

University of Helsinki, Department of Teacher Education, Research Report

**Marianna Vivitsou**

**Social media and networks as communicative acts:  
vulnerabilities and possibilities for  
the pedagogies of the future  
An empirical hermeneutical study of Finnish and Greek  
teachers' and students' experiences**

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**Abstract**

This thesis examines the intersection of social media with pedagogy. Pedagogy is a social experience and, as such, it entails communicative acts and generates discourses. These can be oral, written or ones that involve a certain type of inscription and take place in a shared, collaborative milieu. For knowledge building, collaboration patterns allow young people to work together, exchange ideas and views, and solve problems together. To open up such space for collaborative learning teachers and students need to take action. This pedagogical action is the 'text' of pedagogy that is 'authored' by all in order to express and serve the purposes of the participants of the pedagogical event. The pedagogical event becomes meaningful through the discourses that it generates.

It is these discourses that social media promise to enhance by opening up opportunities for meaningful communication beyond limitations posed by the necessity for spatial co-presence or from following the route of a pre-determined timetable. It follows then naturally that it is the meanings underlying social media and network communication that this study aims to untangle in order to gain an insight into the possibilities for better and deeper learning that arise through the pedagogical integration of social media.

This is however only potential. To understand whether this possibility can translate into actuality this thesis draws from Ricoeur's (1976) interpretation theory and the view of discourse as text and as action (Ricoeur 1991). To get there, the thesis discusses whether connectivity can truly make shareable and spreadable content public and how and to what degree social media do serve communicative purposes.

Another way to confirm or falsify the promise of the social media is by examining whether and to what degree it serves the pedagogical purposes. Pedagogical purposes are shared purposes and, therefore, the thesis looks into the perspectives of both teachers and students, being the participants of the pedagogical event. They are also the agents whose actions form the event. Their perspectives then are important. Perspectives emerge through the discussions and analyses that shape the publications supporting the argument of the thesis. More particularly, two of the studies discuss and analyze Finnish and Greek language and science teachers' experiences of social media and digital technologies integration into the pedagogical practice. The other two studies examine the experiences of students from Finland and Greece sharing and telling digital stories on a pedagogical social network. The studies of the dissertation draw from interview data. For data analysis qualitative methods, such as metaphor and content analysis, are used.

Ultimately, what the discussion comes down to is an insight into whether the pedagogical practices constitute communicative practices. Practices, however, are informed by the wider context we find ourselves immersed in. In the same way that youth popular social network experience feeds into the pedagogical practice, so do

teacher interactions and experiences with colleagues, training, workshops and relevant discourses inform their practices. In order to gain a deeper insight into the pedagogical purposes and the underlying thinking, therefore, the thesis discusses and analyzes teacher and student pedagogical action against the background literature and discussions on, for instance, open networks and popular social network activity.

This methodological choice is, again, positioned within the framework of interpretation theory (Ricoeur 1976, 1991) and speaks to the intention to validate the thesis argument by gaining insights into and offering possible explanations of the meanings underlying social media for pedagogy and communication, being the phenomenon under investigation.

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*Keywords:* social media and networks, communicative acts, pedagogy, teachers, students

## **Sosiaalinen media ja verkostot kommunikatiivisina tekoina: Pedagogiset haavoittuvuudet ja mahdollisuudet**

Empiiris-hermeneuttinen tutkimus suomalaisten ja kreikkalaisten opettajien ja oppilaiden kokemuksista

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### **Tiivistelmä**

Tässä tutkimuksessa tarkastellaan sosiaalisen median ja pedagogiikan yhtymäkohtia. Pedagogiikalla tarkoitetaan tässä sosiaalista kokemusta, joka sisältää kommunikatiivisia tekoja ja luo diskursseja. Nämä teot ja diskurssit voivat olla suullisia tai kirjallisia, ja ne tapahtuvat jaetussa, yhteisöllisessä ympäristössä. Yhteisöllisyys tarjoaa nuorille mahdollisuuden työskennellä yhdessä, rakennella tietoa, vaihtaa ajatuksia ja näkökulmia sekä ratkaista ongelmia. Tällaisen tietoa tuottavan yhteisöllisen oppimisen aikaansaaminen edellyttää tekoja opettajilta ja oppilailta. Näitä tekoja voidaan kutsua pedagogiikan “käsikirjoitukseksi”. Sen laatijoita ovat kaikki oppimistilanteeseen osallistuvat. Käsikirjoituksessa tulevat näkyviksi osallistujien tarkoitusperät ja se, miten niihin vastataan. Oppimistilanteen merkityksellisyys tulee siis näkyväksi sen tuottaman diskurssin kautta.

Sosiaalinen media voi edistää näitä diskursseja avaamalla mahdollisuuksia merkitykselliseen kommunikaatioon ilman fyysisen läsnäolon pakkoa tai aikataulujen asettamia rajoituksia. Tämä tutkimus pyrkii pureutumaan sosiaalisen median ja verkkovuorovaikutuksen taustalla oleviin merkityksiin. Tutkimuksen tavoitteena on ymmärtää sellaisia paremman ja syvemmän oppimisen mahdollisuuksia, joita pedagogiikan ja sosiaalisen median integroitumisesta seuraa.

Sosiaalisen median ja verkkovuorovaikutuksen kytkemisessä oppimiseen on paljon potentiaalia, mutta se ei aina aktualisoidu. Tämän potentiaalin ja sen aktualisoitumismahdollisuuksien ymmärtämiseksi tässä tutkimuksessa hyödynnetään Ricoeurin (1976) tulkintateoriaa ja näkemystä diskurssista tekstinä ja toimintana (Ricoeur 1991). Tutkimuksessa tarkastellaan, voiko konnektiivisuus todella tuottaa julkista jaettavaa ja levitettävää tietoa, sekä kuinka ja missä määrin sosiaalisen median kautta tapahtuva vuorovaikutus palvelee kommunikatiivisia tarkoitusperiä.

Sosiaalisen median ja verkkovuorovaikutuksen potentiaalia tutkitaan myös siitä näkökulmasta, missä määrin ja millä tavalla ne palvelevat pedagogisia tarkoitusperiä. Pedagogiset tarkoitusperät ovat jaettuja, mistä syystä tässä tutkimuksessa perehdytään sekä opettajien että oppilaiden näkökulmiin oppimistilanteen osallistujina. Opettajat ja oppilaat ovat toimijoita, joiden teot muodostavat oppimistilanteen, ja siksi heidän näkökulmansa ovat tärkeitä. Heidän näkökulmiaan on korotettu tätä tutkimusta varten tuotetuissa julkaisuissa. Kaksi julkaisuista käsittelee suomalaisten ja kreikkalaisten kielten- ja luonnontieteenopettajien kokemuksia sosiaalisen median ja digitaalisten teknologioiden integroinnista opetukseen. Toiset kaksi julkaisua käsittelevät suomalaisten ja kreikkalaisten oppilaiden kokemuksia digitaalisten tarinoiden kertomisesta pedagogisessa sosiaalisessa verkostossa. Julkaisut perustuvat haastatteluaineistoon. Aineiston analysoinnissa on käytetty laadullisia menetelmiä, kuten metafora- ja sisällönanalyysia.

Tutkimus tiivistyy ymmärrykseen siitä, että pedagogiset käytännöt koostuvat kommunikatiivista teoista. Nämä käytännöt liittyvät laajempaan kokonaisuuteen, jonka osia olemme. Samalla tavalla kuin nuorison kokemukset sosiaalisista medioista siirtyvät pedagogisiin käytäntöihin niihin siirtyvät myös opettajien kokemukset muun muassa kollegoiden välisestä vuorovaikutuksesta, koulutuksista ja työpajoista.

Syvemmän ymmärryksen saavuttamiseksi tutkittavasta aiheesta opettajien ja oppilaiden kommunikatiivisten tekojen analyysi on kytketty taustakirjallisuuteen ja keskusteluihin esimerkiksi avoimista verkostoista ja sosiaalisen median toiminnoista.

Tämä metodologinen valinta on asemoitu tulkintateoreettiseen viitekehykseen (Ricoeur 1976, 1991), ja sen perustana on pyrkimys ymmärtää ja selittää pedagogisen sosiaalisen median ja kommunikaation taustalla olevia merkityksiä.

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*Avainsanat:* sosiaalinen media ja verkostot, kommunikatiiviset teot, pedagogiikka, opettajat, oppilaat

## Acknowledgements

My experience of studying toward the doctorate has been marked by a number of changes. Of course, this is not news. Change should always be the target of any true learning experience. One type of such change concerns my own awareness that the doctorate is not necessarily about doing as expected to do. It is more like follow your gut and start threading out the storyline. Toss in the air and let it unreel. Turn the thread into a thought, an utterance, a paragraph, a story. Include what exists already and build up. But do not play within the limits of a marked territory only. Remember that there is always the clandestine aspect of things around the corner, waiting for disclosure.

Disclosure reminds me of the time when I used to scratch over the surface of the family furniture to get into the flesh of things. Our flesh is always hidden, like our internal organs are. But they are there and we need to understand what rules of grammar and syntax underlie their structure in order to explain how the body communicates, connects and shares. Our inner parts seem to submit to the same universal logic. But nowadays we have come so far as to admit that there is no such thing as universal existence.

Where we believed there was certainty, there is now unpredictability.  
What we used to think of grammar, becomes ungrammatical.  
We are consistent and inconsistent at the same time.  
As our subjectivities are realized in context;  
it is in interdependence that we become,  
by thinking and acting in togetherness and by getting acted upon.

As I moved away from the logic of predictability when examining the milieu of action, I became free from the need to remain true to the search for causes and effects in things. Action is larger than causality. Scratching the surface may reveal the flesh, but there is always a bone to dig deeper to.

Shifting my metaphors was one important thing that happened during the doctorate experience. It happened in a space where I communicated, connected and shared with other individuals who listened, discussed, argued, worked together, agreed and disagreed with me. And I truly thank them for that. My supervisors, Professor Kirsi Tirri and Docent Heikki Kynäslähti; the Principal Investigators at CICERO Learning Network, Professors Hannele Niemi and Jari Multisilta; my teacher, Professor Paul Ilesley; my colleagues Dr Veera Kallunki and PhD students Johanna Penttilä and Vilhelmiina Harju; CICERO administrators Hec-

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Helsinki, 13.05.2016  
Marianna Vivitsou



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## List of original publications

- I. Vivitsou, M., Tirri, K. & Kynäslahti, H. (2014). Social Media in Pedagogical Context: A Study on a Finnish & a Greek Teacher's Metaphors. *International Journal of Online Pedagogy and Course Design*, 4(2), pp. 1-18. DOI: 10.4018/ijopcd.2014040101
- II. Vivitsou, M., Tirri, K. & Kynäslahti, H. (2016). Science Teachers' Metaphors of Digital Technologies and Social Media in Pedagogy in Finland and in Greece, In G.A. Tsihrintzis, M. Virvou & L. Jain (Eds.), *Intelligent Computing Systems, Studies in Computational Intelligence*, 627, pp. 161-175. Berlin: Springer. DOI 10.1007/978-3-662-49179-9\_7
- III. Vivitsou, M., Penttilä, J. & Kallunki, V. (2014). Tracing the multi-stabilities of social mobile technologies for learning: from story generators to mediated publics? In Proceedings, *World Conference on Educational Media and Technology*, EdMedia, Tampere, Finland, 23-26.06.2014, 1, pp. 2601–2611.
- IV. Vivitsou, M. & Viitanen, K. (2015). The pedagogies of the future: Through young people's eyes in storytelling experiences with the digital in Finland and Greece. In S. Zlitni & F. Lienard (Eds.) *Electronic Communication: Political, Social and Educational uses*. Bern: Peter Lang Europäischer Verlag der Wissenschaften, pp. 110-123.



