

#### 4. Education in the open: Building a network for social action.

By Carvalho, Lucila; Yeoman, Pippa & Carvalho, Júlia.

Massey University, The University of Sydney & Fast Food da Política

*Keywords:* open education, design for learning, games in education

*Topics:* Learning on the Move; Places and Spaces for Networked Learning, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

This paper introduces Fast Food da Política (FFDP) as a case study of a learning network designed to promote social action in a developing country. FFDP cleverly (re)purposes popular board games as pedagogical tools, which are then customised for the teaching and learning of the mechanisms and functioning of Brazilian political structures. FFDP has taken their political games to game-playing sessions across the country in varied venues – including schools, government organisations, and open sessions at market-street events and public protests. Their games are shared as open learning resources through blueprints and manuals that explain the many ways a game can be played, and which are easily downloadable through their website. FFDP also encourages game users (educators and learners) to come up with and share their own game-playing ideas for reuse. As a result, FFDP has built a repository of games that is constantly evolving, as new ways of using their open resources are captured and packaged for sharing and reuse by others. As a not-for-profit organisation, FFDP has been successfully relying on social media and crowdsourced funding to survive. In this paper, we draw on the (anonymised for review) Wireframe to explore the alignment of this network's design elements at the micro and meso levels, focusing on the ways FFDP combines a strategic educational vision deeply grounded on action for social change, with a curriculum that emphasizes gaming elements and promotes the physicality of materials in learning. At the micro level, the case study examines how the quality of materials support the development of educational innovation, while at the meso level this organization, driven by young women, is building-up a learning network for social action, empowering children, youth and adults to learn about the mechanisms of politics and their civil rights, within the Brazilian context. Overall, this paper offers an inspiring example of a productive learning network in action, where participation and co-creation are fostered through connections between a network of people, ideas, digital and material elements.

5. Exploring pre-established performed roles in a networked learning activity: a sociomaterial study case.

By Castañeda, Linda & Marin-Juarros, Victoria.

University of Murcia & Carl von Ossietzky University Oldenburg

*Keywords:* Networked learning, sociomaterial research, learning design, students' roles, visual network analysis (VNA)

*Topics:* Methods, Research Design, Data and Analysis in Networked Learning, Situating Networked Learning Historically, Systematically, Conceptually etc.

*Abstract:*

This presents the 1st part of a wider sociomaterial research, based on a university course. The main goal is increasing the understanding of the learning activity that emerges from a learning design, improving this design and promote decisions for informed change and innovation. This paper shows the analysis of students performed roles developed and its comparison with the declared learning design

6. The acceptance of a wiki site as a learning platform in English exam training: students' perceptions.

By Liashenko, Maria & Öztok, Murat.

Lancaster University

*Keywords:* students' perceptions, TAM, a wiki site, English learning, networked collaborative e-learning, IELTS

*Topics:* Learning at Scale, in the Wild, and across Boundaries, (In)formal, Professional and Open Lifelong Networked Learning, Methods, Research Design, Data and Analysis in Networked Learning

*Abstract:*

The study explores students' perceptions of accepting a wiki site as a learning platform for IELTS. Technology acceptance model was used to gather the data via a survey. The research reports a high level of agreement on easiness and usefulness of wiki sites. Despite some limitations, the paper reveals favorable students' perceptions and proposes implications for further wiki research.

## 8. Building Digital Literacy through Exploration and Curation of Emerging Technologies: A networked learning collaborative.

By Duin, Ann & Pedersen, Isabel.

University of Minnesota & Ontario Tech University

*Keywords:* Digital literacy, Emerging technologies, Curation, Networked learning

*Topics:* Networked Learning Literacy and Agency, Transfer and Transformation of Knowledge, Practice and Networked Learning

### *Abstract:*

People readily consume an ever growing range of emerging technologies while largely unaware of their lack of control over the impact that such networking, devices, data, and processes have on their lives. Since college-educated people are huge consumers of digital products and are expected to participate in networked learning, it is critical to foster student development of an expanded understanding of digital literacy. To address this challenge, we have created instructional materials for instructor and student use of the internationally known repository, "Fabric" of Digital Life (<https://fabricofdigitallife.com/>).

This research comes as the result of collaboration between the University of Minnesota's Emerging Technology Research Collaboratory (ETRC, <https://etrc.umn.edu/>), a research group for investigating emerging technologies, and Fabric of Digital Life (<https://fabricofdigitallife.com/>) and its affiliated Decimal Research Lab at Ontario Tech University. Together, functioning as a collaborative in support of networked learning, we invite and facilitate research on building student digital literacy through examination, contribution, and/or curation of collections regarding emerging technologies. From Spring 2019 to the present, 13 instructors and associated students across nine institutions have developed and are using a set of instructional materials for student exploration and/or curation of collections in this repository.

This paper documents initial instructor discussion and study of student development of digital literacy as a result of use and/or curation of Fabric collections on emerging technologies and the discourses surrounding them. We are beginning to study the abilities that students draw upon when exploring the collections and when determining which artifacts might be included in current collections as well as new collections that might be developed. Collaborative interaction with the editorial team at Ontario Tech University not only enhanced the repository content and development of instructional resources, it also further evolved the metadata for Fabric for external users and the public. At its core, this research examines the potential development of digital literacy through the act of exploring and curating collections on emerging technologies. Critical to this core is the networked learning collaborative in place to foster and support this work.

## 9. Cross-cultural adaptation and user-experience validation of the ACAD Toolkit.

By Yeoman, Pippa; Carvalho, Lucila; Castañeda, Linda & Jordi, Adell.

The University of Sydney, Massey University, University of Murcia & University Jaume I

*Keywords:* Design for learning, learning design, design teams, cross-cultural

*Topics:* Theories, Methodologies, and Design for Networked Learning, Transfer and Transformation of Knowledge, Practice and Networked Learning

### *Abstract:*

Design for learning involves the delicate interweaving of knowledge about learning and knowledge about design. This work is often carried out by heterogenous design teams in which members speak of and value different aspects of design, and different methods for evaluating these designs in use. The challenge of reconciling these often-competing demands is critical to the success of these teams. This short paper outlines work breaking new ground translating an educational design method, developed in English speaking contexts, for use in Spanish speaking contexts. Steeped in socio-cultural and socio-material awareness this project explores how the ACAD Toolkit—a set of tangible design related resources embodying networked learning ideals—shapes and is (re)shaped in and through the process of translation. Guided by two questions: (i) How can we explore the process of translating not only language but values and forms of practice? and (ii) How can the ACAD Toolkit be validated in new contexts? This qualitative study involves the thematic analysis of multimodal data including video and audio recordings, and artefacts produced during workshops. Our method builds on traditional cross-cultural processes of adaptation that involve adapting, expanding and splitting ideas and concepts in two stages: language translation and user-experience testing. Our analysis is, therefore, reported in two stages. In the first we explore the process of reaching agreement on a test set of translated resources, and in the second we explore how these resources are being enrolled in educational design work in new contexts. The newly translated resources have been tested in three workshops in two Spanish speaking educational settings (Spain and Argentina). After analysing the data from these workshops, the initial translation will be corrected, and instructions will be developed—in both languages—to improve future translations of the ACAD Toolkit and in its ongoing use in English contexts. These instructions and the processes through which they will be developed will produce potential research objects for future educational design research. This method, initially developed with educators in Australia and New Zealand, embodies the very heart of networked learning—the movement of people, objects, and ideas across contexts and time. Design for learning involves the delicate interweaving of knowledge about learning and knowledge about design. This work is often carried out by heterogenous design teams in which members speak of and value different aspects of design, and different methods for evaluating these designs in use. The challenge of reconciling these often-competing demands is critical to the success of these teams. This short paper outlines work breaking new ground translating an educational design method, developed in English speaking contexts, for use in Spanish speaking contexts. Steeped in socio-cultural and socio-material awareness this project explores how the ACAD Toolkit—a set of tangible design related resources embodying networked learning ideals—shapes and is (re)shaped in and through the process of translation. Guided by two questions: (i) How can we explore the process of translating not only language but values and forms of practice? and (ii) How can the ACAD Toolkit be validated in new contexts? This qualitative study involves the thematic analysis of multimodal data including video and audio recordings, and artefacts produced

during workshops. Our method builds on traditional cross-cultural processes of adaptation that involve adapting, expanding and splitting ideas and concepts in two stages: language translation and user-experience testing. Our analysis is, therefore, reported in two stages. In the first we explore the process of reaching agreement on a test set of translated resources, and in the second we explore how these resources are being enrolled in educational design work in new contexts. The newly translated resources have been tested in three workshops in two Spanish speaking educational settings (Spain and Argentina). After analysing the data from these workshops, the initial translation will be corrected, and instructions will be developed—in both languages—to improve future translations of the ACAD Toolkit and in its ongoing use in English contexts. These instructions and the processes through which they will be developed will produce potential research objects for future educational design research. This method, initially developed with educators in Australia and New Zealand, embodies the very heart of networked learning—the movement of people, objects, and ideas across contexts and time.

