Connecting Workshops in Digital Education

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Abstract

Communication, production, experiments and play in networked learning can be so much more than just having meetings on Zoom or Teams. This text sketches out some possibilities and ways of understanding this. The text is organized in three parts based on both finished research and ongoing research since 2004. The first part presents an overall pedagogical framework in the form of a media ecology of communication and production between schools or pre-schools. The second part has to do with how a group of children and teachers can understand themselves as an experimenting community in open laboratories. Finally the third part sketches out how the actual ways of communication and production can take place in different forms of common synchronous and asynchronous workshops.

Keywords

The Flexible Meeting Place, Experimenting Communities, Open Laboratories, Platforms for creativity

Background

I base my text on several research projects and processes of developing teaching, that focused on creativity and learning through connecting across time and space. I have since 2004 conducted practical research in the field of online communication, experimenting and playing, that has involved children and pre-school teachers (Thestrup, 2019; Bølgan, 2018). It has taken place in a national project like *Formation in a Digital and Global World* in 2015 (Thestrup et al, 2015), where 17 Danish kindergartens communicated using the software Google+, today reframed as Currents. Another has been *ASSIST*, 2017-2018 (Thestrup, Gislev & Elving, 2018; Gislev, Thestrup & Elving, 2020), where teachers in larger schools in Denmark worked together with teachers in remote schools on subjects, the remote schools could not offer. The research also took place in European projects such as *mediaPLAYINGcommunities*, 2007-2009 (Støvelbæk, 2009), where pre-schools started to establish to go beyond an understanding of their pedagogical practise as only limited to each institution. Finally I have been part of the international project *The MakEY Project* in 2017-2019 (https://makeyproject.eu/), where among other things three schools in Denmark, Great Britain and Australia tested how to communicate and experiment together online (Thestrup & Pedersen, 2020). It is important to mention, that students, pre-school teachers and teachers have been involved in these projects and have taken part in the different actions during the communication, playing and experimenting. This has not included processes where the children involved acted on their own in non-formal contexts.

The basic research question has over the years been the same: *How can children and professionals in pedagogical institutions communicate, experiment and play together globally?* The research methods have been inspired by action research (Duus et al, 2014) including participatory observations (Kristiansen & Krogstrup, 2012) and interviews (Kvale & Brinkmann, 2015). The researchers, consultants in municipalities and project leaders involved have often taken an active part in the actions in the actual pre-schools. This has over the included planning, joining the pedagogical processes, documenting using visual methods (Pink, 2013; Henningsen 2005) and reflecting upon the experiences.

The figures in this text are one of the results of the different research projects but has also over the years informed the ongoing research as it unfolded. The attempt to connect through communication, playing and experimenting have unfolded across time and space in educational settings and draw upon the ideas of blended learning, where the education is partly physically based and partly virtually based. It also draws upon networked learning (MacKenzie et al, 2021; Gourlay, L., Rodríguez-Illera, J.L. et al, 2021), where focus is on how one makes people work together in networks. It could also simply be called digital education (Bayne et al, 2020), based upon that *"...teaching is a highly contextual activity bringing together people, texts, images, locations, objects, technologies, and methods in many different ways."* (Bayne et al, 2020, p. 5). The important thing about this definition is that the teaching, the common production and the communication can take place in many different

ways and not in a few already defined and framed ways. It is a digital education, as the communication across time and space in a global network would be difficult without digital technologies. Whether one seeks to establish local networks or seeks to combine the local and the global, it all depends on the many different tools used, the situations of the individual students across the globe and who the actual teachers are. What is common for all the different formats is that digital education is understood as a way, where a collective to work together in an emergent form. The participants construct ways to engage and communicate an even make education accessible to as many as possible (Bayne et al, 2020, p. 9). To use the term digital education does not exclude using analogue elements or the use of local physically based places. It implies that the connection between people, when establishing networks across time and space almost certainly has different kinds of digital elements incorporated in educational contexts.