# 1 Introduction

This thesis aims to unpack the meanings underlying the intersection of social media with pedagogy. To this end, the focus of the discussion is on the notion of communication as connecting tissue, unifying principle and essential element of both main constructs (i.e. social media and pedagogy) of the study and builds upon this foundation. The thesis, therefore, examines social media as genre of communication (boyd 2012, Ellison & boyd 2013) and departs to do so by acknowledging two main considerations. One concerns the need to understand how social media and digital technologies work and figure out what types of appropriation would serve human communication best.

Another consideration concerns the need for change in pedagogy and education. Such change should accommodate current technological advancement while it simultaneously takes care not to compromise knowledge building, development and growth as processes of communicative action. The integration of social media and networks into pedagogy is an indicator for the need to change the established course in the formal teaching and learning situation. The thesis, therefore, looks into such integration as initiative that aims to change the course or the orientation of action (Ricoeur 1991). In this setting such action is pedagogical action. To get an insight into the directions of change, the discussion builds upon Ricoeur's theory of interpretation and the view of discourse as text and as action (Ricoeur 1976, 1991). To get there, the thesis builds upon the findings of four empirical studies. Two studies discuss and analyze the experiences of Finnish and Greek teachers' pedagogical integration of connective technologies. The other two examine the pedagogical action of Finnish and Greek students for learning with digital technologies.

When social media are integrated for pedagogical purposes by, for instance, making and sharing content on the network, an opportunity seems to open up for transformative pedagogy within a space of plurality. In such space interlocutors, situations, codes, intentions and meanings intersect (Ricoeur 1976). The promise of the social media to pedagogy, therefore, is founded upon its ability to enrich the learning space. Enriching the space where the pedagogical event takes place means that connective technologies enable independent interaction spatially with peers across classrooms and beyond time zone restrictions. This generates the assumption that connectivity increases the possibility for young people to transcend into more mature levels of consciousness, into being rational, working with ideas as well as inclinations and feelings by learning in networks and communities online. It looks like that social media draw legitimacy for pedagogical integration upon the assumption that mutuality and sociality are inherent qualities (boyd 2012, Cover 2012, Zhao et al. 2008), as social media and networks are

thought to be carriers and enhancers of communicative purposes and practices. And this is where social media and pedagogy intersect.

Pedagogy is a social experience (Freire 2005, Kansanen 2009a, 2009b) and, as such, it entails communicative acts (Fairclough 2014, Swayles 2014). It follows then that the pedagogical purposes should aim to promote the act of communication. The pedagogical purposes therefore should be communicative purposes. Being acts of communication, pedagogies generate discourses. These can be oral, written or ones that involve a certain type of inscription (e.g., as in a painting) (Ricoeur 1976) and take place in a shared, collaborative milieu (Swayles 2014).

For knowledge building, collaboration patterns allow young people to work, exchange ideas and views and solve problems together. To open up such space for collaborative learning teachers and students need to take pedagogical action.

When referring to pedagogical action I draw from Ricoeur and apply the notion of 'text' as metaphor (1976, 1991). Similarly to what happens with a text, pedagogical action is 'authored', in the sense that it is the initiatives of its participants that unfold during the pedagogical event. It should be therefore a text coauthored by all, given that it is meant to express and serve the purposes of all.

The pedagogical event becomes meaningful through the discourses that it generates. It is these discourses that social media promise to enhance by opening up opportunities for meaningful communication beyond limitations posed by the necessity for spatial co-presence or from following the route of a pre-determined timetable.

It follows then naturally that it is the meanings underlying social media and network communication that this study aims to untangle in order to offer insights into the kinds of possibilities for better and deeper learning that arise through the intersection.

Social media pack our hopes for a new space and a new method that will enable young people to develop in such ways that they will not only be able to understand the structure underlying the laws and practices in Languages, the Arts and the Sciences; they will be able to use this knowledge in order to produce meaningful works of discourse, that can be artistic, literary or scientific. They will do so with care and respect for other human beings and the environment. In other words, the hope is that social media can open up the space for creative pedagogies where the ultimate goal is that young people develop into critical thinkers and agents (Castoriadis 1991, Giroux 2011), able to think rationally and, by allocating categories to experience (Sokolowski 2000), they are able to make informed judgments, so that they can read and name the world, and take initiative to act (Ricoeur 1991).

This is however only potential. To understand whether this possibility can translate into actuality the study examines social media and network communication as 'text' and as discourse. To do so through the lines of the disserta-

tion, I look into the ways that social media and pedagogy intersect and, as mutuality and sociality correlate with communication, what speech acts and discourses (Ricoeur 1976) this intersection generates. To get there, I discuss how and to what degree social media for communication do serve communicative purposes and whether connectivity can truly make shareable and spreadable content public (Marwick and boyd 2011). Making content public entails the ability of the shared 'text' to become autonomous from the intentions of the 'author', address interests and receive multiple interpretations from a wider audience (Ricoeur 1976, 1991). Multiple interpretations link with multiple meanings. Therefore a 'text' that can become semantically autonomous can also form the basis for polysemy (Ricoeur 1991). Polysemy is a condition where richness in terms of linguistic expression and meaning is made possible. In this sense, publicness does not only promote content access and visibility (Baym & boyd 2012). It should enhance human reasoning as well.

Another way to confirm or falsify the promise of the social media is by examining whether and to what degree it serves the pedagogical purposes (Kansanen et al. 2000). Pedagogical purposes are shared purposes and therefore the empirical studies of the thesis look into the perspectives of both teachers and students, being the participants of the pedagogical event. They are also the agents whose actions form the event. Their perspectives then are important. Perspectives emerge through the discussions and analyses that shape the publications supporting the argument of the thesis. Teacher and student perspectives articulate their purposefulness and this, in turn, expresses the pedagogical thinking that comes down to practical activity. It is therefore practical activity that makes teacher and student purposefulness visible.

When teachers decide to integrate social media into the pedagogical setting what they actually do, as I argued above, is intervene and disturb the normal course of the pedagogical event by exercising the power to take action and initiate a new situation. This is the blended (Siemens et al. 2015) formal education situation. Based on this principle, I look into the integration as teacher initiative for change and orient the discussion and analysis toward gaining an insight into the ways and the degree the actual implementation is consistent with the aim for change. Student initiative is change-oriented as well. Although it departs from a notion of connectivity that links with the desire of the youth to use the digital media because this is the current trend (boyd 2012), practical activity seems to translate into pedagogical action. This is purposeful action and aims toward an understanding that includes not only an insight into the pedagogical content but into what it means to work and learn with peers as well, by, for instance, making and sharing stories online.

Ultimately, what the whole discussion comes down to is an insight into whether and to what degree the pedagogical practices constitute communicative practices. Practices, however, are informed by the wider context we find oursel-

ves immersed in (Fairclough 2014). In the same way that youth popular social network experience feeds into the pedagogical practice, so do teacher interactions and experiences with colleagues, training, workshops and relevant discourses inform their practices. In order to gain a deeper insight into the pedagogical thinking, therefore, I position the analysis of teacher and student action against the background literature and discussions on, for instance, open networks and popular social network activity (e.g., Downes 2004, Siemens 2006, Stewart 2015). This methodological choice speaks to my intention to validate the argument that what we need to build is pedagogies of action through communicative practices, given that we aim for the kind of digital integration that serves our purposes for knowledge building upon logical reasoning through practice, the application of technique and labor (Ricoeur 1976, Sokolowski 2000).

As the advancement of social networks and digital technologies will be scaling up in the future, so will the implications for education and pedagogy, being energized and influenced by such advancement. This means that constantly there will be questions arising for us to respond to. In what ways does, for instance, abundance of information influence the validity of information or how the remix culture changes the meaning of copyright and ownership? What principles should underlie the pedagogical social networks of the future and what role will education play when it comes to their augmentation? Anyway, whatever the questions may be, the fundamental principle for technology use is that it should serve human communication and not vice versa. It is therefore the task of this thesis to discuss and analyze the intersection of the phenomena of social media and pedagogy in order to be able to formulate a valid argument for or against and provide suggestions for improvement.

In order to unpack the meanings underlying social media for pedagogy, the thesis builds the argument discursively from the literature to the empirical studies and back along the following intertwining and interrelated sections leading to overall considerations and conclusions. More particularly,

- *Profiling the social media* (Chapter 2) examines the type of communicative acts that social media and networks generate,
- *Social media in pedagogy* (Chapter 3) focuses on the intersection of social media and the pedagogical purposes and practices,
- *Networked, virtual, digital: what pedagogy?* (Chapter 4) looks into meanings of pedagogy that emerge out of discussions in the relevant literature,
- *Methodological orientations* (Chapter 5) and *Findings: Overview of the empirical studies* (Chapter 6) present details of the empirical studies of the thesis and lead to the *Discussion of findings* (Chapter 7).



## 2 Profiling the social media

### 2.1 Approaching social media for pedagogy

My thesis tackles social media as a phenomenon that generates discourses leading to new understandings of the world. This approach posits social media not as single entity but as complex array comprising different aspects. Although not always visible, social media aspects influence our communication. Hidden aspects, therefore, need to be brought into light. In this section I will attempt to sketch a profile of the social media in order to uncover aspects, qualities and underlying meanings and discuss how these link with pedagogy. Toward this end, I use the term ‘text’ to refer to content published on social media and networks. Social media content challenges the established notion of ‘text’, as the ability to publish and share blurs the roles of authors and audiences. The notion of, for example, ‘produsage’ marks this shift in meaning, as it tackles the collaborative ongoing building of content that aims to improve already existing content (Bruns 2010). While produsage concerns the process of structuring social media content, my focus here is, rather than the process, on the structure of content per se, the discourses produced and underlying meanings. Therefore, my main interest lies in social media as acts of communication and this is what I aim to discuss and analyze.

Considering these, I choose to use ‘text’ as metaphor in order to refer to discourse and action. This notion of ‘text’ encompasses people’s practices. As Ricoeur (1992, pp. 155-6) argues, practices are based on actions that take into account the actions of others. In this perspective, connectedness in life is a phenomenon resting in the entanglement of the history of each person in the history of numerous others (Ricoeur 1992, p. 161). Under this light, it is always from someone else that practices leading to discourse and action are learned. The ‘text’ of discourse and action, then, is not and has never been the work of one unique ‘author’.

Based on the definition of metaphor provided by Ricoeur (1978, p. 103), I consider the ‘text’ as metaphor that aims to hold the missing parts of two different contexts together. Following this, the aim of the thesis is to reconstruct parts of two contexts. One is the context of social media. The other is the context of pedagogy. In this effort my intention is not to embark on a structural analysis per se but to untangle the dimensions of social media use through an examination of social media as genre of communication. The pathway leading from explanation of what social media are like to the interpretation of the realities that social media in pedagogy generate attributes a hermeneutical orientation to the thesis. Indeed, the thesis draws from Ricoeur’s hermeneutics although, given his rather

unfavorable view of technology (Kaplan 2010), such a choice might seem paradoxical.

Despite that, I see Ricoeur's contribution on a different plane. As Kaplan (2010, 86-87) argues, Ricoeur introduces non-hermeneutical forms of knowledge (e.g., explanatory methods, universal pragmatics etc.) to hermeneutics and comes up with a general theory of interpretation. The theory views text understanding as dialectic that involves argumentation aiming for context interpretation and universal validity. There are two main advantages here and both are relevant to this thesis. One is that the approach is closer to the notion of 'hermeneutics as *ερμηνευτική*' (Greek word for 'deep interpretation', as found in the work of, e.g., Plato and Thucydides). Depth (or critical) hermeneutics requires relevant reasoning in order to establish the truth claims of one interpretation over another. As it relies on probabilistic logic (Ricoeur 1991) and seeks alternative answers (or modes of possibilities), it belongs with the inductive tradition of science.