10. Academic librarians' Twitter practices and the production of knowledge infrastructures in higher education.

By Westbury, Margaret.

University of Cambridge

*Keywords:* infrastructure, infrastructuring, knowledge infrastructures, librarians, social media, Twitter

*Topics:* Theories, Methodologies, and Design for Networked Learning

*Abstract:*

This short paper describes the use of infrastructural theory to interrogate data gathered for an ongoing study on the Twitter practices of academic librarians at one research-intensive university in the United Kingdom. In tandem with wider changes in networked technologies and ways of producing scholarship, academic librarians' roles have shifted increasingly to knowledge production, particularly in the area of research support. A related shift has been academic librarians' adoption of social media, particularly Twitter, to disseminate information and encourage community and collaboration. The few existing studies of librarians' Twitter practices, however, frame such activity as service promotion, overlooking the relationship between technology and professional practice entwined and concomitant social effects in the university.

The theoretical framework devised for this study was woven from research in anthropology and Science and Technology Studies about the nature of infrastructure. Instead of viewing infrastructure as separate and monolithic substrates supporting the circulation of goods and information, such theory posits infrastructure as relational and contingent, constituted of political decisions and having broad and co-constitutive social effects on knowledge, subjectivities and agencies (Jensen & Morita, 2017). The study's theoretical framework particularly draws on the notion of knowledge infrastructures defined as "networks of people, artifacts, and institutions that generate, share, and maintain specific knowledge about the human and natural worlds" (Edwards, 2010). The framework therefore emphasises the invisible labour of infrastructure — often dubbed infrastructuring — and related socio-political practices of design and maintenance that embody promises for the future (Larkin, 2018). In this picture, infrastructure is fragile and contingent, shaped by its installed base, and remarkably complicated, unfixed and open to contestation.

Based on preliminary findings, the study argues that academic librarians' Twitter practices constitute knowledge infrastructures in higher education. Using an infrastructural framework helped foreground the material conditions of librarians' knowledge production in terms of entanglements of technology and professional values, shifts in professional subjectivities and performative effects within the university. A tentative implication for studies of technology and learning is that, by insisting that infrastructure and social activity are intertwined, learners and teachers are not framed in opposition to infrastructure and are thus better able to contest totalising narratives surrounding infrastructural learning technologies such as VLEs or MOOCs. In this picture, therefore, infrastructure is not simplistically background bulwark or sinister force. Appreciating the invisible labour involved in creating and sustaining infrastructure is therefore important for understanding contemporary learning contexts.

11. Developing a hybrid and networked educational approach to lifelong learning for organisations and employees.

By Jaldemark, Jimmy & Öhman

Mid-Sweden University

*Keywords:* higher education, hybrid university, lifelong learning, networked university, professional development.

*Topics:* Learning at Scale, in the Wild, and across Boundaries, (In)formal, Professional and Open Lifelong Networked Learning, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

Developing work-related competencies suitable to the ongoing changes in surrounding society could be discussed in terms of lifelong learning. In such a context, the role of higher education has been identified as a key to develop advanced competencies applicable in a networked society. The current project includes scholars from three Swedish universities, representatives and employees from six Swedish bank and insurance companies, and a related governmental agency, all belonging to an established network. The project focuses on highly specialized professionals and their organisations, and the paper aims to answer the following research question: How can a hybrid and networked educational approach to lifelong learning for organisations and employees at the advanced level of higher education be designed? The investigation applies design-based research, and preliminary findings indicate that a hybrid and networked educational approach for lifelong learning for organisations and employees could be viewed from various perspectives. However, an overall observation is that several boundaries dissolve – for example, the ones between universities and participating and collaborative organisations – when a hybrid and networked educational approach for lifelong learning is designed. For one thing, universities should not be reduced to suppliers of education, and organisations should not be reduced to receivers of knowledge. Of particular interest is that participants working with data from their organisations can devote time to organisational challenges and/or utilize a deeper understanding of such challenges in a university course module approach. While the project still is in progress (the implementation phase is ongoing, and the phase intended to evaluate completed course modules has not started yet), the preliminary hybrid and networked approach for lifelong learning needs further development before it can be established. Nevertheless, early trials highlighting the idea of flexible courses that consist of various short modules developed in collaboration between universities and participating organisations indicate a promising venue for creating long-term relationships that could include deeper university-organisation and/or university-industry collaborations. Dialogues with course module participants and representatives of the collaborative organisation reinforced this preliminary conclusion.

## 12. Reaching for a hybrid and networked university through lifelong learning initiatives.

By Jaldemark, Jimmy & Bång, Åsa.

Mid Sweden University

*Keywords:* higher education, hybrid university, lifelong learning, networked university, professional development

*Topics:* Learning at Scale, in the Wild, and across Boundaries, (In)formal, Professional and Open Lifelong Networked Learning, Transfer and Transformation of Knowledge, Practice and Networked Learning

*Abstract:*

Working life is transforming, including an emerging digitalisation of its products and processes. Due to such transformation, competencies need to be developed in organisations that suit the emerging conditions for performing work. In the growth of these competencies, higher education is a key player. Its role is twofold, including preparing students for working life and being involved in professional development through continuous education and lifelong learning initiatives. This role as a key player has the potential to assist in the development of competencies at both an individual and organisational level. Another movement in society is the dissolution of boundaries between organisations, leading to the emergence of networked and hybrid organisations. Digitalisation is a driving force in this phenomenon. Even within universities, this trend has grown and impacted the relationship between the university and the surrounding society. In a hybrid and networked university, its operations are closely linked to the surrounding society, including the interplay of the needs of both parties; a balance of power; and weak boundaries between the university and organisations in the surrounding society. Another trend in the higher education sector is the emphasis on lifelong learning policies. Such policies link lifelong learning to global competition and social inclusion for all. The project reported in this paper builds on the ideas of lifelong learning from a university that aims to be hybrid and networked. The reported initiative builds on data from an early phase of a development project that aims at developing new forms of lifelong learning and professional development. Thematically analysed Post-it Notes from workshops supported the answering of the following research question: How do higher education staff perceive development of lifelong learning? The following four main categories were generated: (1) the hybrid and networked university, (2) pedagogical models, (3) internal organisation, and (4) quality. The conclusion includes staffs' positive attitude towards lifelong learning initiatives. They emphasise the university as an open space and as a partner for agents in the surrounding society. Moreover, they stress lifelong learning initiatives for staff; further development of educational models; scientific legitimacy and high-quality deliverance; flexible internal organisation and structures; and finally, the importance of collaboration and networking. Further data collection is needed to validate the results and the potential for developing theoretical insights that could inform lifelong learning initiatives in emerging digitally infused societies.

13. Designing activities and tools to support university students' creative and collaborative exploration of physical computing.

By Spikol, Daniel; Kaivo, Melissa & Cuartielles, David.

Malmö University & Arduino AB

*Keywords:* Collaborative Problem Solving, Learning by Doing, Creativity

*Topics:* Learning at Scale, in the Wild, and across Boundaries, (In)formal, Professional and Open Lifelong Networked Learning, Methods, Research Design, Data and Analysis in Networked Learning, Transfer and Transformation of Knowledge, Practice and Networked Learning

*Abstract:*

Today's digital world requires students to gain skills in collaborative problem solving and digital literacy. One approach is to teach people how to design computational artefacts that require both electronics and programming. Physical computing platforms offer an endless amount of possible opportunities for people to design and develop technological artefacts. However, many times students are overwhelmed when trying to learn both software and hardware simultaneously. The students struggle to be innovative and creative in their projects. Also, they focus on mastering the tool and following instructions for existing projects rather than being able to creatively explore the tool and understand the process of designing and developing new artefacts. For that reason, we aimed to answer the question: What type of tools and activities can be developed to support university students creative exploration of physical computing? Programming and electronics are fundamental design disciplines, and therefore they should be taught through design activities rather than limiting education to textbook readings and laboratory exercises.

We introduce our process of designing activities combined with a supportive tool to ease these challenges. The activities and tools were developed iteratively in three phases with a series of workshops with 126 students and teachers. The tool consists of a set of paper cards that provide necessary details (hints) about the electronics and software and help provide structure for the students to conceptualise how their artefact interacts. We additionally, introduced a learning jigsaw pattern for the later intervention that enabled individual students in the groups to focus on design, hardware, or software. For evaluation, we used the Creative Scales Index (CSI) which is a psychometric survey designed to assess the support of the creative process. The instrument investigates collaboration, efforts worth the result, exploration, immersion, enjoyment, and expressiveness. The results between the phases showed improvement with the use of the refined versions of the cards and the orchestration of the learning activity. This study has demonstrated that design activities can provide a more accessible approach for the introduction of physical computing to students from various majors. Moreover, learning physical computing through design activities allows the learner to develop computational and design thinking skills for collaboratively solving problems.

14. Mixed methods with social network analysis for networked learning: Lessons learned from three case studies.

By Mørch, Anders; Andersen, Renate; Kaliisa, Rogers & Litherland, Kristina T.