Part one: The Flexible Meeting Place

The first part is a concept about establishing the overall pedagogical framework around networked learning with someone outside the local school, classroom or kindergarten. In that regard communication is more than talking to each other on Zoom. It is of course an important part, but there are more options when trying to establish collaboration across time and space. And even talking together can take many forms and take place in many formats. The synchronous conversation can be part of a much larger pedagogical construction including both asynchronous elements and the use of both digital and analogue materials, tools, spaces, processes and of course the intentions behind it. One way of understanding it is to perceive the process behind the actual configuration of a pedagogical format as *a flexible meeting place* (Thestrup, Gislev, & Elving, 2018). The idea is simple: whatever form of communication, that takes place in any kind of chosen software, it is the result of experiments and reflections upon the communication itself. The users of the software find specific uses in a social and cultural meaning making process. They try out, use and leave software, that does not fit their interests. They combine digital and analogue, online and offline, synchronous and asynchronous in processes, that support exchanging and experimenting. As a result the flexible meeting place might alter over time depending on the ongoing reflection between the participants using and creating the meeting place.

The concept of the flexible meeting place can be illustrated in figure 1. below. The yellow circles are each of them an experimenting community and they meet in the inner blue circle through a number of meeting places, that can be both analogue and digital or a combination. These meeting places can be changed and used for other purposes, if needed be. The outer blue circle demonstrates that the two experimenting communities have a common project, but also do things on their own without involving other groups. Therefore the blue dotted line goes down through the middle of the two yellow circles indicating this.

Fig. 1: The Flexible Meeting Place
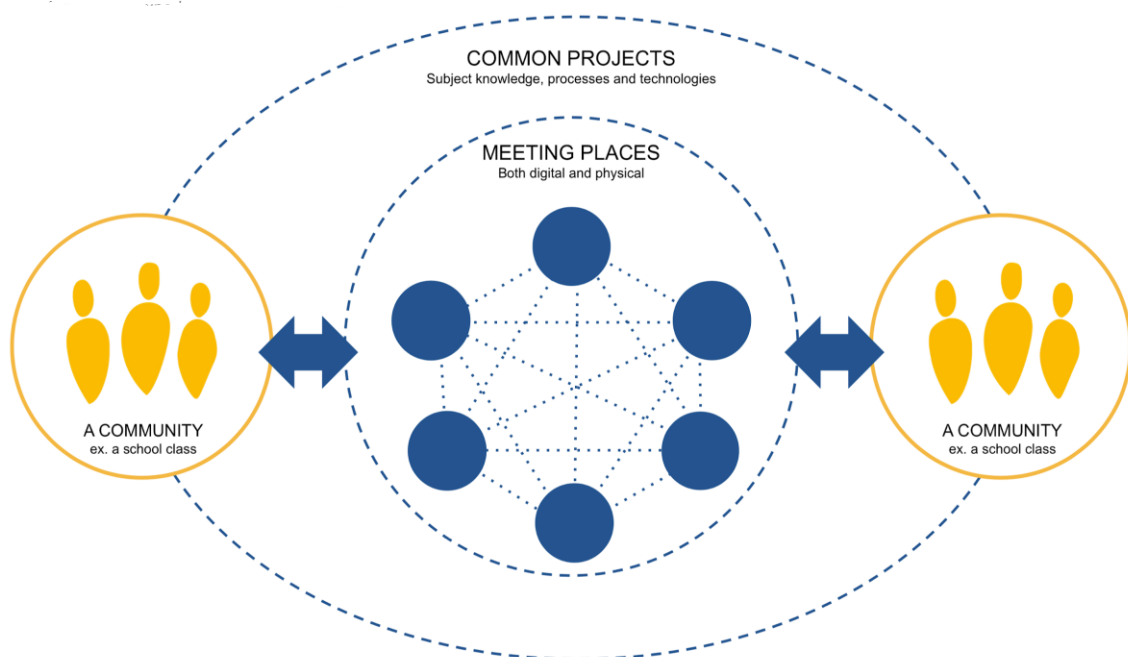
Please notice that the model says nothing about the specific activities in every single meeting place or for that matter the organization of the actual processes in and between the meeting places. It can be in the form of synchronous or asynchronous communication, analogue or digital including experimenting, playing, chatting, storing, sending and showing using screen, body, space and face. Workspaces, makerspaces and playgrounds can be part of the media ecology as well as the ordinary classroom or lecture hall. These areas can be part of a formal educational system as well as informal areas understood as *third spaces* between schools and home (Potter & MacDougall 2017). This media ecology can unfold in many formats. It might be webcams on mounts that show ongoing physical processes and materials, forums, where inspiration can unfold through text and images, scissors and pens, that together with online editing tools shape narratives and understandings of technology and media. There are many options that can be combined according to the interests of the participants. The connection between people and places happens in several ways including body, objects, spaces and screens and can be framed as a *media ecology* (Postman, 2000), which has to do with the study of media as an environment (Scolari, 2012; Strate, 2006). Media ecologies can be seen as a dynamic and constantly changing aggregation of media wherein existing practices transform or new practices emerge.