The interpretive approach is consistent with my main aim to examine whether the new reality of social media opens up a world of possibilities for pedagogy. Grounding arguments into insights from the empirical studies posits the thesis into the world of experience. In order to uncover the aspects of the social media I follow Sokolowski's (2000) phenomenological approach and discuss the structural aspects of social media for communication. Similarly, this choice is both relevant and consistent with the overall theoretical framework, as the phenomenological and the interpretive practices overall are grounded in the study of everyday perception where the essential involvement of human existence in the world becomes manifest (Kaplan 2010, Ricoeur 1991, Sokolowski 2000, Spiegelberg 1982).

## **2.2 The phenomenon of social media**

Social media deploy the desire for human communication and relation and offer multiple channels of communication where young people produce content (Baym & boyd 2012, Ellison and boyd 2013, Marwick and boyd 2011), publish image-based artifacts, and participate in text-based discussions.

The increasing appearances of video-sharing sites and photo-sharing sites on the Web and the fact that popular social networks nowadays support and encourage moving and still image broadcasting and sharing indicates a fundamental shift for social communication. The stronger focus on visuals gives way to artifacts that bring together semiotic systems and codes that emerge out of movement and change, and transfer meaning on the basis of systems that are not, exclusively, linguistic. In this way, by allowing a different 'language' to come up through image-based practices and modes of interpretation of movement and change, social media seem to also create another new space (Vivienne and Burgess 2012). When social media are integrated into pedagogy for learning with

image-based practices, an opportunity opens up for pedagogy to become transformative by introducing a plurality of interlocutors, situations, codes, messages and meanings (Ricoeur 1991).

In other words, the promise of the social media to pedagogy is the ability to extend the learning space by offering the possibility for connectivity and, in this way, allow young people to transcend into more mature levels of consciousness, into being rational, into working with ideas as well as inclinations and feelings (Sokolowski 2000) within learning networks and communities online. It looks like that legitimacy for pedagogical integration is founded upon the assumption that mutuality is an inherent quality of social media and networks, as they open up the opportunity for different sorts of communicative acts to take place. Mutuality relates to our understanding and acknowledgment of the presence of others, that there are other people out there and must be paid due (Ricoeur 1991, 1992). Mutuality intertwines with subjectivity, presupposes a sense of justice and is fundamental for any educational system and any pedagogy.

Mutual subjectivity entails a level of or a desire to gain or establish some sort of shared understanding and common ground (Ricoeur 1991, 1992) among the members of a group in order to work and learn collaboratively. Collaborative work takes effort and can involve multi-channeled, multimodal communication in synchronous and asynchronous mode toward the production of an artifact through practice and by the application of some sort of technique. By working in togetherness and putting time and effort into the synthesis of a meaningful, consistent and coherent artifact (Ricoeur 1976, Sokolowski 2000) can initiate a new understanding of the world.

Or, in other words, to put it in pedagogical language, collaborative work upon the fulfillment of a shared purpose can lead to new knowledge and, therefore, learning.

As one widely held view nowadays advocates that social media and networks are about connecting with other human beings, relating and developing identities, generating and repurposing content, and influencing public opinion (e.g., Baym & boyd 2012, Cover 2012, Ellison and boyd 2013, Marwick and boyd 2011, Stewart 2015, Zhao et al. 2008), it is but natural to assume that social media and networks are compatible with pedagogy, since they are said to have the potential to, among others, allow users to personalize self-directed learning in networks and communities of peers (e.g., Downes 2004, Siemens 2006).

Thus, it is often taken for granted that social media and networks serve the pedagogical purposes by creating space for young people to communicate and collaborate in order to develop an objective understanding of the world.

An objective understanding of the world means making sense of phenomena (Sokolowski 2000) that are characteristic of the natural world and are the object of study of the natural sciences, such as chemistry and physics. It also means making sense of phenomena such as literary genres that are objects of studies in

linguistics and literature, or even gain insight into other domains such as art, music and mathematics.

In all these cases, social media pack our hopes for a new space and a new method that will enable young people to develop in such ways that they will not only be able to understand the syntax, consistency and coherence underlying the laws and practices in the Arts and the Sciences; they will be able to use this knowledge in order to produce meaningful works of discourse, that is artistic, literary and scientific artifacts. They will do so with care and respect for other human beings and the environment. In other words, the hope is that social media can open up the space for creative pedagogies where the ultimate goal is that young people develop into critical thinkers and agents, (Castoriadis 1991, Giroux 2011), able to think rationally and, by allocating categories to experience, they are able to make informed judgments, so that they can read and name the world (Sokolowski 2000), and take initiative to act (Ricoeur 1991).

I borrow the terms syntax, consistency and coherence from linguistics and from Sokolowski's (2000, pp. 168-172) 'Introduction to Phenomenology', where the author discusses these three qualities as essential structures of human reasoning when the question is what criteria can define meaningful content. The assumption here is that meaningful content underlies human reasoning expressed in a kind of form through, for instance, the linguistic code.

In a similar way that any true and correct proposition, in order to be considered as formal logic, depends on syntactic combinations, it also depends on valid combinations of propositions into larger wholes, into non-self-contradictory arguments (consistent) whose contents belong together, or come from the same region of discourse (coherent) (Sokolowski 2000, pp. 170-171).

My view is that these categories can equally well explain structure in any knowledge domain and, therefore, be the object of pedagogical purposes. For example, in order to understand a chemical reaction you need to be able to define the terms, that is what the substances involved in the experiment are and what they mean. In other words, you need to grasp the syntax of the chemical phenomenon. When you perform an experiment, you replicate the reaction in the lab not by applying the laws of physics but by thinking in terms of Chemistry in order to be coherent. In addition, your results should be consistent with the materials you used in the particular condition you created.

Similarly, in the arts you also need to develop some kind of syntax. Before, for instance, trying to experiment with new shades, you should know what happens when you mix the blue with the red. When you set off to make artwork during your studies of Expressionist painters in order to present your insight into their work you need to follow the forms underlying the movement. Eventually, the artifact is but a composition of more complex and larger wholes. In this sense, it resembles a synthesis of sets of propositions and requires some structure so that it conveys syntactically appropriate, consistent and coherent meaning.

All these situations, and many related others, could refer to settings meant for pedagogy. The artwork and the lab experiment could be parts of a teaching plan. In any case, to meet the ends, young people who carry out knowledge building tasks, in addition to the need to structure reason, they also need to invest time and effort to achieve the goal. It takes practice, the application of certain techniques and labor to perform an experiment, draw a painting or solve a problem and, thus, grasp an objective understanding of the world. The mission of pedagogy is to lead the youth to such understanding.

Pedagogy, however, does not take place in a vacuum. It is a social experience, a dialogue that is actualized between a pedagogue and the young person and her peers and, thus, an act of communication. Being acts of communication, pedagogies generate discourses, oral, written or ones that involve a certain type of inscription (e.g., as in a painting) (Ricoeur 1976). For knowledge building, collaboration patterns allow young people to work together and, by exchanging ideas and views, to fill in knowledge gaps and solve problems.

Collaboration patterns, where the young people work in small groups and teachers support student production, form the basis of, for instance, relational and dialogical pedagogies (e.g., Smyth et al. 2013, Bingham and Sidorkin 2001, Matusov 2009). It is these discourses that the social media promise to enhance by opening up opportunities for communication beyond limitations posed by the necessity for spatial co-presence following the route of a pre-determined timetable.

To be able to respond to the question whether and to what degree pedagogy is served, I will discuss the structure of social media as genre of communication by looking into the possible syntax, consistency and coherence of discourses that they make possible.

### **2.3 Social media as opportunity for communication**

Social media is the term that signifies the coordination of information and communication technologies to enable interconnectivity of Internet users and shareability and spread-ability of user-generated content, and emerged out of the Web 2.0 phenomenon (O' Reilly 2007). Social media, therefore, are a multiplicity of adaptive technologies that open up channels for one-to-many and one-to-one communication in synchronous and asynchronous mode, thus transcending spatial and temporal boundaries.

Technological systems that are indispensable for the existence of social media can be visible like mobile devices and computers are. They can also be invisible like standardized communication protocols that make the Internet possible are. If protocols would not be there and were they not shared, the Internet and the social media would not be there either. Social media communication therefore is founded upon the Deep Web, where sharing of technical systems

creates technical networks. Human networks are built upon technical networks, depend on programming, broadcast through hardware and are hosted on platforms, software and applications.

Thus, the Surface Web also becomes possible.

There are different modes therefore that the social media manifest in and become part of our experience. These modes influence the ways we perceive the media and, consequently, the ways we act with them. Although social media are presented to us as a unified visible world, it turns out that they are a partly hidden, divided whole that constitutes the synthesis of acts of communication, through events and meanings intended by different interested parties.

Young people are one such interested party, being active users of the Surface web, the social media and networks. The magnitude of youth participation has activated discussions on the ways their activity on social media and networks benefits personality development and identity formation and what kinds of sociality and exchanges take place there.

Social networks have been defined as relations among people who deem other network members to be important or relevant to them in some way (Wellman et al. 1996). Social networks are articulated on social network sites through linking and viewing profiles (Donath & boyd 2004). Social network sites are websites where participants construct a public or semi-public profile within the system and articulate their relationship to other users in a way that is visible to anyone who can access their profile. The profile therefore is the kick off point of communication between the profile owner and her network. As social networks encourage interactions through profile updates, these seem to be points in the cyberspace where a kind of knowledge grows out of sharing instances of experiences that become visible and accessible.

There are mainly two major aspects of human existence that seem to prevail in relation to social network activity. One concerns mutuality and relates to profile as co-construction, in the sense that the web of relationships (Ellison & boyd 2013) that are built around it acts as catalyst and co-shapes identity. Profile updates, sharing personal information and commenting make the network a collaborator in youth's identity formation (boyd & Ellison 2008). The 'collaborative self', however, is not imposed over the individual. It is the individual that decides to enter this type of coalescence (Romele 2013, p. 114).

This suggestion points toward another aspect of the human condition that links with the ability of the individual to choose her own identity, free from possible institutional and cultural impositions and, thus liberated, participate in online discussions. In this respect, the profile provides the cue for 'co-presence' in the networked virtual life, in a similar way that the physical body sustains awareness of co-existence, or of apprehending the other, in a livingly present sense (Moustakas, 1994, p. 37) in actual life.

While embodiment in actual life can be restrictive, disembodied online encounters create the space for new identities and, thus, make it possible for people to reinvent themselves (Cover 2012, Zhao et al. 2008) on the network. To date, however, there is no indication that the Internet is immune to the power structures out of which it emerged and within which it operates. On the contrary, as Salter and Blodgett (2012) argue, external contexts of heteronormativity and sexism that are endemic characteristics in patriarchal cultures equally play out in social media and reinforce actual life social vices, such as rape culture or misogyny.

In addition, being a collaborator, presupposes a setting that makes unified labor toward the production of literary, artistic or scientific work possible. Collaboration therefore is purposeful action and aims to bring some kind of sense or meaning forward. The sense of action emerges out of the structure underlying the content that the participants build within the collaborative pattern. Thus, sense in collaborative action intertwines with the collaborators' dialogue.

Let's consider again the chemical reaction and the lab experiment as knowledge building experience in shared space. The setting is the lab of a public institution, possibly a school, and the experiment runs in the form of a digital story production where the participating young people act as storytellers and makers. Each member of the pair of collaborators is a distinct individual. There is a degree of perception of the other and thus separation from the other.