University of Oslo & Oslo Metropolitan University

*Keywords:* Mixed methods, Social network analysis, Interaction analysis, Discourse analysis, Networked learning

*Topics:* Learning at Scale, in the Wild, and across Boundaries, (In)formal, Professional and Open Lifelong Networked Learning, Methods, Research Design, Data and Analysis in Networked Learning

*Abstract:*

In our research we study small group interaction and meaning making in the context of a larger community of people and artifacts. Our research methodology combines social network analysis and content analysis in different ways. The primary purpose of this paper is to explore approaches and demonstrate the feasibility of mixed methods research combining network-level and content-level methods. We report our experiences from three case studies (Get Satisfaction, Canvas, r/place), which include individual variation (innovative approaches toward integration) and a common approach of "zooming in," or shifting perspective between bird's eye and detailed levels of interaction data during analysis (message content, dialogic structure, or visual artifact vs. patterns of users and their interactions). We show that the two sets of methods in combination can eliminate shortcomings of the separate methods used independently.

## 15. Personal Networks supporting Workplace Learning - A Case Study in the Finnish Defence Forces.

By Pekkarinen, Otto.

Finnish National Defence University

Keywords: Workplace learning, Personal networks, Social network analysis, Egocentric network interview

Topic: Methods, Research Design, Data and Analysis in Networked Learning, Theories, Methodologies, and Design for Networked Learning

### Abstract:

This paper is a case study researching personal social networks and their meaning to individual-level learning processes in the workplace. The study was based on the knowledge-creation metaphor of learning. Employees' personal networks are seen as an important component of their learning potential and competence. Methodologically, the paper presents a relatively new technique of Social Network Analysis (SNA), namely, the qualitative egocentric network interview, and a new way of presenting research findings in visual form. The context of the study is the Finnish Defence Forces (FDF) and it was conducted in three companies of one brigade-level unit of the Finnish Army. An egocentric network interview was conducted with ten Non-Commissioned Officers (NCO). The interview data was analysed with qualitative content analysis, and the networks were visualised with the Cytoscape software. The egocentric network analysis showed that the people in the same company created a major support structure for the NCOs' workplace learning. However, nearly all NCOs had important network structures that were formed around their individual expertise and tasks. The networks varied considerably in size and composition, but had certain connecting features. The networks had three main components; one, the personnel of the NCO's own unit provided important social support. Two, every NCO had networks related to their own specific task, and three, some NCOs had networks formed through various stages of their life that were still active and useful in their current job. The different ways in which the networks enable and support workplace learning are discussed. In addition, some methodological issues of social network analysis are addressed.

## 16. A Framework for the Analysis of Personal Learning Networks.

By Fair, Nicholas.

University of Southampton

*Keywords:* Personal Learning Networks, Networked learning, Pedagogy, Methodology

*Topics:* Methods, Research Design, Data and Analysis in Networked Learning, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

This paper reports on research to map and analyse Personal Learning Networks (PLNs). PLNs are the total preferred connections to the different people, technological devices, services, and information resources an individual uses for learning activities in all learning contexts. Drawing from Education, Web Science, Digital Sociology and Network Science, a Framework was developed which conceptualises PLNs as egocentric interaction networks involving a mode, purpose and endpoint. Quantitative survey data was collected as part of a FutureLearn MOOC and in real-time converted by a bespoke mapping and visualisation tool into an online PLN map. Analysis indicates that regardless of any contextual factors, individuals interact nearly three quarters of the time via digital devices, and just a quarter of the time face-to-face or non-digitally. One third of those interactions are with smartphones, most often for the purpose of gathering information from web searches. Individuals also interact more frequently with non-humans than they do with humans. PLNs of apparently diverse groups display a considerable homogeneity and there is evidence of a Network Lifecycle, with a critical period of PLN growth occurring during the age of 18-25.

17. Leadership and cooperation in Google Docs based group work – a video ethnographic examination of group work in a Danish upper secondary school.

By Olesen, Mogens.

University of Copenhagen

*Keywords:* Google Docs, Group work, Cooperative learning, Learning ecology, Affordance, Networked learning

*Topics:* Methods, Research Design, Data and Analysis in Networked Learning, Networked Learning Literacy and Agency, Philosophy and Educational Technology, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

This paper examines how Google Docs is used and affects group work in the classroom. Methodologically, the study applies video ethnography and focus group interviews with pupils in two first year classes at a Danish upper secondary school. Google Docs is a widely used digital tool at Danish upper secondary schools and has been associated with "considerable potential [...] to serve as a platform for collaborative work" (Chu & Kennedy, 2011). However, contrary to these assumptions this case revealed that actual written collaboration on Google Docs was minimal. Instead, in all the examined groups, a dominating leader was identified that dominated the groups' work and writing.

Theoretically, the paper takes inspiration from Networked Learning and its critical approach towards usage of digital technologies in education. This includes acknowledging that, increasingly, learning combines digital and non-digital forms, and that, generally, technology plays an active role in learning (Hodgson & McConnell, 2019; Fawns, 2018). Also, perspectives on affordances (Gibson, 1979; boyd, 2014), socio-material interactions (Sørensen, 2009), and leadership (Goffman, 1981) provide insights into the group work analysis.

Video ethnographic method enables a detailed analysis of the group members' oral as well as written interactions in Google Docs, thus paying "attention to the whole ecology" of the group work settings (Bhatt, de Roock & Adams, 2015). The aim is to analyse the socio-material interactions in the groups, specifically the interactions between the pupils and Google Docs. This includes 1) how the pupils use Google Docs in relation to their group work, including how they combine oral and written communication, 2) how different leadership roles emerge, and 3) how the hybrid learning spaces (Ellis & Goodyear, 2016) afforded by the material surroundings in the group work settings seem to promote or inhibit collaboration within the groups. In specific, the case discusses how Google Docs configures space in a way that seems to afford cooperation (i.e. divided work among the group members with each person responsible for solving a different portion of the problem) rather than collaboration (i.e. coordinated, synchronous work activity on a shared problem). The final part of the paper will touch upon some didactical implications of the findings in the study.

18. Nurturing creative confidence and learner empathy: designing for academic staff development.

By Gachago, Daniela; van Zyl, Izak; Morkel, Jolanda & Ivala, Eunice.

Cape Peninsula University of Technology

*Keywords:* design thinking, academic staff development, higher education, blended learning, South Africa

*Topics:* Learning at Scale, in the Wild, and across Boundaries, (In)formal, Professional and Open Lifelong Networked Learning, Theories, Methodologies, and Design for Networked Learning, Transfer and Transformation of Knowledge, Practice and Networked Learning

*Abstract:*

As a contemporary and boundary spanning approach, design thinking is gaining traction in higher education, but it has not yet been established in academic staff development. The aim of this study is to reflect on a recent staff development intervention on blended learning course design, aimed at promoting a 'design thinking mindset' among university lecturers. By analysing empirical data gathered through participant interactions, we discuss the implications and potential of design thinking for academic staff development. Data analysis shows an increased awareness of the complex and diverse student body, a recognition for interdisciplinary collaboration, mentoring and reflective thinking. Additionally, it is highlighted that adopting design thinking is not without challenges, which include the need for continued practice, securing departmental buy-in and upscaling initiatives. The findings emphasise the importance of creating a 'safe' space to experiment, modelling a designing-on-the-go approach, focusing on the iterative processes of (re)design, providing scaffolding for learning, making design thinking processes explicit, building a community of practice, regular feedback and maintaining the balance between playfulness and reflection. Success of such an intervention will rely on balancing the development of design thinking skills, a design thinking mindset and creative confidence.

## 19. Building a network for collaborative support in professional development.

By Håkansson Lindqvist, Marcia; Mozelius, Peter; Sundgren, Marcus; Jaldemark, Jimmy & Öhman, Peter.

Mid Sweden University

*Keywords:* Collaborative support, Networked learning, Professional development, Technology enhanced learning

*Topics:* Transfer and Transformation of Knowledge, Practice and Networked Learning

*Abstract:*

This paper aims to explore and describe important steps in creating beneficial conditions for networked learning in a project in organisations. In the inception phase of the project, four important steps were identified: creating a common virtual space, the handshake, the initial support and the mentorship. It is concluded that all the four described steps are important for a successful establishment of a networked community of practice.

## 20. Place-responsive principles of sustainable networked learning.

By Boyd, Sharon.

The University of Edinburgh

*Keywords:* Place-responsive, Sustainable education, Networked learning, Postdigital

*Topics:* Debates and Emerging Issues in Networked Learning (e.g. postdigital education, computational thinking, online activism), Learning on the Move; Places and Spaces for Networked Learning

*Abstract:*

This work builds on the work of Hodgson and McConnell by extending the principles of networked learning to incorporate aspects of place-responsive pedagogy and sustainable education. Place-responsive education is traditionally situated within the outdoor education field, and invites a deeper recognition of the interwoven nature of learning. It aligns with a postdigital perspective of networked learning, embracing the complex entanglement of learners, environment, technology and everything else. Sustainable education focuses on the creative, participative and reflexive processes which underpin transformative pedagogies, recognising the importance of collaboration and time. The goal is learning to live sustainably as part of the ecosystem.