The flexible meeting place is not the starting point for establishing communication. This starting point might be quite different Therefore on might talk about establishing a school establishing flexible meeting place with other schools in four phases (Gislev, Thestrup & Elving, 2020). In the first phase a school might not experience, that they are part of any networks, even though individual teachers and children are due to being this because pf their own use of mobile phones, tablets or laptops. Some teachers might even have started using the internet while teaching, but the school administration does not know much about this. As the there exists a vast and global network around the school, one might call this first phase *The Potential Connections*. The teacher and children in the school class need to find someone to establish contact with or something to be inspired or challenged by. In this phase, the teacher and the class is probably quite occupied by looking for someone or something. Probably the first attempt is simply to follow somebody on one or another kind of social media.

The second phase could be called *Establishing Contact*. That would be when the teacher or the class actually get some kind of contact and start establishing some kind of collaboration through a very limited set of communication possibilities. An example of this could be talking together on a video channel. Probably one can´t talk about a media ecology, as it is too early to establish a practice. But there is happening some kind of exchange between two partners and a media ecology can become a possibility. The third phase is then *The Flexible Meeting Place*, with a media ecology defined, used and changed by the partners in this particular network as the model above visualizes.

The fourth phase could be called *Meeting Places in Networks*. Here the teacher and the class and school have many different collaborations in many different networks. In some situations the class is still searching for information as in the first phase. In others they have established contact and in others yet, they have developed a flexible meeting place. The four phases are constituted of the establishing of one or more media ecologies, but also an awareness of being part of a global, vaste and everchanging network. The teacher and class simply see themselves as individuals and as a class as part of this network of possibilities. Some of these possibilities, they create themselves, others they take part in and develop further. The awareness changes from phase one to phase four even though the teacher and the children might experience many situations in the future, where they have to start from the beginning establishing collaboration. A part of being in this fourth phase is that they play different roles in different networks but is aware of it and start to know how to establish exchange of questions and knowledge through being connected.

## Part two: Experimenting communities in open laboratories

This part is a concept about how a teacher and a class can understand themselves when developing the flexible meeting places, they are becoming part of. The teacher and the class can be understood as *Experimenting Communities* (Caprani & Thestrup, 2010; Shumar, Robinson & Thestrup, 2021). That is a group, where the core of the activities in the group are primarily to experiment and not only to repeat existing everyday practice around the use of digital media and digital technologies. The point is to invent new practice that becomes part of everyday life in the community. The community might already have a practice around how to use and change media, technology and narratives and the result might even be, that a repetition of an existing practice or adapting a slight correction seems to be the best solution. But there is a pedagogical process where the participants in the experimenting community ask themselves in what way the given technology, media or narrative would make

sense for them to use (Dittert, Thestrup & Robinson, 2021). One answer here might even be, that it does not make sense and therefore won´t be used. At the center of the pedagogy is also an understanding of culture as a meaning-making and creative practise (Gauntlett & Thomsen, 2013). Culture can also be seen as emerging and relational (Jantzen, 2005; Jantzen, 2013; Nielsen et al, 2019), which has the potential, that meaning is established over time through common action in the community itself.