I can perceive where another person is and the two of us can switch places; but I can never occupy her point of orientation. Likewise, my peer has a particular perspective, one that cannot be reduced to my own (Leichter 2012, p. 118). Still, we have a common goal, even if from distinct angles. My purpose is to present how I managed to dilute substances and make an explosion in the Chemistry class and, to this end, I perform the lab test. My partner is making a film out of it and we plan how to shoot this together. But another aim for her is to show how critical it is to use the exact amount of substances. To do so, she sets out to record a number of close-ups. My peer and myself are both telling the story of a chemical reaction and can switch places. I can be the filmmaker and she can perform the experiment. But, although working toward the same goal, I cannot occupy her orientation. I also shoot close-ups but I do so by taking a different angle, a different perspective. My close-up can never be exactly the same as hers. And yet, we both end up with an understanding of both the chemical reaction and the filming phenomenon. I learn from her and so does she as we work together as pair. We ask our peers because we are interested in their views and, also, they want to know the details of our work. We argue so that they can 'see' the reasons behind our choices. We grow fond of this collaboration and our feeling of belonging to the group grows. Later, as I watch the digital stories of our group online I come up with the idea to remix the lab trial story with one that recounts an ancient myth. I intend to blend real with fiction and integrate the

explosion into the plot to show how a love story can turn into a tale of misery when technologies are used unwisely. I use the comment tool on the social environment to contact her. She agrees to my suggestion. But she cautions that I should inform the group, as the myth is their own digital story. They would not appreciate it if we used their work without attribution. I agree. In fact, I would not like another peer to remix my own story without letting me know.

This story could be part of a pedagogical scenario where the task for students is to make explicit the pattern underlying the relation of specific chemical substances under certain conditions. To do so, they need to deal with a series of challenges and decipher different sets of codes. One is the code or language of Chemistry. Another is the cinematographic language. Knowledge building in this case lies in, at least, two levels. First, it relates to signitive (Sokolowski 2000) articulation or recognition of meanings correlating with concepts, terms and the chemical process overall. In other words, the young people need to recognize the syntax of the phenomenon and correlate it with the identity of the chemical reaction in order to learn. Next, they transform the signitive into perceptual articulation. They do so not only by performing the experiment, but also by filming it. In this way, by shaping a coherent structure, they are able to name the phenomenon with greater exactness than when they simply imagine its manifestation when reading a textbook or by watching a video story.

On the contrary, here they make the story of the experiment and produce a series of actions that the young storytellers themselves can identify. As they share the story on the network, the audience of peers can possibly re-identify actions that, for example, display the specifics of conducting the experiment, the filming process and so on. Importantly, these actions, being dialogical and inscribed, bear propositional content and, therefore, they also carry the interlocutors' intentions. Intentions are made explicit through a certain kind of 'grammar' and, thus, intended meaning is recognized and understood (Ricoeur 1976, p. 19). In order to enable understanding, 'grammar' can include, for instance, the ways words are put together in an utterance, vocal and gestural expressions and so on.

This scenario of a pedagogical digital story, in addition to the need to follow the rules of constitution of both the experiment and the digital story, approximates two modes of truth. One is the truth of correctness and another the truth of disclosure. I borrow the terms from Sokolowski (2000, pp. 158-9) to refer to the confirmation or falsification of a statement, hypothesis or claim. Building an understanding of a scientific phenomenon means that the young people confirm or drop the hypothesis that the particular chemical substances will react in a certain way under specific circumstances. In this way, they discover the truth of correctness of science. To do so, they make calculations, considering laws, formulas and so on. They depart from this knowledge, however, to formulate a hypothesis concerning how science and wellbeing are related. Thus they deal with the truth of disclosure. Certainly, they need to go deeper into this new



knowledge and sharing a story where metaphors from science are remixed with metaphors from ancient myths can create, in addition to an audience, a public forum to deliberate on the claim with other networked peers. In this way, disclosure can lead to yet another truth of correctness by looking beyond the 'I' of individual understanding to an awareness of the world as 'We'.

Online content, in other words, does not escape the need to follow the same rules of constitution just as any other type of meaningful discourse does. However, the content of social network interactions seems to be serving more personal and mundane purposes, aiming to develop a sense of relationship to the broader society and to engage in identity work (Baym & boyd 2012, boyd 2008). Certainly, bringing up, for instance, the drama that surrounds the appropriation of teenage relationship tensions (Marwick and boyd 2011) is an indispensable part of life and it is as important when it comes to teens' everydayness as well.

It is indeed important that teenagers feel free to express themselves, as they do during the school break or in public spaces that they are allowed to make their own, when they are not ostracized from them or when their behavior is not conditioned there. Young people need their own spaces for creative expression and networks, no doubt, seem to provide some form of publicness, as they enable sharing of content with friends, peers and family.

The question, however, asking about whether linguistic reasoning expands on the social network still remains. Instead, more questions seem to come up concerning, for example, the quality of networked publicness and whether this, rather than empowerment, creates vulnerability. Research literature on social network publicness argues that it is an ever-shifting process in which people have to deal with blurred boundaries, multi-layered audiences, individual attributes, the specifics of the system they use, and the context of their use. Most of the people do not have the experience of a collaborative framework to work through these issues with others (Baym & boyd 2012, Vivienne and Burgess 2012). In this process skill is important (boyd & Hargittai, 2010; Hargittai, 2008). As work on skill has shown, people differ in how well equipped they are to take charge of these processes and make wise choices. As boyd and colleagues put it, given the technological nature of social network activity, the presence or absence of skill reinforces existing inequalities. And yet, this is only half way to the truth.

Social network publicness leads to interactions that, while could have been protected from fellow members and authorities, may now take place where all can see. It seems however that young people follow different tactics and rather than limit access to content they do manage to limit access to meaning (Marwick and boyd 2011). Research findings (boyd 2012) show that, in order to protect themselves from voyeurism and the surveillance that the visible-by-all collapsed context generates, young people are able to manipulate content strategically.

Some examples include the use of pronouns and in-jokes, cultural references and links to offline events to share encoded messages that are inaccessible to

outsiders. Yet, as boyd (2012) concludes, control of the situation is out of the question, since it would presuppose that, in addition to skill, people have the power, the knowledge and an insight into the situation that allows for informed decisions about what to share, to whom and when. This is one point where vulnerability in the social network experience shows up and concerns the structure of the networking system and how this limits user control over content. Another vulnerability concerns the fallacy that by publishing on the network people actually share stories.

In the theory of discourse (Ricoeur 1976) the exercise of authorial authority over the text, or the assumption that it is the author's intention that hypostasizes the text, results in intentional fallacy. It is this phenomenon of fallacy that emerges out of stories that people publish on the social network. Although these are in some way inscribed (e.g., in textual form or in videos), they are perpetually tied with the 'author'-user's intention. The fallacy lies in that, although not spoken but channeled through material media, stories-as-posts remain samples of oral interaction between the user and her more or less pre-determined network. As such, they bear the narrow referential frame of the face-to-face situation, one that keeps returning to the same individual, the 'I' of the poster.

I will discuss social network interaction and how this influences discourse in further detail in the following section.

## **2.4 The discourse in social media: public or visible?**

The argument that social media and networks blur boundaries seems to concern content that, rather than addressing a public forum for reflection and deliberation, is visible by an invisible audience. One misinterpretation then concerns the public-visible dialectic. What is considered as public, it is actually visible by those who comprise the user's network.

Another misunderstanding results from the public-private dialectic. Social networks have been discussed as publics (boyd 2010, Marwick and boyd 2011) where people manipulate the levels of privacy by adjusting technical features of the platform. Ultimately, however, does this notion of the network as public exist? If we accept the supposition that posting equals sharing a story, inscribed in textual or multimodal format, this automatically means that the author-poster's intention and the meaning of the text cease to coincide (Ricoeur 1976, p. 29). Inscription substitutes or even displays immediate vocal, physiognomic and gestural expression. Does cyber text become semantically autonomous? Does what the text means now matter more than what the author meant when he wrote it? Does it matter less or, even, does it matter at all?

Being utterances saying and addressing the web of connections, exchanges on the social media are events. We need, therefore, to decide whether these are manifestations of spoken or written discourse. From a pedagogical perspective,

this is a significant matter. Social media are supposed to be a genre of synchronous and asynchronous mode of communication and can involve one-to-one or one-to-many interactions. In these possibilities the utterance can be in written form, spoken or either. The question that arises, however, is whether social network interaction can be considered as autonomous text or not. Autonomy means that the text can receive several semantic interpretations by the audiences who receive them. The meanings of the audience then meet with the meaning of the text when the latter is liberated from the intentions of its author.

Sharing a post on social media presupposes the temporal persistence (boyd 2010) of the content. Also, the network of the user, having received the textual or multimodal information, possibly through news feeds, is expected to respond by commenting, sharing, mentioning, replying or tagging. The possibility that the post receives a reaction for as long time as it remains published remains. The post as text, therefore, is never actually detached from its 'author'-poster and, although inscribed, it never becomes a wrought entity. It remains a piece of oral communication, tied with the here and now of its interlocutor and the reference system that underlies this situation.

Interaction on a social network is spoken discourse and, although it makes sense, it has a narrow frame of reference that is common among those who post or share it. This sense cannot extend beyond the boundaries of the primary identification in order to become a piece of work able to cross the boundaries of the network. It is no accident that responses in social networks often include emoticons, those symbols representing emotions in the form of, for example, happy faces, and aiming to exteriorize how interlocutors receive the message in ways that characterize oral expression.

Despite share-ability and persistence, the communicative event remains entangled with intentional fallacy. It is in essence a private event whose meaning is locked within the limits of the situation set by the speaker's intentions to just say, without saying about.

Status updates are saying that profile owners recommend this or that kind of music, are feeling sad or otherwise, and so on. The communicability of the act therefore is limited, as, lacking the force of speech, cannot exteriorize properly its different layers.

In spoken discourse, for example, illocutionary force depends upon mimicry, gesture and other non-articulated aspects of discourse. Illocutionary force is the speech act that determines whether an utterance expresses the intention of the subject to promise, threaten, wish and so on (Ricoeur 1991). In addition, the post, being a manifestation of oral discourse, lacks the inner structure of a sentence and, although it bears some kind of syntax, it results into 'ungrammatical' hybrid, an ongoing 'saying'. In other words, what matters in a post is rather identification than the predicative function of the discourse. Identification is

what refers the meaning back to the utterer, while predication attributes to the proposition its universal character (Ricoeur 1976).

Instead of intertwining identification and predication functions, the singular (i.e., the 'who' of the utterance) seems to carry more weight than the type of action, relation and so on, designated by the predicate. Eventually, although understood, this message does not disclose any other truth but the truth of the situation, the truth of the moment within the flow of the network. As Rainie and Wellman (2012) put it, in networked societies we are likely to connect with multiple shifting networks that meet our informational or other needs at that moment, as opposed to a smaller number of static groups that serve all our needs. By catering for the need of the moment, the network does not only fail to free us from spatial and temporal limitations. Instead, it binds us to the eternal here and now of the ego of the poster.

Social network interaction is and remains ephemeral exactly because it freezes the discourse produced there at the level of reference in the same way that it traps the discussion in an absolute present. As it lacks required practice and textual autonomy, it cannot transform into an artifact. Although dialogical, therefore, interaction on the network remains entangled with the referential scope characteristic of spoken discourse. Being the criterion of what we say, reference in speech entails the possibility to show, designate or describe in a definite way the thing referred to as a member of a situation common to both speaker and hearer or, in this case, poster and audience.

Within this common frame of reference, definite descriptions provide singular identifications and relate that about which we speak to a unique position in the spatio-temporal network, to the situational here and now. Consequently, all references in the dialogical situation are situational (Ricoeur 1976). From a pedagogical perspective, this type of interaction could serve as lead-in teaching methodology, a warm-up activity that draws attention and introduces the topic of discussion in order to bring relevant content knowledge into focus. Although it does not support memory, it can nevertheless activate it. In this way, by bringing forward existing knowledge it can lead to new knowledge building, even if it is not new knowledge itself. It should, however, extend into a plurality, rather than remain within the singularity of references.

Considering the above discussion, it seems that the ability to share content on networks does not necessarily mean advancement of communication. As the situational character limits the exchange, the possibility for forceful speech is also limited. Spreadability and persistence do not improve the situation. Nor do searchability and visibility. The possibility, therefore, for social media to empower communication becomes doubtful.

Being a complex world made up of diverse aspects and distinct qualities, social media allow for both possibilities and vulnerabilities. The semantic confusion they invoke as we translate sharing and visibility into publicness, nowadays,

is one such vulnerability. Blurring the boundaries of oral expression and inscribed communication while practice deprives the former from the richness of the latter is another vulnerability.