This extension of the principles was undertaken in order to strengthen the recognition of place and place-knowledge as part of the postdigital network, to find a way to give voice to the non-human participants in the learning environment. It will also demonstrate how networked learning is a sustainable educational approach. I will start by outlining the place-responsive framework that will guide the review of the principles. This will be followed by an overview of sustainable education, explaining what role this plays in networked learning and the importance in developing future-proof skills. Next, the eight principles will be extended, building on the framework. Finally, a case example will illustrate how this can be applied in practice.

21. Am I building a bubble around me? A phenomenographic study exploring students' perceptions of online personalised filters and information literacy.

By McDermott-Dalton, Geraldine.

Athlone Institute of Technology & Lancaster University

*Keywords:* personalised filters, information literacy, phenomenography

*Topics:* Debates and Emerging Issues in Networked Learning (e.g. postdigital education, computational thinking, online activism), Networked Learning Literacy and Agency

*Abstract:*

For networked learning to be successful, students need good information literacy skills. These skills will enable them to move away from being "passive recipients of digitally distributed information" (Wiske, 2011) to become critical thinkers willing to challenge, discuss, collaborate and connect with other learners and teachers. This small-scale study uses phenomenography to investigate students' perceptions and experiences of personalised filters, which present a challenge for educators concerned with developing information literacy skills. Findings show that students are comfortable with filters to find basic information. However, for more complex ideas, students felt they needed to adopt sophisticated search strategies.

## 22. No Size Fits All: Design Considerations for Networked Professional Development in Higher Education.

By Gachago, Daniela; Pallitt, Nicola & Bali, Maha.

Cape Peninsula University of Technology, Rhodes University & The American University in Cairo

*Keywords:* online professional development, academic development, faculty development, online learning, blended learning, networked learning, learning design, instructional design, design considerations

*Topics:* Learning at Scale, in the Wild, and across Boundaries, (In)formal, Professional and Open Lifelong Networked Learning, Learning on the Move; Places and Spaces for Networked Learning, Theories, Methodologies, and Design for Networked Learning, Transfer and Transformation of Knowledge, Practice and Networked Learning

### *Abstract:*

This paper develops a framework for design considerations that can be used to analyse or design networked professional development (NPD) in higher education (HE) contexts. The model was developed after reflecting on three professional development (PD) courses, each with facilitators who are academic developers across the African continent. Using a collaborative autoethnographic methodology (Bali, Crawford, Jessen, Signorelli, Zamora, 2015), the three authors reflect on design considerations for different forms of blended and online PD courses, based on their experiences of designing and/or facilitating these interventions and with PD more broadly. We argue that design considerations, such as context, have become more complex and that understanding the dynamics between them are important. We suggest that course designs can be positioned along a range of dimensions, namely: open/closed, structured/unstructured, facilitated/unfacilitated, certified/uncertified, with/without date commitments, homogenous versus autonomous learning path, content vs process centric, serious vs playful and individual vs collaborative. Our design considerations framework is not meant to judge courses or provide a formula for how best to design them, but rather to highlight how courses can be understood on each of the dimensions we identify, and how design decisions place a course in particular positions along the spectrum, depending on context. We noted some relationships among dimensions and links to learning theories. We also identified various tensions that arise in the design of NPD, such as between academic developers' pedagogical advocacy vs. usefulness, the need to maintain volunteerism without exploitation of affective labour, and the struggle to create spaces for agency within institutional rules.

### 23. Online Learning from the Peers in Higher Education.

By Sihvonon, Mika.

Tampere University

*Keywords:* Online course, Peer learning, Higher education, Peer assessment

*Topics:* Theories, Methodologies, and Design for Networked Learning

*Abstract:*

The main reason for the research is to find out what factors affect the student's participation and engagement to peer learning in the university's online course. Today's higher education has a strong foothold in learning theories and pedagogical approaches that focus on collaborative learning, networking and working with peers. Now when digital technology and eLearning platforms have established their place in the infrastructure of educational institutions, we should have the keys to implementing modern education in practice. The hypothesis of the article suggests that we do not yet know how to exploit the capabilities of modern learning technology in a way that students can learn from their colleagues, peers. The practical objective of this article is to create information for planning online courses and organizing weekly tasks. The research data for this paper was drawn up from two different online implementations of the single university course. Students conducted a Moodle-based survey in which they were asked about the pedagogical approach and tools of the course. One aspect of the research is to increase the understanding of the students' opinions of peer activities in an online course. The theoretical background of the research is based on theories of active learning and learning communities. The research data are also reflected in the scientific literature on peer learning and peer assessment.

According to the results, students' opinions on peer learning are quite positive. Students are able to appreciate the learning opportunities offered by assignments and activities, which are open and visible to everyone during the course. Most of the students were not interested in peer assessment, but preferred feedback and grade produced by the teacher. Most of the students opposed the small group assignments of the online course. According to the data, students feared that their contribution was considered weak in the eyes of others in the course. The results of this document underline the need for further research into peer learning in higher education. Many strategies that utilize collaborative learning may be useful, but there are still questions about the individual needs, fears and motivation of peer learning. In addition, it would be important to find a way to strengthen mutual trust through online courses.

## 24. A design layer to support self and social regulation processes of learning in MOOC

By Garcia, Iolanda; Maina, Marcelo Fabián & Barberá, Elena.

Open University of Catalonia

*Topics:* Learning design, Learning regulation, Self-regulation, Co-regulation, Socially shared regulation, MOOC

*Keywords:*

Theories, Methodologies, and Design for Networked Learning

*Abstract:*

Open, social and networked approaches to learning pose challenges for learners, who must assume the role of actively directing their own learning, in interaction and collaboration with others, in an increasingly complex environment. In this context, concepts such as self-direction and self-regulation of learning have attracted renewed interest as umbrella terms for a skill set and provisions that allow subjects to independently guide their own learning process and assume responsibility for it.

Moreover, many authors have pointed out various problems regarding MOOC design and quality from a pedagogical perspective. This raises the need for a greater and more holistic understanding of learning regulatory processes and for developing models and instruments to support learners in this regard.

This research aims to analyse how to support learning regulation processes as a whole in MOOC environments. This means paying attention to both social and individual dimensions of regulation, by studying how processes of self-regulation, co-regulation and socially shared regulation can be supported and promoted in this type of learning contexts.

To this end, we apply the methodology of design-based research in order to intervene directly in the pedagogical practice through an iterative cycle based on stages of design, intervention, reflection and redesign of a design layer to support learning regulation in a MOOC. In this paper we present the design of the regulation support layer proposed in the first research iteration. We begin by presenting its theoretical foundations and then describe the support layer that has been designed as well as the empirical case of an xMOOC where it has been implemented. Finally, some conclusions and recommendations for the design and practice of learning regulation in MOOC are drawn from the results obtained in the first research iteration.

25. Phenomenology and Networked Learning: mobilage glimpsed from the inside through an online focus group.

By Johnson, Mike

Cardiff University

*Topics:* M-learning, phenomenology, online focus group, methodology, networked learning, experience sampling method

*Keywords:* Learning on the Move; Places and Spaces for Networked Learning, Methods, Research Design, Data and Analysis in Networked Learning, Philosophy and Educational Technology, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

This paper arises from doctoral studies which adopted a multi-methods design which aimed to disclose being healthcare students using a mobile phone for academic work: the student and mobile phone, i.e. mobilage, was the unit of analysis. This paper picks up on a long-term but sparse conversation about the use of phenomenology to investigate networked learning. Reasons for the paucity of work in this area are explored, including the nature of questions that phenomenology seeks to engage: to unveil and convey pre-reflective human consciousness. I seek to supplement this gap, as I see it, in the literature by contrasting two arms of my thesis project: one relied on ten in-person encounters with informants and another an online focus group designed to gather information from within the informant's lifeworld. These two methods frame a discussion of the merits, weaknesses and fidelity of my approach to gathering data pursuant to hermeneutic phenomenology, i.e. considering the difference between methods where the researcher is or is not in the informant's immediate co-presence. Gadamer's horizon fusion metaphor is arguably easier to conceive of with informant and researcher co-located, where the setting and conversation is informal, perhaps typical of everyday mobile phone use. Ten such encounters were undertaken and analysed through repeated listening to audio recordings and phenomenological writing. In contrast, the online focus group lasted for three months with seven informants who never met physically. Informed by experience sampling methods, weekly trigger messages were posted for the group to respond to, ideally in situ.