The community experiments in *Open Laboratories* (Thestrup & Robinson, 2016), that are open in several ways. In the open lab it is not decided in advance what materials, tools, processes and spaces to use, how or for what purpose. This means first of all that digital and analogue materials are intertwined in processes, where it no longer matters, where it came from, but what the actual combination might consist of. There is in principle no hierarchy between processes and traditions. Everybody involved must be part of the common research process when experimenting and during this process be open for other suggestions and attempts.

Fig. 2 below demonstrates a possible process in the open laboratory. A, B and C to the left in the model illustrates existing use, experience on and points of view upon certain media, technologies and narratives. In the open laboratory A, B and C are brought together and a new practice might emerge from this meeting place, in this case named as D. This new practice is then developed to be the common practice in the community after and outside the open laboratory has been at work.

Fig. 2: The process in The Open Laboratory
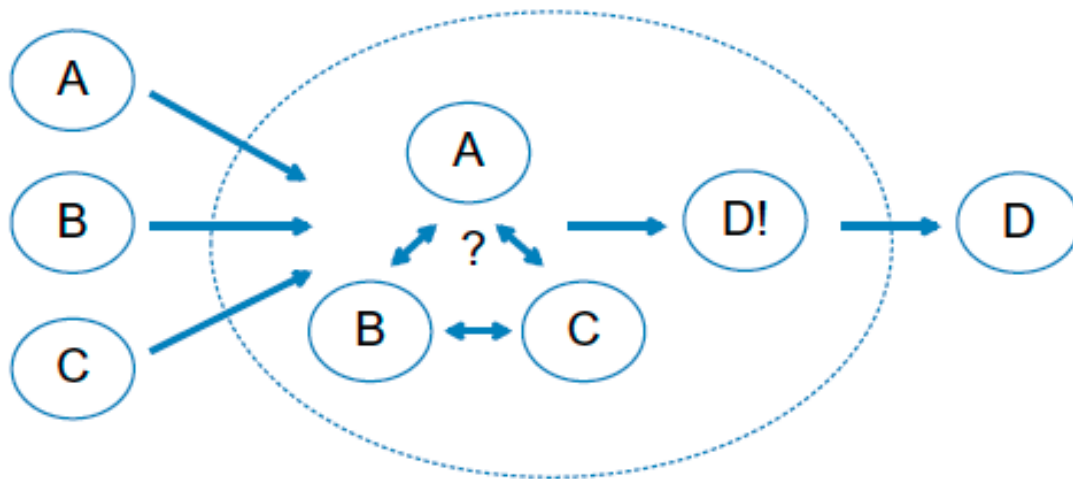
(Thestrup & Robinson, 2016)

As part of the open laboratory both physical and virtual spaces are linked together in processes, where both the physical and the virtual space are important. In both spaces, the materials, tools, bodies, narratives and the space itself are unfolded according to the possibilities and the intentions but they also support, inspire and potentially change the processes in the other spaces. So the open laboratory is a way of organizing the connection between different parts of a common space into a meaningful combination and not whether it is a physical space or a digital space.

The concept of the open laboratory derives originally from discussions on how one should define drama and theatre and one answer to this was the idea of the open theatre, where no drama and theatre traditions in advance were expelled and that included even the use of digital media (Lehmann & Szatkowski, 2001) with this background the open laboratory inherits the use of space, body and fiction together with digital media, narratives and technologies and like children´s own play becomes multi-modal (Cowan, 2017) and a space of connections and transformations. The consequence of this is that the participants in the open laboratory need to be open to each other. Tools, materials and spaces might be used in different processes by different people. This also means that the actual places to meet between different schools can take place in many forms. The participants try out and reflect upon how a way to meet, experiment and produce could be done. Each teacher and class in a network will have their own experiences and ideas to offer in the open laboratory but will encounter others in the process. The structure and content of one or more actual meeting places in a media ecology are not given in advance. Part of the activities in any given network has to do with being reflective in and upon the practice being established. The

pedagogy when establishing networks is grounded in two basic questions: One on the themes and content involved and one on the pedagogical methods and principles themselves.