### 3 Social media in pedagogy

What happens then when teachers integrate the social media into their practices for pedagogical purposes? Teaching practices are social practices and, as such, they concern the specific ways of appropriating and processing language in the school and extend to everything that can take place between those who participate in interaction, including those who, for some reason, are considered as experts or are excluded (Anguemiller et al. 2014, p. 6). Indeed, pedagogical practices embedded in the discursive space of the physical classroom are teacher initiated and influence the discourses and texts that all the participants produce there. In other words, the kick-off of pedagogical practices depends on a teacher's judgment of what constitutes a learning need for the student and how this can be catered for. Judgments reflect teacher purposes. As what takes place in a classroom is a dialogical event, it is logical to assume that creating a context of opportunities for communication is, or should be, also part of the teacher's purposes. When a teacher practices teaching in the physical space of the classroom she normally presents the phenomenon under study and assigns classroom work so that the students gain an understanding through practice in pairs or small groups.

The interaction between the teacher and the students produces 'texts' or discourse in spoken or inscribed form like, for example, a written text is. While there can be variations depending on the size of the class, the skills and abilities that each student already possesses or the tools that enhance teaching, studying and learning, this can be seen as a basic scenario that can apply to any classroom situation. In other words, this can be considered as the established order or an ongoing course of things in an educational setting.

Of course there can be more or less teacher talking time or different cognitive tools that the teacher provides to the class in the form of, for instance, graphs, tables, notes, pictures, and summaries for meaning extraction. Also classroom interaction can be more or less student-centered with collaborative patterns that vary from simple arrangements, such as pair work, to more complex and less teacher controlled systems, such as pyramid discussions and debates. A pyramid discussion, for instance, is a technique that allows for student talk to increase while the level of teacher control decreases in discussions varying from pair work to larger groups. However, a technique only offers a possibility for knowledge building approximation.

Nevertheless, possible variations of communicative structure should be founded upon the ultimate pedagogical purpose to create a setting where young people develop in such ways that they will not only be able to understand the syntax, consistency and coherence underlying the laws and practices in the Arts and the

Sciences; they will be able to use this knowledge in order to produce meaningful works of discourse, that is artistic, literary and scientific artifacts. The digital story out of a chemical experiment could be one such artifact as it represents an instance indicating how teacher purposes can intersect with student purposes.

It is at this point of intersection where purposes underlying the communicative event of the classroom become shared and point toward the production of a genre. Swayles (2014, p. 307) defines genre as a vehicle toward the achievement of a goal. Goal achievement, such as the production of a story, presupposes a set of shared purposes underlying the rationale that energizes the performance of coordinated actions. In this sense, purposes become visible through meaningful action, which in turn takes shape and results in a piece of work or product that belongs to a genre. A genre therefore is a generative device that is based on laws of composition and proceeds from the application of categories such as practice and work toward the production of artifacts and works of discourse (Ricoeur 1976). A genre then encompasses sets of ways of acting (Fairclough 2014, p. 380) as well as the purposes of the actants.

The pedagogical digital storytelling scenario that I discussed earlier can be one such genre as it compacts a series of intentional acts resulting from sets of shared purposes. By investing time and effort in the production of the digital story young storytellers build knowledge, as they transcend the syntactical level of understanding an object to enter the realm of interpreting it. The syntactical level forms the basis of understanding and can result out of the communicative event, be it part of teaching action, an experiment performance and so on. Although there is scant evidence that a direct link exists between teaching action and knowledge building, a teacher's presentation can frame the communicative event and provide direction and focus. Acting as scientists, young people depart to confirm or falsify the hypothesis under the phenomenon of investigation and thus explore the constituting laws of consistency and coherence. Acting as storytellers, they reproduce the structure of the event by applying filming practices.

By shooting close-ups or using camera tilts and pans they develop a style for expression. In other words, they use the language of signs as signature, as means for self-identification. In short, through the application of structures, those underlying science and cinematography, the students not only make a visual story; they also create a text. This text is accomplishment that draws from the interaction and the purposes that the contributing parties share (Fairclough 2014, 384). In this sense, the text is the result of both teacher and student practices and reflects the effort to grasp and exteriorize the meaning structure of both the phenomenon and filming it. The digital story therefore evidences the youth's agency and a shift from the 'grammatical' that determines the syntax of the situation to the level of interpretation. The fact that the youth decide to remix in order to present the consequences of bad science indicates an act of interpretation. At the same time, this is an act of challenging an existing institution by explicitly be-



coming critical and making negative consequences of scientific achievements visible. It is possible therefore that sharing a text that takes a stance in order to tell a story can lead to critical thinking and critical agency. Being a critical thinker and agent presupposes self-reflection, choice and judgment.

Sharing such stories on the network can create the possibility for a public forum to gather online, one that acknowledges the truth of disclosure, in addition to the truth of correctness that is, for instance, encompassing the chemical experiment. The thinking embedded in a story that is critical of the institution of science indicates a shift from experience to intellection by naming categorial objects and challenging the neutrality of perception. Categories of science that can, not only improve the world but also science that can make the world a worse place come up. In this way, the role of science as both benefactor of human wellbeing and otherwise is deneutralized. But it is not the social media that enable this de-neutralization; it is education that does it in order to provide the formative culture necessary for building knowledge and skills to be able to participate in a society of social justice and democracy (Castoriadis 1991). But this is one way for social media to actually serve human communication, taken that it constitutes part for what is the dominant cultural apparatus (Giroux 2011) nowadays. In this way, through the interference of the school and pedagogy it is possible that ephemeral popular networking changes into a more informed activity.

Depending on socio-economic developments and political decisions, public schools are faced with problems such as governmental budget cuts, student attrition and school leaving, overloaded curricula, large sized classrooms and mixed ability, to name but a few. Public schools, however, are the gatekeepers of the world's ideal for democracy and social justice, being the spaces where young people are entitled to equal access and fair treatment so that they can get the *paideia* (word for *education* in Greek) they need in order to deal with life challenges, being the citizens of the future.

Public schools therefore should be given the chance to maintain their role of educating the youth by updating the choices for learning they offer. Blending the face-to-face pedagogical situation with connective technologies can be one such choice. When teachers decide to integrate social media into the pedagogical setting they actually intervene and thus disturb the established order of co-presence by exercising the power to take action and initiate a new situation. As every initiative is always a purposeful act (Ricoeur 1991), the integration of social media is also purposeful.

A purpose can be stated explicitly through a variety of textual and stylistic choices that enable the underlying structure. And yet, we cannot interpret a purpose on the basis of linguistic choices solely. If we did, we would run the risk to end up with an oversimplification of what the meaning of purpose is, by, for example, identifying the purpose of a scientific article as being a report of a series of experiments. Clearly, purposes are less overt and demonstrable (Swales

2014, p. 313) than sets of aims that can constitute aspects of a purpose, just as it happens with the example of the scientific article. In academia, however, we recognize that, although a work of scientific writing is articulated in a specific style (namely academic), it can nevertheless defend different sorts of paradigms.

Therefore, purposes become manifested not only through an understanding of the syntax of a paper that determines, for example, what the data analysis or the discussion section should read like. Consistency and coherence are also essential so that the meaning of a purpose can come through. A purpose therefore depends on the dynamic elements of the text that externalizes it. These make up both its sense and reference. The scope of reference of a purpose is a lot broader than that of an aim. A purpose is associated with the belief and value system that inhabit an individual's mind. It is actually the externalization of such belief or value. As our lived experience is intentional, it is essentially experience of something or other. Consequently, as every act of experience is correlated with an object (Sokolowski 2000, p. 112), we intend to do things. Our purposes, therefore, become externalizable through and form the basis of our actions. Our purposes then are the carriers of our intentions that we express as 'My purpose is to ...' or 'I intend to ...'. In other words, our purposes become visible through action and are the expressions of our thinking. Also, they are the features that can modify the communicative situation through action. Action and initiative to act are both purposeful. But not every single action initiates something new.

### **3.1 The purposes in social media for pedagogy**

In Finland, research and literature in the educational sciences (Kansanen et al. 2000) correlate teachers' purposes with the internalization of the values and goals of the curriculum. In other words, the values and goals of the curriculum determine the pedagogical purposes (Kansanen 2009b). This consideration counterbalances the element of vagueness inherent in the individual's purposes, given that our purposes reflect mental acts, such as beliefs and values. Elsewhere (Damon, 2008; Damon et al., 2003), the sense of purpose is attributed with a mission-like aspect that connects the self with the world. In this view, a purpose is seen as a stable long-term goal that contributes to the world beyond the self while it is also meaningful to the self. Thus, teachers need a sense of purpose in order to find their work meaningful and meaningfulness is rooted in the value system and the beliefs that the individual develops through experience on the course of her life.

In the case of teachers, this development of the pedagogical experience translates into professional expertise and feeds into the pedagogical content knowledge (Kansanen 2009b). Therefore, as teacher pedagogical expertise develops, so do her purposes. Empirical findings from research conducted in Finland present an example of what development in purposefulness can look like. These studies

(Tirri, 2012; 2011) investigate practicing and student teachers perceptions and show that both emphasize some general purposes in teaching regardless of the subject matter. All teachers view themselves as responsible professionals whose task is to teach the basic knowledge of the subject matter to students. Furthermore, they recognize the responsibility to provide holistic education to young students, including their personal and ethical growth. The difference in these views lies in that practicing teachers seem to place a stronger emphasis on young students than student teachers do. The latter show greater concern on the mastery of subject matter and the educational responsibility involved in teaching. As teaching experience builds up, teachers' perception of pedagogy shifts and purposes change as well.

This experience packs general knowledge, content knowledge, knowledge of the subject matter, and understanding of the curriculum. Seen as a whole, this constitutes pedagogical content knowledge. In turn, practice feeds into pedagogical content knowledge. According to Kansanen (2009b), practice means action, thinking, reasoning and making decisions. Pedagogical practice is therefore rational practice that aims to externalize the purposeful thinking of the actants. Consequently, when a teacher decides to bring social media into the classroom, she does so based on the belief that connective technology is one medium to benefit learning and one that can lead to optimal learning and good results. What constitutes good results is however a matter of interpretation. Good results would mean a different thing to the teacher who believes that learning equals memorization, different for the one who believes that learning is to enhance students' cognitive abilities and different for constructivist teacher.

Each and every one of them, then, would use the social media for different purposes applying different methods, according to the personal belief of what knowledge is and what it means for the world. Kansanen (2009b) is justified when he points out that the effort to understand pedagogy is far more complicated than to exclusively link it with content knowledge. He goes even further to add to the pedagogical equation the knowledge of the student. This view marks a shift from a solipsistic notion of the teacher who sits alone and thinks, although pedagogically, about others to the notion of the teacher who interacts with the student. As such, it constitutes a fundamental change in the way we conceptualize the instructional process as a space where the teacher and the student converse, or enter into dialogue within the realm of lived experience. This pedagogy, where the teacher and the student acknowledge each and one another, is an experience of mutual subjectivity.

As the studies I discussed above indicate, there is a gradual emancipation of the pedagogical thinking and action from the prescriptions found in the curricula. Through time teachers seem to realize that the aims described through the lines of a textual environment in a specific stylistic form and register cannot be but support aiming to soothe the pains of the induction stage. Later, purposes

cannot but be directly associated with the classroom event. In this way, purposes lose the psychological character of entities resting in the individual's mind in the form of belief, or any mental act. A purpose neither resides within the mind of the teacher nor becomes hypostasized through the formal features of textual structure. A teacher's purpose needs to be shared with all those who shape the classroom communication and is translated through their action. Teacher purposes therefore are grounded in experience and are shared purposes.

A shared purpose that becomes manifest in the communicative event of the classroom is a pedagogical purpose. As such, pedagogical purposes are manifestations of the thinking of both teachers and students.