Acknowledging that all data is mediated in need of interpretation, the paper reflects on the possible effects of data gathering at varying levels of temporal and interpretive proximity, or 'hermeneutic shades', between the researcher and the phenomena carried within data gathered, helping to condition what weight to afford information from different media. Van Manen's analytical method and goal of writing vocative anecdotes to convey aspects of the essence of a lived experience is considered against examples of direct accounts from the online focus group, one of which, it is argued, fulfils his criteria for phenomenological anecdotes. It is proposed that this demonstrates the potential worth of an online medium to not only supply data for phenomenological writing but arguably even represent phenomena without passing through the hermeneutic/analytical writing process.

26. Disciplinary digital capabilities of professionals: networked learning in engineering and management.

By Varga-Atkins, Tünde.

University of Liverpool

*Topics:* Digital capabilities, digital literacies, disciplines, signature pedagogies, curriculum design, professionals, engineering, management

*Keywords:* Theories, Methodologies, and Design for Networked Learning

*Abstract:*

This paper is concerned with the digital practices of professionals, and the ways in which educators can support higher education (HE) students with successfully transitioning into professional life by developing relevant digital capabilities according to their disciplines. Digital capabilities have received significant attention in recent years, with various attempts made to develop digital frameworks to support curriculum design in HE. However, few studies have articulated these generic capabilities in terms of specific disciplines. This paper addresses the gap of disciplinary conceptualisations of digital capabilities by exploring how they are planned in HE curricula in two professional disciplines, engineering and management. Originality of the study is achieved in part through a conceptual framework that weaves together Shulman's notion of signature pedagogies with JISC's Digital Capability Framework (DigiCap). The study employed a multiple-case study methodology with each discipline as a case, and four undergraduate/postgraduate modules as the units of analysis, drawing on documentary sources, and academic, professional and student perspectives via interviews and focus groups. The research design section presents a practical manifestation of this conceptual framework in the form interview questions, which is one main outcome of this study. The study offers insight into the digital capabilities in engineering and management education, as well as the digital practices of engineers and managers. Findings report on which digital capability elements are prioritised, and how, in the two professions, followed by a discussion of their most distinct, 'signature digital capabilities'. These indicate that the development of digital capabilities is aligned with the respective discipline's signature pedagogies. In engineering, digital problem-solving and collaboration/communication, followed by data and information literacy, appear to be most prominent. In management, data and information literacy overlap with problem-solving, and, together with digital content communication, form its prominent digital capabilities. The study also identifies management's overarching signature digital capability. The paper argues that simply just using a descriptive, typological framework (e.g. DigiCap) is not sufficient to identify signature digital capabilities of a subject without tending to their disciplinary aspects. It is the combination of a typological digital capability framework through the lens of signature pedagogies, which can be effective in identifying disciplinary digital capabilities.

## 27. Development of a Design Matrix for ICT-based Boundary Crossing in Dual VET.

By Riis, Marianne; Rasmussen, Carsten Lund & Brodersen, Anna.

University College Absalon & Copenhagen University College

*Topics:* VET, boundary crossing, boundary objects, ICT, Educational Design Research

*Keywords:* Transfer and Transformation of Knowledge, Practice and Networked Learning

*Abstract:*

Research on networked learning is concerned with finding new and productive ways of connecting people and their practice across boundaries in different contexts. Particularly in dual Vocational Education and Training (VET), there is a need to focus continuously on learning in and between boundaries of domains, practices and the school-workplace contexts. Information and Communications Technologies (ICTs) have been proposed as artefacts that enable mediation and bridge the gap between different boundaries.

In this paper, we present findings from a research project aimed at understanding Danish VET teachers' use of ICT as boundary objects in relation to boundary crossing activities. In the first phase of the research project, interviewed VET teachers pointed to the need for new materials directed at the planning stage in their work with design for boundary crossing. As part of the research project a design framework, including design principles and a design matrix that focuses on boundary crossing mediated by ICT-based boundary objects, was developed and tested. While the research project has been designed as a multiple case study, the development and testing of the design matrix has been inspired by Educational Design Research (McKenny & Reeves, 2013). Theoretically, the research project is founded on a sociocultural perspective with research on boundary work, boundary crossing and boundary objects (Akkerman & Bakker, 2012, 2011a, 2011b) and research on mediating artifacts (Henningsen & Mogensen, 2013) as the backdrop. By way of combining four dialogical boundary crossing activities (identification, coordination, reflection and transformation) with four main affordances (documentation, simulation, construction and interaction) of the ICT-based boundary objects, the design matrix was developed and tested in three iterations.

Selected findings show that the participating Danish VET teachers do not fully realize the potentials of using ICT-based boundary objects in their boundary work. Our data show that the VET teachers designed ICT-mediated activities aimed at boundary crossing through identification, coordination and reflection, whereas data point to no activities directed towards transformation. In terms of ICT-based boundary objects, the VET teachers were mainly focused on ICTs that afford documentation with sparse focus on construction and interaction. In the conclusion we point to possible explanations as to why the VET teachers' use of ICT in boundary work is relatively limited and finally, we suggest further research.

## 29. Global learning through the lens of criminal justice.

By Ramson, Amy.

Hostos Community College

*Topics:* Collaborative Online International Learning, global knowledge competencies, comparative criminal justice, employment skills for community college students

*Keywords:* Transfer and Transformation of Knowledge, Practice and Networked Learning

### *Abstract:*

My research involves piloting a networked learning pedagogy, Collaborative Online International Learning (COIL), in an introductory criminal justice course at an urban U.S. community college. COIL involves the collaboration of professors from universities in different countries in creating assignments and projects, which their students collaboratively undertake. The networked learning values that are manifest in COIL are collaboration, group work, discussion, student ownership of learning, and navigating difference. I am partnering with a professor teaching an international criminal justice course at a university in The Hague. Through three assignments, we aim to develop student global learning competencies and increase student awareness of the existence of different criminal justice systems in the world. We are exploring certain aspects of global learning, including global self-awareness, perspective-taking and understanding cultural diversity. The students use "WhatsApp" and Skype technology to collaborate and the technology used to showcase the student work is Padlet, an online virtual bulletin board designed for students and teachers to collaborate and reflect and share videos, photographs, and written material. I will conduct assessment of my students' development of global knowledge and cognizance of diverse criminal justice systems using a qualitative methodology, administering pre and post-COIL reflective surveys. Data collected in the pre-COIL survey will be compared with the post-COIL survey and analysed using the American Association of Colleges and Universities' Value Rubric for Global Learning. The pre-COIL questions are designed to explore student expectations of the COIL assignments and collaboration with peers in a university class outside of the United States; and student awareness of differences in how criminal matters are handled and judges in other countries. Student responses will establish the foundation upon which to assess growth and transformation over the course of the semester for the students themselves and the professor. The post-COIL questions are designed to facilitate reflection of discoveries that students make about themselves and about the students abroad and the influence of cultural background on their interaction. Additional questions aim to explore differences and similarities in how students in the U.S. and abroad define justice and how it is applied in different jurisdictions.

### 30. Educational materials as collaborative design space?

By Bülow, Morten Winther & Nørgård, Rikke Toft.

Aarhus University

*Topics:* collaborative design, teacher collaboration, cocreated materials

*Keywords:* Methods, Research Design, Data and Analysis in Networked Learning, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

The study presented constitutes the first step in a research project aiming at gaining more insight into the processes of creating educational materials through collaborative design space. Additionally, it focuses on the possibilities of and challenges involved in creating valuable and meaningful educational materials drawing on teachers' remix practices. The purpose is to inquire into how teachers' collaborative interaction with educational tools may inform ongoing improvement of the courses and materials, which may be included in design of contextualized learning paths.

Taking existing theories and knowledge as a starting point, we designed a triangulated methodology using a combination of questionnaires, interviews and user behaviour data focusing on the use of the CourseBuilder as a collaborative space. The article centres on the possibilities and barriers of developing a collaborative design space that enable (re)design of digital educational materials, taking into account teachers' interest in: 1) designing their own teaching materials, 2) working professionally with the redesign and remixing of materials from many different sources, and 3) adapting them to the many contexts in which materials of this type are included.

This article should be seen as a first step towards a deeper understanding of opportunities and challenges within teachers' cooperation on designing, sharing, redesigning and resharing teaching materials. It shows that there is a high degree of acceptance of digital teaching materials among teachers of upper secondary schools in Denmark. Also, there seems to be a collaborative culture, where the majority of teachers indicate that they already collaborate professionally on course planning and see advantages connected with these practises.

In prior research, several factors promoting adoption of virtual collaboration are mentioned such as teachers' digital skills, professional development through courses, allocated time and integration of tools that allow teachers to enter into re-design networks with colleagues. At all the institutions participating in our study, there is a supportive environment regarding the use of CourseBuilder. However, several factors were identified that indicated that CourseBuilder is not the ideal version of a design collaborator. Although the necessary factors for a successful collaborative environment are present, somehow there seems to be a missing link in the fulfilment of CourseBuilder as collaborative design space. Overall, there are collaborative supportive environments at the specific institutions - but the productive remix practices are not facilitated by CourseBuilder, despite design intentions and layout.

### 31. Supporting knowledge transformation with Teams-mediated networked learning.

By Bonderup Dohn, Nina; Nielsen, Maja Louise & Hansen, Stig Børsen.