The experimenting community in the open laboratory is related to the community of practice, but at the center of the experimenting community is the will to look for new practice. As such the experimenting community is closer to social learning, where the participants want to make a difference in the world, than the community of practice, that tends to focus merely on the participants in the community and repeats an established practice (Wenger-Trayner & Wenger-Trayner, 2020). The experimenting community is open to knowledge construction with others through being connected.

Part three: A platform of workshops

This final part adds workshops to the flexible meeting place and how one could use these to support the experiment communities in the open laboratories using digital media and technologies. One can understand and use the meeting place as a platform for creativity (Gauntlett, 2015; Culpepper & Gauntlett, 2020), where the contribution of the participants are celebrated, ideas and expressions invited and valued. Basically the area of experimenting and making and the area of connecting and exchanging can be put together in the same process (Gauntlett, 2018). To make the connecting happen the participants could among other things establish workshops together, where the practical work and the celebration of creativity can take place. It is not limited to happen in either a physically based space or a digital and can actually contain both elements. It could take place in a common online world like Minecraft, where one can build in principle anything together. As part of the communication one activity could be to build something similar in LEGO or other materials on the floor locally, take pictures of it and upload it to a common drive. Another element in a media ecology would be to follow youtubers, who talk about and demonstrate how they use Minecraft. The combination of digital and physical spaces can also take place in two physically based workshops, that are connected through synchronous communication like Zoom or asynchronous through uploading and commenting images and video on the common drive.

The following set up is a suggestion that combines synchronous and asynchronous communication. The teacher and the participants can each of them have two screens available: the screen on the laptop and an external screen connected to the laptop. The external screen can be for webpages used for an activity or looking at an image while discussing. The link to the webpage or document can be shared in the chat function on f. ex. Zoom. Like that everybody can still see each other's faces without using the share-screen function that in itself is reducing the possibility to notice the reactions of each other when talking. The teacher can show power points on an external screen and just tell the students when to go to the next slide.

The description above can used as a tool for doing lectures, having discussions and still maintaining contact in a situation, where the communication is mediated through two screens. Teaching that might go on in a physical and ordinary classroom are adapted to a new format. But the use of zoom, screen and different kind of devices can also be used in other ways. One can also connect worktables and demonstrate tools, materials, objects and processes using a webcam. This webcam can be placed in a tripod next to the laptop and point the lens downwards towards the worktable. In that way the teacher can use her hands demonstrating objects, materials and processes. At the same time the teacher can have the camera on her laptop filming her face while she or he is talking and working on the objects and materials. The communication is based both on face and hand and the actual process between the participants. This particular set-up is best for minor objects and for smaller groups, because otherwise it is difficult to follow what is going on.

The webcam can obviously also be moved, but the mobile or tablet can easily be moved more freely and even around in different physical spaces, because it does not need to be connected to the laptop through a cable. So if one replaces the web cam with a mobile, one can get closer to both objects or just to turn it towards the person speaking. It is not only small objects, that one can use as a part of the process. It is also bigger objects or the body itself. The desk with the laptop does not only become a worktable, but the whole workspace becomes available. Obviously, it is possible to leave the laptop, the desk and the workspace all together and use other spaces as part of the workshop. This can happen through the mobile or the tablet. Especially the mobile seems to be a good tool to follow and investigate an on-going process more closely as you can place it rather close to what is being build or investigated.