### **3.2 Didactical and pedagogical thinking**

In Finnish empirical educational research and literature (e.g., Kansanen et al. 2000 etc.) pedagogical thinking is intertwined with the internalization of the values and goals of the curriculum that determine teacher purposiveness. In addition, in this research tradition the introduction of the term pedagogical thinking represents a shift from the use of the term didactical thinking and is, even, its substitute. This change aims to ease the tension underlying the use of 'didactical' (Kansanen 2009a). The term draws from the German tradition of *Didaktik* and is in conflict with the Anglo-Saxon tradition that associates its use with a view of teaching as transmission of knowledge. In his quest for the true nature of the term, Kansanen (2009a) locates its origin in the German and English speaking cultural world that dates back to mid-17th century usage of the item and draws from the Latin *didacticus*, meaning instructive.

The etymology of the item, however, turns to the Greek language form where it draws connotations such as guiding to knowledge through arguments, teaching by enactment and teaching through philosophy. In this sense, essential meanings of didactics also involve guiding to knowledge and learning through both reason and embodied action. Departing from the verb *διδάσκω* (meaning *teach* in Greek), in a similar way that when I walk, write or speak, in reality I do, the meanings underlying 'didactical' signify a teacher's action. A teacher's action is in this sense, didactical action. Within this perspective, didactical thinking is a teacher's thoughts leading to such action that, for instance, enables the student to use her logic in order to solve a problem or her body to express an emotion and so on.

Didactical thinking, therefore, leads to didactical action. Nowadays, the core of didactical teaching action is to combine subject-matter didactics with general didactics in order to achieve optimal ways to teach and study a particular subject (Kansanen 2009a, p. 31). Towards this direction, Kansanen (2009a) proposes three large areas of subject matter: didactics of arts, of natural sciences and of practical subjects. This possibly signifies the reconsideration of boundaries divi-

ding into discrete content areas or subject matter and, thus, into separate teachable fragments. Such boundaries become more and more blurry nowadays.

The acknowledgement that existing principles are convergent rather than divergent seems realistic in the current era. And yet, even these larger categorizations seem suspicious when reflecting upon the consideration of what could constitute general didactics. Would, for instance, a natural science teacher need to be skilled in the teaching of history when she intends to get through the evolutionary changes of a phenomenon throughout history? Should the teaching of history be part of didactics of arts or of general didactics? The relation of didactical thinking with general and specific subject matter is one part of the equation though. The other part relates with the notion of content itself. In a way, the insistence that school knowing is exclusively tied to whether this is included in a curriculum or not disconnects didactical thinking from action leading to knowledge and, instead, couples it with getting the content through.

This raises mainly two considerations. One concerns the essential meaning of content per se. According to Kansanen (2009b), the notion of knowledge is unclear, while the term 'content' best describes what is to be learned in schools. Content then becomes an entity only when incorporated into the curriculum; otherwise it does not exist, at least not within the sphere of the real. The second consideration concerns teacher action. Earlier I mentioned that didactical thinking leads to action that, as every human action, can be interpreted by its agents on the basis of the intentionalities it bears (Ricoeur 1991, p. 234).

Taking the social media and networks as an example, their integration for learning prior to a relevant incorporation into a curriculum would implicate two meanings. One meaning could be that the intention behind such integration is based on knowledge that is not real, which in turn would mean that such integration would not be necessary. Reality, however, negates this claim. Another meaning results from the position that didactical thinking should be focused upon the curriculum exclusively. That would mean that a teacher is thoughtful only when thinking along these lines. Otherwise, that teacher would be thoughtless.

Considering technological advancement and the role that information and communication technologies play in our lives, it is hard to verify the suppositions that the previous discussion arrives at as either justifiable or justified. On the contrary, the problematic that the discussion raises rather centers upon the question whether it should be the curriculum that decides what is true and necessary need for learning or if that should be determined along with societal changes in historical time. Ultimately, does education really need curricula unless they offer options that matter to young people?

To this point, one safe outcome the previous discussion arrives at concerns the terms didactical and pedagogical themselves. Didactical thinking is not the same as pedagogical thinking. Didactical, on the one hand, associates with

teacher agency and involves thinking about the student; on the other hand, pedagogical denotes the teacher-student encounter or the pedagogical event.

Pedagogical thinking, subsequently, is not a privilege of teachers only. According to Mylläri et al. (2011), students' thinking can also be pedagogical. Departing from this assumption, the authors go on to argue that students' pedagogical thinking is a logical extension of the research on teachers' pedagogical thinking in general and on its application in media education. Purposefulness, therefore, underlies the pedagogical thinking of students as well. In such a situation a student has become acquainted with the aims and goals of the curriculum, has accepted them and acts according to them (Mylläri et al. 2011).

This view draws from Kansanen and colleagues who argue that students bring their own intentions as well as likes and dislikes into the instructional process (Kansanen et al. 2000). When the context is pedagogical, student activities are investigated against the aims and goals of the curriculum. When it comes to the integration of ICTs (information and communication technologies), Mylläri et al. (2011) argue that if we analyze, for instance, mathematical literacy, ICTs are quite likely to contribute beneficially to the acquired knowledge, skills, and/or attitudes. Moreover, the authors view this possible contribution of ICTs to the development of the student as an invitation to embrace present emphasis on literacy, such as digital image literacy and they go on to explain that even remixing some original media presentations with new ones, which are then published on a video-sharing site, can be seen as part of the "new" literacies subscribed to the changes of the digital era.

Purposes, therefore, are expressions of the pedagogical thinking for both teachers and students. In Finland, when it comes to the use of technology for learning, purposes underlying such use become the object of study in media education. In this context, the purposes of a teacher can be regarded from two perspectives (Vivitsou, Tirri & Kynäslahti 2014). First, it is a teacher's responsibility to help a student in the study process as effectively as possible. If the teacher considers that the use of information and communication technologies can support a student's efforts to learn certain content or acquire a skill, it is, more or less, the teacher's responsibility to integrate social media and networks into the classroom procedure. Second, media is also content.

Curricula in different countries vary concerning media education and media as content of learning in schools. It is a teacher's task then to follow the curriculum containing media education in the integrated mode (e.g., as part of cross-curricular themes), as a separate subject, or both. Therefore, purposes in media education can have a twofold manifestation. Depending on the sense of purpose of the teacher, students can learn about the media, with the media, or even combine these two versions (Vesterinen 2011). Vesterinen's (2011) thesis offers a discussion and analysis of how media education has evolved and the ways it is interpreted, being the area where media and education overlap. Furthermore, the

thesis (Vesterinen 2011, p. 8) offers a definition of media education as intersection of content (i.e., media texts), tools (i.e., media) and societal actors (i.e., agents or mechanisms). Vesterinen goes even bolder and challenges the prevalent at the time idea to exclude the media aspect from the Finnish view of media education and concludes that media literacy can no longer be bound with curriculum models and educational policies.

This argument is based upon the observation that nowadays students constantly develop not only own ways but also own reasons for using the media. This implies the need to attend to the purposes of the student as well. Also, according to Vesterinen (2011), media literacy is not just measurable knowledge and skills that young people can acquire in institutional education. In the era of Web 2.0 and the social media, media literacy is mainly about attitude that can be critical toward learning and experiencing the world with and through media. As such, media literacy is a process of young people's active involvement in order to produce, not just consume, 'construct, share and categorize knowledge, opinions and experiences' (Vesterinen 2011). This position builds upon Mylläri et al's (2011, p. 549) study findings indicating that the use of Web 2.0 tools fosters student autonomy, enhances digital creation and enables shared practices. These happen, however, not only because the youth assume that technology will help them achieve learning (Mylläri et al 2011) but also because Web 2.0 platforms and software are embedded in their everydayness. Nowadays, social networks are at the heart of young people's daily activities for collaboration, sharing information and socialization. Nonetheless, social network sites are the spaces where teachers migrate to meet their students (Vivitsou et al. 2014).

It is in the space of pedagogical experience, both virtual and actual, where teacher and student pedagogical thinking intertwines.

### **3.3 Pedagogical thinking and social media**

Through time therefore teachers unpack the initial understanding of pedagogy and attribute relations to it. Let's consider a teacher's view of pedagogy as 'object'. Attributing a relation to the 'object' means that the teacher is able to recognize knowledge building-related patterns and make pedagogical decisions accordingly. If the teacher judges that the use of social media benefits her students' studying and learning, she chooses to integrate the social media into teaching. In this way she transcends the initial perception into an intelligible presentation by making a judgment that could be articulated in the form of a proposition such as 'social media is part of the pedagogical plan'. Thus, the social media becomes an objective correlate of the teacher's experience and a new understanding of pedagogy comes up.

Social media integration is the explicit articulation of the aspect that pedagogy can benefit from the use of connective and digital technologies. Such de-

cisions that mark a shift in the pedagogical thinking are not without consequences over practices and therefore over the communicative event of the classroom. By introducing the social media into the pedagogical discourse there is a shift in the ways language is appropriated and processed (Anguemiller et al. 2014, p. 6) and, therefore, the way discourse is produced and apprehended changes as well.

One example of this shift concerns the way the floor moves among speakers within a classroom. To signify her wish to, for instance, contribute an idea or ask a question the student needs to raise her hand when in plenary discussion. And it is the teacher who normally grants the permission. Raising hands therefore is a symbolic act and a rule that communicates a level of formality in the school discourse community.

As social media interaction rules out established forms of communication, their integration has a symbolic character as far as the statuses of the participants in the classroom communicative event. Now that the pedagogical space is enriched with digital media not only do students not need to ask for the floor; they can also kick off a discussion out of their own initiative. Social media integration therefore spells out the purpose of introducing into formal education structures such spaces of experience that make informal learning possible.

Informal pedagogical practices challenge the rigidity of the communicative structure of the classroom. Now the opportunity opens up for meaningful discourses through the co-construction of content that is shared beyond limitations posed by place and time. And yet, the limitations that the situational character of speech on social media and networks still exist.

Will the initiative of integration be able to transform formal classroom learning into an event where school knowledge as pedagogical content and subject matter connects with world knowledge? Will the situation transform into a communicative act where participants take action as actants who do, promise, receive and keep a promise, or not, give and take and so on? In other words, will these actants be enabled to author their text as narrative and as action? Ultimately, will this new space allow for creative pedagogies to emerge?

These questions form the basis of my problematic about what the intersection of social media with pedagogy should be like. One way to seek responses is through an understanding into the ways the participants' metaphors speak to these questions.

### **3.4 Metaphors, pedagogical purposes and social media**

Metaphors in this thesis seem to be explicitly tied to two of its supportive publications. However, they run through the whole of the dissertation. Actually, metaphor is both analytical and epistemological tool here. On the one hand, metaphors in the language and science teachers' speech (Study I and II) externalize pedagogical purposes and convey what the integration of social media into pe-



dagogical practices means to them. On the other hand, the analysis of metaphor discloses these meanings.

The semantically based analysis reveals that one metaphor engenders new metaphors. Science as thinking leads to deductive logic, which is a metaphor itself. Deductive logic is a persistent metaphor and links with practices that have worked as symbols of human advancement and progress throughout the centuries. Scientific experiments are one such practice. Deductive thinking, therefore, is loaded with multiple metaphorical significations and symbolic meanings.

Similarly, science as method calls for the metaphor of digital networking environments. Again, social networking environments are meaning extensions and refer to spaces where learning takes place online. As these are conventional nowadays, they are not treated as metaphors in Study III and IV. However they still entail the potential for a multiplicity of interpretations. Learning with social media, for instance, is associated with the opportunity to socialize and hang out. Another interpretation could involve the space where individuals work together and develop an understanding of other people's perspectives in a communal experience. It seems that, although conventionalized nowadays, social media and networks can still tell us something new about reality.

In addition, as one metaphor calls for another, a whole array of inter-significations (Ricoeur 1976, pp. 64-6) emerges. Thus, not only does one metaphor lead to another, but each one evokes a whole network as well. Obviously there is a network of metaphors that comes up in the empirical studies of the thesis. The network draws from diverse fields and brings forward a conceptual diversity with a number of potential interpretations at the conceptual level.

