- Spitzer, M. (2012). *Digitale Demenz. München: Droemer*.
- Steinfeld, C., Ellison, N., Lampe, C. and Vitak, J. (2012). Online social network sites and the concept of social capital. *Frontiers in New Media Research*, **15**, 115.
- Tarelli, I., Lankes, E.-M., Drossel, K., & Gegenfurtner, A. (2012). Lehr- und Lernbedingungen an Grundschulen im internationalen Vergleich. In W. Bos, I. Tarelli, A. Bremerich-Voss, & K. Schwippert (Hrsg.), IGLU 2011. Lesekompetenzen von Grundschulkindern in Deutschland im internationalen Vergleich (S. 137-173). Münster: Waxmann.
- Thompson, M. (2013). Development 2.0 and beyond, *ICT4D Seminar Series*, Oxford Internet Institute, 27 February.
- Tondeur, J., Kershaw, L.H., Vanderlinde, R.R. and Van Braak, J. (2013). Getting inside the black box of technology integration in education: Teachers' stimulated recall of classroom observations. *Australasian Journal of Educational Technology*, **29**(3).
- Tondeur, J., van Braak, J. and Valcke, M. (2007). Curricula and the use of ICT in education. *British Journal of Educational Technology*, **38**, 962-75.
- Unger, R (2004). *False Necessity: Anti-Necessitarian Social Theory in the Service of Radical Democracy*. London: Verso.
- Van den Akker, J. (2003). *Curriculum Perspectives: An Introduction*. Netherlands: Springer.

- Wallerstein, I. (1974). *The Modern World System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. New York: Academic Press.
- Weick, K.E. (1976). Educational organizations as loosely coupled systems. *Administrative Science Quarterly*, 1-19.
- Weizenbaum, J. (1976). *Computer Power and Human Reason: From Judgment to Calculation*. Freeman
- Westerberg, C.J. (2014). Finland education: What's up? *The Daily Riff Library*.
- Whalley, P., Kelley, S. and Tindle, A. (2011). The role of the virtual microscope in distance learning. *Open Learning*, **26**(2), 127–34.
- Whittle, A. and Spicer A. (2008). Is actor network theory critique? *Organization Studies*, **29**, 611.
- Winner, L. (1977). *Autonomous Technology: Technics-out-of-control as a Theme in Political Thought*. Cambridge, MA.: MIT Press.
- Yuan-Hsuan, L., Waxman, H., Jiun-Yu, W., Michko, G. and Lin, G. (2013). Revisit the effect of teaching and learning with technology. *Journal of Educational Technology & Society*, **16**(1), 133-n/a.
- Zervas, P., Tsitmidelli, A., Sampson, D.G., Chen, N.S. and Kinshuk. (2014). Studying research collaboration patterns via co-authorship analysis in the field of TEL: The case of Educational Technology & Society Journal. *Educational Technology & Society*, **17**(4), 1–16.