University of Southern Denmark

*Topics:* transfer, knowledge transformation, Microsoft Teams, design principles, networked learning

*Keywords:* Theories, Methodologies, and Design for Networked Learning, Transfer and Transformation of Knowledge, Practice and Networked Learning

#### *Abstract:*

Transfer between school and education - and more generally between persons' life practices - is a recurring issue within educational research. On the one hand, very generally speaking, the possibility of transfer is a prime rationale of the educational system - students are supposed to learn within education "something" which they can then use later in other contexts. On the other hand, theoretical and empirical research combine to question transfer both as a concept and as an empirically occurring phenomenon. This short paper reports on an ongoing Design-Based Research project with educators at Business School. The outset for the project is the combination of a practice problem, experienced at Business School, and the present authors' research interest in developing theoretically sound, operationalizable design principles to support students in learning to perform transfer and knowledge transformation. The practice problem at Business School concerned the limited degree to which students (in their educators' experience) make use of their learning at school in their internship practice. The Design-Based Research project concerns the development and evaluation of design principles focusing on networked learning in mediator activities to facilitate students in performing transfer between school and internship. Microsoft Teams has been chosen by Business School as the ICT platform to support the networked learning activities. We are inspired by a moderate situated learning approach to transfer which emphasizes the role of framing, the sense-making of the individual, the significance of anchorage of activities in primary contexts and of developed patterns of participation, as well as the thesis that context-dependency is itself context-dependent. Informed by this approach in combination with insights from networked learning research, we have formulated three design principles together with the educators at Business School. The design principles address the practice problem identified by Business School educators and take into account the aims of the educators as well as results from a pilot study. Through the Design-Based Research study the following research question and sub-questions are investigated: How can Teams-mediated networked learning support students at Business School in transfer and transforming knowledge between school and internship? What are design principles for Teams-mediated networked learning to support knowledge transformation? What knowledge transfers and how does it transform in Teams-mediated networked learning for Business School students traversing between school and internship?

## 32. The blockchain university: disrupting 'disruption'?

By Jandrić, Petar & Hayes, Sarah.

Polytechnic of Zagreb & University of Wolverhampton

*Topics:* disruption, education, networked learning, platform, blockchain, ideology, trust

*Keywords:* Debates and Emerging Issues in Networked Learning (e.g. postdigital education, computational thinking, online activism)

### *Abstract:*

This paper explores the promise of disruption of higher education offered by latest platform technologies - a combination of mobile applications for connecting teachers and students and blockchain technology for secure transactions of information and money. We start with a brief examination of several generations of technological disruptions arriving from the Silicon Valley with a special focus to educational technology. Showing that these disruptions are primarily focused to furthering capitalist mode of production, we question whether the latest disruption could provide different results. We briefly examine a historical (utopian) attempt at disrupting education described in Ivan Illich's book *Deschooling Society* (1971). While this analysis firmly belongs into the past, it presents us with important insights about connections between education, technology, capitalism and the environment which are just as relevant today. We proceed with an analysis of the world's first blockchain university - the Woolf University. Advertised as 'Uber for students, Airbnb for teachers', the Woolf University offers the seductive promise of radical transformation of higher education based on cooperative principles. We examine blockchain technology in detail and identify its main novelty - the transfer of trust from people to technologies. We briefly question this transfer, leaving a more detailed analysis for further research. Instead we focus to ideological underpinnings of the blockchain university, as they reflect to teaching, learning, and university administration. We show that further analyses of the blockchain university will be best supported by adopting a networked learning perspective and especially its wide body of knowledge about various (learning) connections. The Woolf University has not even admitted its first cohort of students, and the question remains as to whether Woolf will now adopt the blockchain in such a manner as to radically disrupt 'disruption', or it will simply blend into the existing powerful political, educational and economic structures. Our analysis, which is therefore based on early ideas about the development of the Woolf University, indicates that it has the potentials to offer cooperative learning to students, cooperative employment to academic workers, all the while retaining highest quality of teaching and learning modelled after ancient scholastic principles. On that basis, we conclude that the Woolf University, together with other adaptations of blockchain technology for educational purposes, does offer a lot of potential for fundamental disruption of higher education and should be closely watched in the times to come.

### 33. Learning in the Wild: Exploring the Practice of Learning in Open, Online Forums.

By Haythornthwaite, Caroline & Gruzd, Anatoliy.

Syracuse University & Ryerson University

*Topics:* informal learning, online learning, Q&A sites, open online forums, networked learning

*Keywords:* Transfer and Transformation of Knowledge, Practice and Networked Learning

*Abstract:*

The Internet provides many opportunities for learning from static resources to conversational spaces for questions, answers, commentary and exploration of topics of interest to participants, whether organized as Q&A sites such as Reddit, hashtag communities on Twitter, or knowledge-sharing sites such as Stack Overflow. Yet, there is limited research on how learning is happening in these spaces. This paper reviews literature and studies about learning in open, online forums to begin to synthesize what is known so far, and to set a research agenda addressing the question: How do people learn in open, online forums? The review builds on work by the author and colleagues, exploring what we refer to as 'learning in the wild' (in recognition of Hutchins' "Cognition in the Wild", and to reflect the 'wilds' of online forums such as Reddit). The increasing use and reach of these sites raises questions not only about what is being learned and what motivates participation in such sites, but also what kind of organization and learning practices are emerging. While it may be thought that such learning, taking place outside the bounds of institutional settings, is informal learning, the research suggests a more complicated picture, dependent on conversation, networks, membership in communities, and community practices, needing to be addressed by drawing on multiple disciplinary perspectives.

### 34. Situated Readiness and Transformation of Learning Across Situations and Settings.

By Hachmann, Roland.

University College South Denmark

*Topics:* Networked Learning, Transfer, Transformation of knowledge, Situated Learning, Teacher Education, Agency, Learning opportunities, Transitioning between work and school

*Keywords:* Theories, Methodologies, and Design for Networked Learning

*Abstract:*

This short paper introduces the concept of Situated Readiness as a set of skills and dispositions required to participate meaningfully across settings and situations, seeing them as networked and intertwined. Following earlier work within the field, networked learning is here understood as learners' connecting of contexts in which they participate, and as their resituation of knowledge and ways of acting across these contexts (Dohn, 2014). The development of the concept of Situated Readiness is based on a conducted study using a Design-Based Research (DBR) approach to investigate, how student teachers at a Danish Teacher Education Program (TEP) transformed knowledge and ways of participation when transitioning between a course and a public-school class. The findings of the study indicate the needs of socio-epistemic skills and dispositions that enable students to resituate, utilise and transform knowledge from known social contexts to new ones e.g. from a learning situation at the TEP to novel situations in school. Situated Readiness is, in this sense, the ability to attune to the specific social and epistemic requirements and demands, also termed "requirement characteristics", pertaining in these new contexts. To aid the analysis of the skills needed to engage in networked situations, an analytical framework of context levels is presented. The framework points out how requirement characteristics at three interacting levels are posed on the learner. The three levels: 1) the life-setting, 2) the activity-internal level and 3) the domain-internal level form a complex whole and as a learner acting competently in a situation, consists of the ability to respond accordingly to this complex whole. The findings of the DBR study points at challenges towards students' transformation of knowledge between the two settings, suggesting that the development of Situated Readiness on the learners behalf requires educators to design for learning opportunities, that take into account, how settings and situations are networked and that students are given opportunities and support to recognise these temporally connections as part of their learning trajectories. The lack of explicit articulation of the sameness and differences between the setting leaves the students to realize and attune to these by themselves, which the study shows, is a major challenge to students, who have limited experiences with teaching in practice.

35. Teacher Reflection on their Agency for Change (TRAC) - A tool for school-based social network learning.

By Nataša Pantić.

The University of Edinburgh

*Topics:* Teacher Agency, Social Network Analysis, Epistemic Network Analysis, School-based Learning Communities, Professional Development, Network Learning

*Keywords:* Methods, Research Design, Data and Analysis in Networked Learning, Networked Learning Literacy and Agency, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

This short paper introduces an on-line log for Teachers' Reflection on their Agency for Change (TRAC) designed to collect data and provide automatic visual feedback on teachers' social networks. The TRAC tool was developed within a research project 'Making SENSE of Teacher Agency for Change with Social and Epistemic Network Analysis'. The project aimed to understand how teachers exercise a form of relational agency defined as a capacity to work purposefully with others within and beyond schools, to support all learners, especially those at risk of exclusion, underachievement or other forms of marginalisation. Teachers' reaching out to others and mobilising their social networks is an essential part of such agency. The study used Social and Epistemic Network Analysis to examine simultaneously the structural properties of teachers' social networks and the nature of content that flows through them. It also provided network visualisations and feedback to facilitate teachers' professional reflection on how they use their relational agency to build inclusive school communities. The aim was to support teachers' professional development by raising awareness about their individual and school network properties and nature of interactions within these networks. Part of the project was the development of the TRAC software that enabled teachers who engaged with a web-based reflective log to receive automatic feedback on their individual networks, as well as on thematic school networks, which were presented by the researchers in school development sessions. Network awareness – one's knowledge of the resources embedded in their social ties – empowers teachers to improve the social environments of their schools. Provided alongside with the summary of research-based features of social network properties (degrees, diversity and intensity of ties), network feedback was used to facilitate professional and school development towards building inclusive communities. During the project, the TRAC tool was tested in partnerships with teachers and other staff in two schools in Stockholm. The project also had a knowledge exchange component to support relational and collaborative learning resulting from engagement with the network feedback. Network feedback based on the data from these sites was used to make adjustments to the prototype feedback tool. This short paper discusses the implications for future uses with a view towards rolling out research-informed professional reflection to larger numbers of schools and teachers anywhere, through dissemination in network learning community.