It is the task of this thesis then to bring into light the conceptual diversity that results out of the participants' experiences in order to unfold the external and internal horizons of the phenomena (Ricoeur 1991, p. 229) under investigation and offer possible interpretations. It is, therefore, this potential of possibilities that, among others, allows my thinking of metaphor to shift from the more localized level of the semantics of the sentence to the more globalized view of network. At this level meanings intertwine at both the symbolic and the metaphorical level.

Eventually it is these possibilities that add text as discourse and action as root metaphor to the network built around teachers' and students' pedagogical thinking.



## 4 Networked, virtual, digital: what pedagogy?

The teachers' initiative to integrate social media and networks is not disconnected from the overall open education movement. There is an analogy when it comes to the media used and the logic underlying the opening up of classrooms. Teacher pedagogical thinking is consistent and coherent with technological advancement and development in the global educational terrain.

The practice of introducing social media into the pedagogical space indicates a shift towards unofficial pedagogies applied by teachers who wish to change the established order and allow informal learning to enter into educational structures. Indeed, metaphors in the language teachers' speech, both shared and contextual, signify methodologically innovative action. So does the metaphor of science as method in the science educators' speech (Study II). What the integration initiative stumbles upon is the underlying supposition that methodology equals pedagogy.

Indeed, methodology correlates with pedagogy but they are not synonymous. Also, methodology is one objective correlate of pedagogy. The communicative event of the classroom is another. At the time of data collection that came off with the first two thesis publications (study I and, partly, study II) in 2011, social media and networks had already made their presence on the educational stage visible. As had large-scale educational interventions known as Massive Open Online Courses (MOOCs) (Downes 2007, Siemens 2006) today. Massive online courses herald the capacity of open networks to capture people's engagement for learning. Knowledge is distributed and emergent, and information interpretation and validation possible (Bell 2011).

The teachers I interviewed at that time can now be seen as early adopters of digital and connective technologies and their practices resonate the discourses raised at the onset of open courses quite a lot. A big portion of this literature, however, although inspiring, eventually speaks to the promise of social media rather than how to develop a better pedagogy with social media. It does so mainly through two interrelated streams of discussions in the educational terrain.

One concerns the open movement where improving access to education and widening participation by closing the digital divide (Knox 2012) is a primary concern. As Knox (2012) argues, open education encourages collaboration across disciplinary boundaries and between academics, educators, technologists and support staff within and beyond educational institutions. It points to the need for new pedagogies and systems for intellectual property that are adequate for contemporary education. In addition to the underlying ideal for commitment to knowledge that should be free both to access and development, open education poses the need for us to rethink educational material as open-access resources, to

support research projects and policy initiatives taking place around the globe and work towards pedagogies that make use of new technologies. The relevance of the principles underlying the open education movement can link with and address the interests of not just higher education, but of the whole educational range.

The language teachers' and science educators' choices for open interconnected classrooms seem to be consistent with this direction. The shift from personality to content-centered social network participation strengthens the argument. While the open movement thread creates optimism toward a realizable plan for change in formal education toward more authentic learning experiences, there are contributions raising considerations as, for instance, to the ways open resources can be validated (McLoughlin 2008) as sources of information, by whom and for what purposes (Bessette 2015); and what repercussions openness to a wider public can have for scholars' and practitioners' lives and careers (Cotton 2015, Zobel 2015).

The background scene varies in terms of, for example, the scalability of the educational events and participant population (e.g., in terms of size and age) when compared to the secondary school teachers' context. However, there is an analogy when it comes to the media used and the logic underlying the opening up of classrooms. This brings forward the discussion on open courses, being the second main discussion stream in contemporary educational discourse. The teachers' choices echo current trends to transfer parts or whole courses on the Web in order to enable learning that can occur exclusively online or can be blended, but in any case enhanced by digital means. The teachers' experiences here are instances of blended learning where participants connect and interact through social networks or other connective technologies in order to, for instance, elaborate on content or for social support.

The totality of digital connectivity opens up content and makes it visible and accessible, whether this is translated as online, electronic or blended learning (Siemens et al. 2015) in the educational milieu. Openness, however, should entail more than visibility and accessibility.

The Finnish language teacher works in an Upper Secondary School in Helsinki and judges that connecting her students with peers and colleagues across the region can provide the space for collaboration and content co-construction. In this way, she aims to create a space of pedagogical experience that allows the students to act creatively to meet the key stage requirements for deep thinking and reasoning targeting the production of spoken and written works of discourse. The initiative here lies in the effort to establish an online community where young people can build on one another's contributions, ideas and exchanges and thus generate knowledge with peers of similarly minded teachers' classes. There is evidence in the teacher's speech that students manage to deal with learning tasks and the school program requirements successfully. But it is unlikely that

the use of connective technologies shift the pedagogical practices in terms of how content is produced online or what impact it has on the students or their networked peers. Instead, both teachers underline that the actual networked participation eventually flawed their expectations. The students would rather play down the educational character of the network in favor of popular social network activity.

This phenomenon parallels the observed declining trend of participation in the synchronous events of the most active of the massive courses (Fournier et al. 2014). Such events use technologies that enable asynchronous and synchronous communication through the transfer of video signals and other data that allow, for example, desktop sharing, working with whiteboards and notes, polling and text messaging (Downes 2008). These complex systems enable online gatherings for formal learning through lecturing and discussing for as long as a course or session lasts. Synchronous events constitute one configuration of the massive course design. Other options mainly include posting on social networks or blogs. Research findings however indicate that a small number of registered participants (40-60 out of 1641) offer contributions actively and regularly while some report that feedback from knowledgeable peers and reading course related material are the presiding factors in this type of learning. As Saadatmand and Kummulainen (2014) argue, it is the importance of peer support that open course participants mainly stress, at the expense of any other activity.

In this context openness, connectedness, autonomy and diversity are seen as correlates to knowledge building (Mackness, Mak & Williams 2010). Yet, there is hardly any evidence of the role that discursive action plays in either pedagogical experience, the blended or the massive one. It should come as no surprise therefore that participants in online learning experiences come to consider the features of emergent knowledge as compromised (Mackness et al. 2014).

What is absent from the discourse on MOOCs is that, despite the strong emphasis on the capability of the means for collaboration and co-construction of content, there is little evidence of how the social aspect figures in the technology-enhanced pedagogical practices. While we know there are different platforms where users can generate and share content that can possibly give birth to a variety of genres (e.g., blogging, micro-blogging), we do not really know what discourses are played out there, what perspectives and positions the participants adopt and, if they do, for what purposes. Ultimately, naming the genres as blogging or micro-blogging stresses the technological aspect of the experience. Nor is there evidence of how language is used, if particular styles are adopted and so on. It is true there is emphasis on personalization. But it is the kind of personalization that refers to the applications and the software rather than the person herself.

Borrowing the term from Fairclough (2014, p. 380), I argue here that it is the social that is absent from the open courses of sociality and that is puzzling. As

far as the network principles that Mackness and colleagues (2010) discuss are concerned, I suggest that we should reconsider the meanings of openness, connectedness, autonomy and diversity and look into how they can contribute to pedagogy. For the Finnish students, for example, these principles seem not to bear significant meaning, other than circumstantial interaction online. This is possibly the reason why the students turn back to popular network activity, as the blended pedagogical activity reveals nothing new to them about, for example, their future studies, life and career. The dialogue is rooted in the ‘grammar’ of content rather than the semantics of action.

Similarly, there are no innovative curricula for the Greek teacher’s students either. In an era when the Greek crisis culmination forces the closure of their school, the students are called up to display leadership skills and collaborate to win the game on a popular network interface. This practice could in fact prove creative. Unfortunately, it does not reach beyond the instrumental. There is hardly any indication that the players are given clues to link, for example, the reasons underlying school closure, whether these are fair or not, what are the consequences and who is excluded from education when the multicultural school closes down. Instead, the rules of correctness determining winning or losing seem to prevail in the pedagogical discourse. In this scheme, technologies seem not to be only the means but also the ends, as practices speak out to the desire for integration as a web of connections into people’s lives rather than a web of references and meanings.

In this sense, the practical reasoning underlying their thinking expresses the teachers’ desire to introduce new methods into pedagogical practices. There is a distance, though, that separates desirability from the logic and the decision for actual application. Teachers get connected with colleagues, exchange views, participate in seminars, and attend conferences and training courses. These experiences build up the teachers’ reasoned preference that forms the basis for the action required to make technologically enhanced pedagogy real. But the analysis of implementation seems to clash with my initial hypothesis that this is an act aiming to change the order of things. Actually it does signify change, but it is only a narrow one that concerns the channel of communication, not the communicativeness of the pedagogical event. At this point, the meaning underlying the teaching action seems to be that, although we acknowledge the problem, we set off to resolve its material than its essential causes. The interpretation of the teaching action points to a teleological understanding of the possibilities of the social media and networks for communication and is consistent with findings resulting from the analysis of the experiences of both language teachers and science educators.

Like their colleagues from the human sciences, science educators recognize the need of students to get connected with peers through platforms that invite for building both knowledge and relationships. They do so by opening up the space

for representations of natural phenomena and cultural landscapes to emerge through digital texts. These, in addition to the people who inhabit and generate them, can be objects of interpretation. Clearly, the integration of social media marks a disruption in the established educational structures. Does this disruption of structures equally apply to a change in established practices? Still, however, there are hardly any clues with regard to pedagogy as communicative act or the type of 'text' that the blended learning space will produce. Will digital texts take advantage of the spatio-temporal distance and found their semantic autonomy thus opening up to an indefinite range of potential readers, audience and interpretations? Will teaching practices encourage such semantic autonomy? On the social media there is little evidence that the audience constitutes readership or to what extent social media content is actually read.

To put it in pedagogical terms, will this modification of the educational situation entail the authoring of texts that are flexible and co-managed by all participants in knowledge building as communicative event? Will they enable innovative practices and learning environments? Or will they be bound to practices that produce purely utilitarian genres?

A utilitarian (Maingueneau 2014, p. 149) genre aims to serve a functional need, in the sense that it is the technical rules that preside the action of authoring its texts. Considering the pedagogical action as text, in the case of the language teachers a lot more attention is paid onto the development of the system of language, at the expense of the discourse that extrapolates onto the students' world. Similarly, science educators' practices seem to indulge in a deductive reasoning that favors an axiomatic over a holistic view of the phenomena under study. In both situations, an understanding of the context of discourse in the human and the natural sciences is reached. In this way reality makes sense, to some degree and for some of the students. And yet, there are still young people for whom formal learning does not make sense and others who drop out of school and education. I will attempt to explain why this is happening by making an appeal to the notions of sense and reference and what Ricoeur (1991) calls the semiological and the semantic axis of reality.

When the sense of what is said fails to turn toward reference and what is spoken about (Ricoeur 1991, p. 108), discourse is understood as ideal, since it is rather the rules that govern its constitution underlying pedagogical action than its essence. Reality, however, is built on both a semiological and a semantic axis. Semiological is the system of signs that underlie the structure of an utterance. Signs are meaningless unless they are put in context. They carry no weight outside the utterance. In this sense, they are virtual or ideal. It is the utterance that hypostasizes signs and, in turn, becomes part of the event only from within the text of communication.

In the same way that understanding reality cannot be based on virtual systems education cannot fulfill its mission with an emphasis on the ideal system of a

body of knowledge. The learning of techniques, skills and rules constitutes part of the system. These can help us make sense of the world. But being in the world makes it necessary to connect this knowledge and make reference back to the world possible in order to add meaning to what we learn and why. The chemical experiment as digital story that I discussed earlier is an example of what I view as connective knowledge. But what if the students expressed the willingness to perform the experiment off premises and a moment agreed upon by all the group members? For the sake of openness, shouldn't education be open enough to make room for the youth to decide where and when to learn? It is this promise for spatio-temporal liberation that connectivity and open networks and courses actually put on the table. The ways things are dealt with there, however, raise considerations as to whether practices lead to meaningful pedagogical events, as they seem to be heavily reliant on the semiological axis of social network activity.