The process between partners locally, regionally and globally can also be supported by other tools, where one can communicate in a near-synchronous way. One can record videos from the work process and edit them. The recorded video clip or the edited image uploaded on a chat forum can become part of a generative process, where people at one place can be inspired or challenged by what people at another place is doing. Somebody sees one

image, respond to it and upload their own. The camera can become the access point between a vaste, global and developing network and the local workshop in a concrete space with concrete tools and materials. A tool like Currents is a way to support the communication between workshops. Currents is similar to a Facebook-group, but it is easier to use this tool to get an overview and comment each other with both images and text. There are several columns available at the same time, where one can upload a post and there is also a menu, where one can choose who to follow more closely. In this construction one can upload and comment almost synchronously, but one can also wait and comment asynchronously over time. One workshop does not have to respond immediately to what another workshop does, but the possibility exists. The flexible meeting place with a number of workshops can actually consist of Zoom and Currents for exchange and a common drive for storage.

Transformation in networks

The set-up mentioned above is suited for a common creative process, where one gets inspired be others and start having a common discussion through images and text and reflections upon these expressions (Velicu, Thestrup & Giannis, 2019). A lot depends on how the exchange between the partners in a flexible meeting place or between several meeting places is understood. Does one need to copy what the others are doing or is it possible to see the exchange as a transformation process in a network? One way of staging the processes of transformation is f. ex. to give a task like this: Upload an image or video clip on Currents and comment why you put it up there. The next to comment uploads an image, that is a response to the first image, but not a copy. One can change everything from form to content and write about why and how. Then the next can add again images and written comments reflecting upon own and others work - and so forth. This use of Currents is a good way of opening up for many different ideas, inspiration and discussions about communication, form and content. But it also seems a bit difficult to focus on one subject or area, when that might be needed.

To deal with problem mentioned above, the overall process can be organized like this: First a zoom meeting where the framework for the future experiments are established and demonstrated. The use of webcameras and mobiles is an option and can investigated here. This can be supplemented with videos on the use of materials and tools and other videos on intentions and processes (Petrich et all, 2016). Then the participants can be asked to experiment in groups on form and expression. This can happen it two ways. Either uploading on a common drive, so others can see what they are doing and be inspired or entering a tool like Currents, where the task can be to transform into new expressions, what others have done. Doing the latter, one can still also upload to a drive to use the files here as sources of material. Then the participants in groups can choose to work more closely with what they have become interested in and show this to the other groups. Finally a new zoom meeting, where the teacher and the students discuss, reflect and decide what to do next. After the zoom meeting the experimenting process continues and can become more focused in a chosen area of special and common interest.

The intention is also to meet the challenge that all the participants in a network do not have the same access to digital media or digital technologies. The same goes for other resources, that might be unevenly distributed. Instead of establishing a hierarchy where some do it better because of their technology one might try to establish a collaboration where one´s abilities are valued equally important. To have less possibilities is not the same as being less able to inspire someone else in the world. If the local tools, materials and processes are used, because they are important to a group of people for cultural and social reasons, then this group of people are equal in the open laboratory to the other participants in the laboratory. This also means that when people meet in emerging networks, then they both can present, what they find important to do and the same time try to understand, what others bring to the table in the laboratory. This is not a static situation, but a process of possible change. The experimenting community in a network might change their mind, get curious and get ready to adapt elements in their own culture and also establish processes, that can lead to common processes, expressions and elements of a common culture. In principle a flexible meeting place based on transformation is open to new technologies, new expressions and new common challenges. The flexible meeting place is flexible to letting networks grow and change depending on the actual participants in them. The flexible meeting places and the workshops in them can establish emerging processes in networks and add to learning processes and global awareness across time and space.

References

Bayne, S., Ewins, R., Evans, P., Knox, J., Lamb, J., Macleod, H., O´Shea, C., Ross, J., Sheail, P. & Sinclear, C. (2020). The Manifesto for Teaching Online. Cambridge Massachusetts London: MIT Press
Blanton, B. A. & Paldam, E. (2021). Playing together at a distance: The PLAYTrack Research Group, The Interacting Minds Centre, Aarhus University, version 1, Not published

Bølgan, N. B. (2018). Digital praksis i barnehagen: Fagbokforlaget

Caprani, O. & Thestrup, K. (2010). Det eksperimenterende fællesskab: Børn og voksnes leg med medier og teknologi [The experimenting community: Children and adults' play with media and technology]. Læring og Medier, 3(5), pp. 1–39. https://doaj.org/article/aba105d1075948f895b345a91f1f92d3