### 36. Citizen science and interdisciplinary working.

By Scanlon, Eileen & Papathoma, Tina.

The Open University

*Topics:* Citizen science, Informal learning, Interdisciplinarity

*Keywords:* Learning at Scale, in the Wild, and across Boundaries, (In)formal, Professional and Open Lifelong Networked Learning, Learning on the Move; Places and Spaces for Networked Learning

*Abstract:*

Citizen science is a growing trend in involving the public in different types of collaboration with scientists. The growth of this activity has consequences for data collection, data analysis and the way in which science is carried out. It also has a potential impact on what, and how, citizen scientists learn about science when engaged in such activities. The purpose of this research is to explore the practices adopted by participants in citizen science projects, and in particular the influence on learning for the participants in these projects which rely on technology to support collaboration.

The growth of citizen science projects is occurring at the same time as a growth of interest in informal learning and both are supported by technology enhanced learning

To make best use of the rapidly growing area of citizen science in the development of learning, it needs to be studied as a newly developing interdisciplinary area, with the consequence of unravelling the mechanisms by which interdisciplinary collaboration takes place in these settings, and the identification of conditions which encourage or thwart learning.

### 37. Openness: Student perceptions.

By Harrison, Michelle.

Thompson Rivers University

*Topics:* Open educational practices (OEP), student perceptions, open participatory technologies

*Keywords:* Learning on the Move; Places and Spaces for Networked Learning, Theories, Methodologies, and Design for Networked Learning

#### *Abstract:*

This short paper describes a research project which aims at investigating how students conceive and use open educational practices (OEP). Over the past decade, the definition of OEP that was initially grounded in the development of open educational resources (OER) has evolved to consider how openness can be used to transform the teaching and learning landscape to become more equitable, accessible and transparent. A recent definition by Cronin (2017) emphasizes collaboration, participation and learner empowerment to encompass "collaborative practices that include the creation, use, and reuse of OER, as well as pedagogical practices employing participatory technologies and social networks for interaction, peer-learning, knowledge creation, and empowerment of learners" (2017, p. 4). Researchers and educators alike have considered the role of open pedagogies in more effectively engaging learners in the co-creation of knowledge, critically considering how digital practices and open platforms can be used in practice.

Early research on OEP focused on adoption and development of OER (Cronin & MacLaren, 2018), but has recently shifted to student perceptions of impact (Jhangiani, Dastur, Le Grand, & Penner, 2018, Lin, 2019) and improved student learning and empowerment (Hodgkinson-Williams & Trotter, 2018). However, there are gaps in our understanding of learner experiences in other dimensions of openness, such as negotiating identity, privacy, visibility, literacy and the co-construction of knowledge. In addition, OEP research into the incorporation and implementation of open platforms and tools with open educational practices is lacking. As educators we need to consider how the structures of these spaces will influence the open teaching practices we are using, both in how they may make our spaces permeable, and in how they might make them more impenetrable.

The focus of this project will be on students' perceptions of openness in education, exploring their identities as open educational practitioners and how they negotiate their open educational spaces. Participants will be situated in an online graduate program (including multiple courses) designed around open educational practices, including open platforms and open educational resources, and endeavouring to include learners in critical digital pedagogical practices. To explore learner practices, the following research questions will be explored using a virtual ethnographic case (Hine, 2008):

- What are learners' understanding of open educational practice? How do they see themselves navigating open platforms, open digital pedagogies and practices and critical digital perspectives?
- What practices, values and/or strategies are shared by learners who are working within an open educational practice framework?

38. Students' views of a networked practice inquiry course: energising and challenging higher education teaching.

By Cutajar, Maria.

University of Malta

*Topics:* student experience, networked learning, inquiry-based learning, qualitative research, higher education

*Keywords:* Methods, Research Design, Data and Analysis in Networked Learning

*Abstract:*

In the higher education sector both networked learning and inquiry-based learning are signalled as flexible pedagogical approaches which support and encourage the development of skills, competences and qualities expected of "21st century" learning. Whereas networked learning distinctively attends to connectedness enhanced and mediated by technologies for the creation of learning networks and socio-material assemblages, inquiry-based learning distinctively brings together teaching and researching encouraging students' learning engagement and development. A networked practice inquiry approach was envisaged as helpful to encourage postgraduate students to engage for learning on and with digital technologies and inspire professional practice development. Past the course experience an interpretative study was taken up in an attempt to obtain an initial picture of the student perspective of this course approach.

This paper shares a preliminary qualitative picture describing students' viewpoint of the networked practice inquiry learning experience. It is a first glimpse into technology enhanced and mediated learning experience of the postgraduate student in Malta. These preliminary findings suggest that students are forward looking. Students demand and celebrate innovative digital tools and practices in and for learning, especially when these are seen accommodating them and resonating to their wider life and work practice experiences. They are generally enthused to assume explorative and inquiry attitudes into life and work practices for learning and practice development. They are also into connectedness for learning but on their own terms. This is a threefold appeal coming from mature students regarding their higher education course experience which, in a local context of fast developing socio-technological change, is simultaneously energising and challenging. Considering that in the local context there is currently a lot of work going on the political and executive tables to see artificial intelligence and immersive technologies compellingly transforming mainstream societal sectors including education, in the local higher education scene we urgently need to make a start for making the course experience the first port of call where one has the "an opportunity to think and dream" as one of the research participants put it; constructively and critically laying down our future and that of the generations to come.

### 39. Anticipating the near future of teaching.

By Bayne, Sian & Gallagher, Michael.

The University of Edinburgh

*Topics:* Future, anticipation, digital education, values, methodology, institutional strategy

*Keywords:* Debates and Emerging Issues in Networked Learning (e.g. postdigital education, computational thinking, online activism), Methods, Research Design, Data and Analysis in Networked Learning, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

The ways in which digital and networked higher education futures are imagined are rarely built around the values of universities, students and staff. Too often they are projected according to the values of 'ed-tech' industry and aligned policy discourses in which technological determinism, the interests of profit and the instrumentalisation of higher education are taken for granted as the inevitable drivers of change. This paper describes a methodology designed to enable universities to define and 'own' their own digital future, and to base it in the values of their communities. Such future visioning can be used as the basis for institutional strategy and planning, enabling us to advocate for resource and institutional policy change from a collectively-defined position. Equally importantly, it can be used to push back on other kinds of 'inevitable' futures described for us by agencies whose values are radically different. The paper describes the methods developed at the University of Edinburgh to achieve this future vision. It details the process we devised for defining a set of shared values and how we defined a preferred future for our own university. For the future of digital and networked education to be one that works in the interests of faculty and students, we argue that universities need to develop new, creative and values-based ways to envision and build it.

#### 40. Enactivism and Digital Learning Platforms.

By Pischetola, Magda & Dirckinck-Holmfeld, Lone.

Pontifical Catholic University of Rio de Janeiro & Aalborg University

*Topics:* Enactivism, Digital Learning Platforms, Teachers, Future workshop

*Keywords:* Debates and Emerging Issues in Networked Learning (e.g. postdigital education, computational thinking, online activism), Methods, Research Design, Data and Analysis in Networked Learning, Philosophy and Educational Technology, Theories, Methodologies, and Design for Networked Learning, Transfer and Transformation of Knowledge, Practice and Networked Learning

*Abstract:*

Within the field of education, the concept of active learning building on constructivism has emerged as a dominant framework of the past three decades. This perspective is critical to the objectivist idea that knowledge is something static, as an object to be acquired from the external world. Instead, it states that the learner is responsible for the knowledge construction, and therefore shall become autonomous towards this goal. From an epistemological point of view, despite the important shift of assumptions that this viewpoint has brought to education, constructivism still presents some shortcomings in terms of a change of the instructional paradigm. This paper takes a step forward and explores enactivism, as an alternative philosophical and educational worldview. It presents a theoretical discussion of the enactivist perspective and its differences from objectivism and constructivism. Enactivism proposes a more radical alternative to dualistic and objective approach, as it focuses on the intertwined and multiple interactions between mind, body and the environment. The two main perspectives of enactivism, which we grouped into the categories of "embodied cognition" and "situated cognition", are present in the field of education. The paper relates them to the two core concepts of reflection and intentionality. Drawing on these theoretical considerations, the paper applies the framework of enaction to a fieldwork research in a Danish school discussing how this concept may provide some new lenses to understand the potential of participatory approaches to the implementation of a digital learning platform. The intervention was organised through two workshops. The first workshop use the technique of the future workshop (Jung & Müller, 1984), which includes a critique phase and a fantasy phase. The second workshop (14 days later) was a design-workshop. This intervention is an example of how to understand enactive modelling, considering the relations between the participants and the environment as a dynamic and emerging relation of autonomy-dependency, a symbiosis. The analysis shows that the implementation takes place into an ecological living system made up of humans, non-humans, things, and societal entities. For the teachers (and more general the humans) to possibly accept, appropriate, act and re-enact such a learning infrastructure, it is of great importance to establish spaces for reflections, which e.g. a future workshop provides, and to support and facilitate (alternative) enactments of some of the more hidden affordances of the digital learning platform.