Culpepper, M. K. & Gauntlett, D. (2020). Making and Learning together. Where the makerspace mindset meets platforms of creativity. Global Studies of Childhood, Vol. 10 Issue 3, Sep. 2020, pp. 264–274

Dittert, N., Thestrup, K. & Robinson. S. (2021). The SEEDS pedagogy: Designing a new pedagogy for preschools using a technology-based toolkit.
International Journal of Child-Computer Interaction. Vol. 27, March 2021, 100210, pp. 1-10. Localized 20.11.2020 at https://www.sciencedirect.com/science/article/pii/S2212868920300325?dgcid=coauthor

Duus, G., Husted, M., Kildedal, K., Laursen, E. & Tofteng, D. (red.). (2014). Aktionsforskning – en grundbog (Action research – an introduction). Danmark: Samfundslitteratur

Gauntlett, D. (2015). Making Media Studies: Peter Lang Publishing Inc.

Gauntlett, D. (2018). Making is connecting. 2. edition: Polity

Gauntlett, D. and Thomsen, B. S. (2013) Cultures of Creativity. The LEGO Foundation. Located 19.06.2021 at https://www.legofoundation.com/media/1073/cultures-of-creativity-lego-fonden-2013.pdf

Gislev, T., Thestrup, K., & Elving, P. R. (2020). *The flexible meeting place: Connecting schools through networked learning*. Global Studies of Childhood, 10(3), 275-288.

Gourlay, L., Rodríguez-Illera, J.L. *et al*. (2021). Networked learning in 2021: A community definition. *Postdigital Science and Education 3,* 326–369. *https://doi.org/10.1007/s42438-021-00222-y*

Henningsen, L. (2005): ”*Dis-play”,* Tidsskrift for Børne- og Ungdomskultur (Magazine for Children´s culture and Youth Culture, 45/2002, Denmark

Jantzen, C. (2005) Tertium Datur. Kampen om kulturbegrebet (The Battle over the Understanding of Culture). In Povlsen, K. K. And Sørensen, A. S. (eds). *Kunstkritik og Kulturkamp*. Aarhus: Klim, pp. 40-49

Jantsen, C. (2013). Det pragmatiske kulturbegreb (The Pragmatic Understanding of Culture. Gjallerhorn, Vol. 17, pp. 40-49

Kristiansen, S. & Krogstrup, H. K. (2012). Deltagende observation (Participatory observation). Letland: Hans Reitzels Forlag

Kvale, S. & Brinkman, S. (2015). Interview: Hans Reitzels Forlag. 3. edition

Lehmann, N. & Szatkowki J. (2001). Creative Pragmatics – a Manifesto for The Open Theatre. I B. Rasmussen, T. Kjølner, V. Rasmussen & H. Heikkinen (Red.), Nordic Voices in Drama, Theatre and Education: IDEA Publications and IDEA 2001 World Congress – Bergen.

MacKenzie, A., Bacalja, A., Annamali, D., Panaretou, A., Girme, P., Cutajar, M., Abegglen, S., Evens, M, Neuhaus, F., Wilson, K., Psarikidou, K., Koole, M., Hrastinski, S., Sturm, S., Adachi, C., Schnaider, K., Bozkurt, A,. Rapantal, C., Themelis, C., Thestrup, K., Gislev, T., Örtegren, A., Costello, E., Dishon, G., Hoechsmann, M., Bucio, J., Vadillo, G., Sánchez-Mendiola, M., Goetz, G., Gusso, H. L., Arantes, J. A., Kishore, P., Lodahl, M., Suoranta, J., Markauskaite, L,. Mörtsell, S., O'Reilly, T., Reed, J., Bhatt, I., Brown, C,. MacCallum, K., Ackermann, C., Alexander, C., Payne, A. L., Bennett, R., Stone, C., Collier, A., Watulak, S. L., Jandrić, P., Peters, M. & Gourlay, L. (2021). Dissolving the Dichotomies Between Online and Campus-Based Teaching: a Collective Response to *The Manifesto for Teaching Online* (Bayne et al. 2020). Localized 31.10.20201 at https://link.springer.com/article/10.1007/s42438-021-00259-z