41. The ties that bind us as a community: a qualitative reflection on the networked learning research.

By Öztok, Murat.

Lancaster University

*Topics:* Networked Learning Community, Networked Learning Research, Networked Learning Literature

*Keywords:* Networked Learning Literacy and Agency, Situating Networked Learning Historically, Systematically, Conceptually etc.

*Abstract:*

This manuscript was concerned with the extent to which the definition of the networked learning is manifest in the networked learning research. To this end, it explored how the definition is utilised in the design and application of the research. Technology (mediation and/or facilitation), connections (interactions), and network (community and/or context) were the three categories I explored the networked learning research. While the definition of the networked learning is open-ended in nature, the findings show that the networked learning researchers have enough commonality in their approach to the networked learning.

## 42. Scaling engagement in MOOCs 4D: Redress for Bloom's 2-sigma challenge.

By Cleveland-Innes, Martha; Ostashewski, Nathaniel & Wilton, Daniel.

Athabasca University

*Topics:* Online learning design, MOOC design, social learning, scaled learning, community of inquiry

*Keywords:* Learning at Scale, in the Wild, and across Boundaries, (In)formal, Professional and Open Lifelong Networked Learning, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

This short paper and presentation reviews a design implementation for scaled inquiry-based learning. A MOOC design resting on the community of inquiry theoretical framework and the historical work of Bloom and Wahlberg was tested in a large, open, online course. Over multiple implementations, results indicate higher engagement and completion rates beyond what normally occurs in MOOCs. These results may be attributed to enhanced opportunities for engagement. Beyond a test of MOOC design, this design is in reference the needs of education broadly. The iron triangle of education requires the adequate combination of cost-effectiveness or affordability, accessibility, and quality. Difficult to offer in combination, this is particularly difficult when learning opportunities are scaled to networks of learners. As one example of networked learning, this MOOC design offers suggestions for high engagement in technology-enabled learning for large groups of learners.

### 43. Hybridity, Transparency, Structured Freedom and Flipped Engagement – an Example of Networked Learning Pedagogy.

By Ryberg, Thomas; Thyrrer Sørensen, Mia; Brogaard Bertel, Lykke; Davidsen, Jacob & Konnerup, Ulla.

Aalborg University

*Topics:* Hybridity, Transparency, Structured freedom, Flipped engagement, Epistemic practice

*Keywords:* Debates and Emerging Issues in Networked Learning (e.g. postdigital education, computational thinking, online activism), Theories, Methodologies, and Design for Networked Learning

*Abstract:*

In this paper, we contribute to current discussions of what constitutes the field of networked learning as a research domain and what makes networked learning particularly relevant and distinct within the broader landscape of digital technology in higher education. We enter this dialogue through discussing and reflecting on a hybrid learning design for a 10-ECTS module that builds on a Networked Learning Pedagogy. The purpose of our discussions is to elicit tensions and contradictions that surface when students are confronted with a networked learning pedagogy. We discuss the module in relation to ideas of networked learning pedagogy, present four pedagogical principles underpinning the module, and we draw out interesting tensions and contradictions that have emerged. Following this, we use the discussions to feed into the ongoing dialogue of 'what is networked learning', and we discuss how networked learning can contribute to practice and policy in higher education through developing practice.

44. Affordance of a learning application for supporting student's development of academic literacy.

By Hansen, Jens Jørgen.

University of Southern Denmark

*Topics:* Learning application, Technology Enhanced Learning, Affordance, Activity Theory, Academic Literacy

*Keywords:* Methods, Research Design, Data and Analysis in Networked Learning, Networked Learning Literacy and Agency

*Abstract:*

This paper takes as its starting point the problem area that deals with how students at university can develop academic literacy. One of the methods is through learning technology. This paper examines what affordance a new developed learning technology - the study app - has for developing student learning technology. The RQ is: what are the affordances of a learning application and its integrated design of learning tools in order to support student's development of academic literacy? The study app is an example of technology enhances learning, where technology supports operational improvement in teaching and learning because students with the study app can experience a ubiquitous learning environment, designed on basis of user studies that are designed to be integrated in student's everyday life. The question is whether a learning technology also supports the student's activity oriented toward developing study competences and becoming more academic literate?

The background for this research is a project of development and designing an ICT based learning application for supporting student's development of study skills. The project is supported by the Faculty of Humanities at University of Southern Denmark and is organized in a project group related to department of Design and Communication. The purpose of the learning application is that it: 1) shall supports students in developing and enhancing study skills, 2) that it is relevant and motivating for users to use, 3) that it a new proposal in relation to existing solutions.

The study is based on Leontiev's theory of activity and its three levels - activities, actions and operations - which provide a systematic insight into the interaction of learners with a learning technology in order to develop their study skills. The paper examines here various learning contexts that are defined as central to study skills and which learning technology seeks to support: a general study competence, a concrete study competence and a link between study and future work. Furthermore, the learning theory on which learning technologies are designed is also examined. The paper concludes with a discussion of technology enhanced learning and which type of enhancement of learning that can be supported by learning technology.

46. A more-than-human approach to researching AI at work: Alternative narratives for AI and networked learning.

By Thompson, Terrie-Lynn & Graham, Bruce.

University of Stirling

*Topics:* artificial intelligence, professional learning, professional work, ethics of technology, public understanding of technologies

*Keywords:* Debates and Emerging Issues in Networked Learning (e.g. postdigital education, computational thinking, online activism), Learning at Scale, in the Wild, and across Boundaries, (In)formal, Professional and Open Lifelong Networked Learning, Philosophy and Educational Technology, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

Artificial intelligence (AI) is increasingly manifest in everyday work, learning, and living. Reports attempting to gauge public perception suggest that amidst exaggerated expectations and fears about AI, citizens are sceptical and lack understanding of what AI is and does (Archer et al., 2018). Professional workers practice at the intersection of such public perceptions, the AI industry, and regulatory frameworks. Yet, there is limited understanding of the day-to-day interactions and predicaments between workers, AI systems, and the publics they serve. This includes how these interactions and predicaments generate opportunities for learning and highlight new digital fluencies needed. We bring social and computing science perspectives to begin to examine the prevailing AI narratives in professional work and learning practices. Some AIs (such as deep machine learning systems) are so sophisticated that a human-understandable explanation of how it works may not be possible. This raises questions about what professional practitioners are able to know about the AI systems they use: their new digital co-workers. We argue that a co-constitutive human-AI perspective could provide useful insights on questions such as: (1) How is professional expertise and judgment re-distributed as workers negotiate and learn with AI systems? (2) What trust and confidence in new AI-infused work practices is needed or possible and how is this mediated? (3) What are the implications for professional learning: both learning within work and the workplace and more formal curriculum? Given the early stages of this field of inquiry, our aim is to evoke discussion of alternative human-AI narratives suited for the messy—and often unseen—realities of everyday practices.

Symposium: Methodological considerations for research on networked learning.

By Lindberg, J. Ola; Lundin, Johan; Arkenback, Charlotte; Gunnars, Fabian; Mörtzell, Sara; Parfa Koskinen, Katarina; Schnaider, Karoline & Siljebo, Josef.

Umeå University, Gothenburg University, Mid Sweden University & University of Gävle

*Topics:* Research methodologies, Research design, Graduate school, Digital technologies

*Keywords:* Methods, Research Design, Data and Analysis in Networked Learning, Theories, Methodologies, and Design for Networked Learning

*Abstract:*

In this symposium, the aim is to continue the ongoing discussion about methodological considerations in the research on networked learning. We do so by taking our point of departure from the methodology section of six forthcoming phd-thesis's written within the framework of the Swedish National Graduate School for Digital Technologies in Education (GRADE). Each paper presented in this symposium is a timestamp, a snapshot of where these doctoral students are today in their respective thinking. The papers stem from a course given in the graduate school on methodology, and should be seen as examples of the diversity that may be present in a graduate school in which doctoral students are admitted to at least seven different disciplines or subject areas and at six different Swedish universities. The variations and differences feed directly into productive discussion on the boundaries of networked learning, on research as practice and stakeholders' positions, and on problems to be solved, wicked or not.