Nielsen, K. W., Jerg, K., Kallehauge, P. & Burgård,. M. (2019). Vi gør kultur (We do culture): Dafolo

Petrich, M., Bevan, B., Wilkinson, K. (2016). Tinkering with MOOCs and Social Media. I Peppler, K. Halverson, E. R. & KIafai, Y. B. (red.) Makeology: Routledge vol.1

Pink. S. (2013). Doing Visual Ethnography. Croydon: SAGE. 3. edition

Pink. S. (2013). Doing Visual Ethnography. Croydon: SAGE. 3. Udgave

Postman, N. (2000). The humanism of media ecology. Proceedings of the Media Ecology Association, 1, 10–16.

Potter J. & MacDougall, J. (2017). Digital Media, Culture & Education: Palgrave Macmillan

Scolari, C. A. (2012). Media Ecology: Exploring the Metaphor to Expand the Theory. Communication Theory: CT: A Journal of the International Communication Association, 22(2), 204–225.

Shumar, W., Robinson, S. & Thestrup, K. (2021). Creating experimenting communities for the future university. In Bengtsen, S., Robinson, S. & Shumar, W. (2021). The Becoming University - Perspectives from philosophy and social theory: Springer

Strate, L. (2006). Echoes and reflections: On media ecology as a field of study. Cresskill, New Jersey. Hampton Press Inc.

Støvelbæk, F. (2009). MPC is what you see: MediaPLAYINGcommunities. Video. Localized 26.6.2021 at https://vimeo.com/54000795MPC

Thestrup, K. (2019). Digital citizens: how preschool teachers and children communicate in a digital and global world. in Grey, C. & Palaiologou, I. (ed.). *Early learning in the digital age.*: SAGE Publications, p. 136-147

Thestrup, K., Sandvik, K., Jessen, C., Knudsen, J., & Andersen, M. P. (2015). *Dannelse i en digital og global verden — Digitale redskaber skal understøtte barnets lærings- og dannelsesproces* (Delaftale 3). (Edification in a digital and global world). Localized 20.11.2020 at https://tdm.au.dk/fileadmin/tdm/Publikationer/DANNELSE_I_EN_DIGITAL_OG_GLOBAL_VERDEN-DELRAPPORT-FINAL_26.11.2015.pdf

Thestrup, K., Gislev, T., & Elving, P. R. (2018). *Mellem assistent og lærer. Forsøg med Assisteret Fjernundervisning i Folkeskolen* (Between assistent and teacher – assisted distance learning in public school). Aarhus University. Localized 21/05-21 at: https://open-tdm.au.dk/blogs/assist/

Thestrup, K., & Pedersen, L. H. (2020). Makeative makerspaces: When the pedagogy is makeative. In A. Blum-Ross, K. Kumpulainen, & J. Marsh (Eds.), *Enhancing digital literacy and creativity: Makerspaces in the early years* (First edition). Routledge.

Thestrup, K. & Robinson, S. (2016). Towards an entrepreneurial mindset: Empowering learners in an open laboratory. In. Papadopoulos, P.M., Burger, R. & Faria, A. (ed.). Advances in Digital Education and Lifelong Learning, Vol. 2.: Emerald Group Publishing Limited. Chapter 8, p. 147-166

Thestrup, K. (2021). Fra Power points til eksperimenterende fællesskaber (from Power Points to Experimenting Communities): Kognition & Pædagogik, vol. 122, p. 64-76.

Velicu, A., Thestrup, K. & Giannis, G. (2019). The story of two new planets: MakEY. Blogpost. Localized at https://makeyproject.wordpress.com/2019/05/16/the-story-of-two-new-planets/

Wenger-Trayner, E., & Wenger-Trayner, B. (2020). Learning to make a difference: Value creation in social learning spaces: Cambridge University Press

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