Open networks are seen as a paradigmatic shift in learning associated with emerging technologies. As they increase the scope of change beyond individuals, classrooms and institutions, and provoke shifts in roles and power relations (Fournier et al. 2014) they call for the need to look beyond traditional theories in education (Bell 2011). But the definition of networks as, for instance, connections between entities or nodes (Downes 2006) takes a technical flavor that evidences but the narrow sense of this view. Downes claims that networks can be individuals, groups, systems, fields, ideas, or communities. These are categories that are not mutually exclusive but, on the contrary, they interact with one another. Individuals act to form groups and communities for some reason, create and make systems to work for them, research into different fields and come up with ideas to accomplish goals. This type of homogenization does not reflect underlying principles or conditions such as, for example, what action is taken and what purposes systems of networks serve. Instead, the notion of learner as profile where metadata of usage is accumulated dehumanizes the discussion, as the discourse becomes technical. While a utilitarian view of technology for learning is promoted, other issues, such as the question who has control over the technologies we use, are downplayed. According to Downes (2008), control over the software and the hardware we use is an issue of secondary importance as long as information can be obtained or communicated. It seems that, not only technology, but information is also taken as an end in itself.

So far, I have brought these views forward in order to show that the meanings of pedagogy are, rather than clear and straightforward, hazy and vague. The practical reasoning underlying teacher thinking speaks to the desire to introduce new methods into pedagogical practices. This decision causes a disruption in educational structures. An adherence, however, to the notion of pedagogy as method produces utilitarian genres. In this way, functional needs are served through an over-reliance on correctness at the expense of disclosure. While the



technological aspect of the experience is stressed, there is little evidence of how the social aspect figures in the social media enhanced pedagogical practices.

This insight is consistent with the literature discussing technological advancement through the lens of openness in education. Again, it is the technical rules that define how the text of pedagogical action is authored at the expense of autonomy and diversity that such developments herald. Disruption in structures therefore does not necessarily equal disruptions in established practices.

#### **4.1 The syntax in pedagogy with social media: participation and hope**

There have been attempts to draw a clearer picture of the meaning of pedagogy in discussions that center upon its objective correlates. Some are more concrete and others more abstract. Knowledge is one such elusive notion that correlates with pedagogy. When built in networks, knowledge is seen as connective, distributed and emergent among the members of the network (Downes 2006, Bell 2011). This view as well as earlier ones where people's learning can be network-based and collaborative and addressing the community (Tella et al., 2000) depart to liberate from the cause-effect ideology underlying, for instance, the quest for single-right ways to solve problems in testing or in learning tasks. The notion of knowledge as emergent entity entails a distancing from behavioral approaches that dictate, for instance, the authoring of educational materials targeting single or even multiple correct-answer responses.

Educational material is another objective correlate of pedagogy and determines the kind of discourse that emerges during the pedagogical action. It also allows the teacher to take a step further and away from set textbooks and adapt content to the needs of the students in a particular class. Technologies allow for a shift from analog to digital teacher-authored text that is shareable and spreadable and, thus, easier to distribute, access and personalize. Already the idea of cyber-textual paths (Tella and Mononen-Aaltonen 2000, p. 33) leaving traces for other users to access and act upon shows up as early as the dawn of the new century. Despite this invoked pluralism, the orientation is teacher-centric and seems to be in favor of the importance of the channel over communication itself. Thus, it is the study of networking sites and an understanding of the features and functions of the Web 2.0 environments and services that should constitute the backbone of practices. Tella and Mononen-Aaltonen (1998) acknowledge such pedagogy as virtual pedagogy. Although it is clear that the emphasis is on the functional aspect of technology we can discern early signs of the open movement philosophy.

In the open movement, the web opens up the space for a shift from the teacher-learner-material triangle to a dynamic intersection of four components: educational objects, exchanges of skill, peer instruction learning and evaluation,

and educators (Zobel 2015). Zobel (2015) uses Illich's metaphor of learning web to introduce the value of peer work and collaboration aiming to generate and share pedagogical texts for learning that is uninhibited by geographical or temporal limitations. This view builds upon the already pointed out inherent quality of the social media to enable user-generated content. The quality has introduced into the discussion the capability for material authored by the learner. The notions of creative authorship and personal publishing (Downes 2004, p. 18) come up. In this mode of thinking writing blogs and creating wiki spaces where like-minded individuals comment on, share, and augment material creates a new genre of dynamic, self-published content. It looks like that through personal publishing the space opens up for autonomous learning out of writing but under what circumstances and for what purposes remains unclear. Claims like these seem to create a tautology: if you publish on the social media, you are a responsible, autonomous learner.

It remains vague however how the capitalization on the capabilities of the tools (McLoughlin 2008) will modify the existing situation in education, if only the learning of digital skills and the techniques for technology application are catered for. What makes, for instance, the production and manipulation of digital images and video clips, tagging with keywords, and content availability a creative activity? What's more, in what sense does this activity translate into creative authorship? Is choosing a digital image and a video clip for remix enough to define creative work? Are skills sufficient or is there need for a context to make the remix meaningful work? Should creative work be at the same time meaningful work and whose meanings could these be? What purposes should underlie these activities? Eventually, can technology and social media be a self-fulfilling prophecy for pedagogy?

One suggestion is that dialogue, being the concrete representation of communication (e.g., Laurillard 1993, Tella and Mononen-Aaltonen, 1998; 2000), can harness the student-teacher encounter and shape up the pathway to knowledge building. Another is that interdependence can take us there. With socio-personal technologies pedagogies make learning more personal, social, participatory, distributed, ubiquitous and flexible (Saadatmand & Kumpulainen 2012). Such views resonate the connectivistic rhetoric (Downes 2007, Siemens 2006) where the potential for learning by creating a network of personal knowledge (Saadatmand & Kumpulainen 2014) is stressed. This approach attempts to build congruence on the basis of engagement in socialization and interaction and go so far as to name the Web 2.0 as a world on its own. Such world links minds, communities, and ideas by promoting personalization, collaboration, and creativity and becomes viable through technology. Dependence on the technological over the communicative gives rise to yet more functionalist views that the terms Web 2.0 pedagogy and Pedagogy 2.0. (McLoughlin 2008) only make more visible.

Yet, the world of experience is more inclusive than the illusion of wired connectivity and the student-teacher encounter cannot be insulated from this world.

Virtual, connectivistic and web 2.0 pedagogies make use of metaphors of participation and learning, but they do not state clearly how these will translate into pedagogy as action upon shared purposes. An activity of controlled interaction aiming to teach appropriate reactions to the question ‘How are you doing?’ would be unlikely to deal with the puzzlement that the response ‘Cool beans!’ might generate. It requires an understanding of the background scene to translate this into a meaningful turn taking. If the context of the dialogue is missing, how can the utterance be legitimized? In turn, what sense can the text authored during this interaction make? Metaphors of knowledge and participation argue for the possibility of pedagogy of hope that is free from the behaviorist patterns of the past. How can this argument be convincing enough when building a network of personal knowledge translates into practices where practitioners invite students to adopt behaviors modeled by the former (Bell 2011)? To what degree do such practices constitute innovative practices?

Scholars in the field of educational technology (Stewart 2015a, 2015b; Weller 2011) discuss the space of experience that technologies open up as able to generate abundance of knowledge and abundance of resources. These views oppose abundance to the pedagogical scarcity of one-to-many traditional practices that place the expert as resource in the center of communication (Weller 2011). It is hard to see however how these contribute to the pedagogical discourse by merely substituting traditional instrumental practices with practices for visibility. Establishing innovative practices takes more than forms of participation that apply augmentation strategies aiming for more popular and thus legible (Stewart 2015a) scholarly work. This approach to scholarship, although it builds upon the potential of the techno-social network system for hybridity and multiplicity (Stewart 2015b), flaws the principle of social media for communication. It does so by translating the channel’s capability for connectedness into action aiming for a name, for power and influence while the hot issue, the advancement of pedagogy is played down and out.

Other voices, however, challenge the ways the whole argument is posited. Bessette (2015), for instance, disputes the impact of such descriptions of scholarly digital appearance by arguing that instead of painting a fully legitimate picture, they ultimately constrain academia. Although they are built upon a non-traditional form of expression, these accounts disclose more the appearance of the digital and less its essence. Abundance, as propagated by an accent on the digital means remains heavily technological and so do practices of participation, as they end up to claim visibility rather than to generate public discourse.

So far the analysis of practices of communication on social media and networks reveals that two main types of stories or texts evolve there. One is self-referential and dependent upon the situational character of the exchange. As I

argued earlier, this storytelling action is built around the social network profile and bound to the intentions of its 'author'. Certainly, stories like these make truth claims. It is true, for instance, that academics and scholars are faced with challenges. Being on a tenure track, keeping up with the publishing race, contributing to science and getting acknowledged for such contribution are some examples. I believe however that the perspective research into networked participation has adopted so far exerts the technical over the social part of the equation. Moreover, it does little to promote the discourse that these challenges generate. And yet, the stories shared online are not exhausted at the situational plane.

There are discourses on social connective environments, sometimes embedded in online communities of scholars, other times of a free rider style (e.g. weblogs like [www.insidehighered.com/blogs/](http://www.insidehighered.com/blogs/) and <http://learning.instructure.com>) aiming to go deeper into the flesh of the problems. As these efforts have not been systematically researched yet, a space for investigation opens up. This presents a new challenge to look into their structure, the genres they create, and the purposes and causes they serve as communities of action and of scholars.

These appearances of storyline represent the same species of scholarly discourse online but are distinct in the kind of openness they defend. One addresses audiences for visibility and thus serves utilitarian purposes; the other addresses the public for deliberation and communicative purposes. Both are manifestations of the didactical type of action.

Although there is a line that separates secondary from tertiary education in terms of scope and purposes, I cannot but see education as whole and continuum with an overarching goal: to be grounded within the world of experience and aim for its advancement. Young people facing the challenges that mark, for example, the threshold to a higher educational level need to be aware of the current landscape, be it academic or other type of scholarship, a science or an art, navigate virtual spaces with relevant content and be able to judge what is valid information or not. Also they should be able to generate and publish their own work by posing questions and seeking responses. Young people should be allowed to create own experimental spaces and 'author' stories of action.

This seems to be the exact reason underlying the language and science teachers' decision to integrate technologies into pedagogy. Nowadays skills enabling knowledge transfer through popular or other social network sites, communication with audiences, collaboration and development of networks in diverse circumstances (Bessette 2015) are valuable practices for personal and professional growth through rational communication. It takes a different orientation, though, if the aim is to transcend the functionalist view of pedagogy enhanced by technology to innovative pedagogical genres. This can happen given that the focus is cast upon the pedagogical action rather than the didactical action. Eventually, it is the didactical that is objective correlate to the pedagogical, not vice versa.

The examination of practices and the relevant literature however indicate that the opposite happens. Instead of transforming education, technology turns into ideology itself that, if it does not constrain, neither does it liberate the creative potential required for young people to transcend into more mature levels of consciousness. In this sense the potential of the social media to empower the education and the society remains unpacked. Even today, four years following the first phase of data collection leading to the studies of this dissertation, metaphors of formal education as gardening and of teachers as gardeners still abound.

Although more and more schools get connected and equipped with digital technologies, there are still students and teachers who do not like school. Because both students and teachers challenge the effectiveness of assessment-targeted systems (as it happens, for instance, in the U.S.), struggle to fit asymmetrical curricula (as is the case in Greece) or wish things were different (as it applies for both the U.S. and Greece as well as Finland). It is pressing need therefore to take bolder decisions in order to change education. One way to get there is by preparing flexible curricula that enable us to discard fixations on pre-determined time slots that fragment learning in public institutions. As the experience of science teachers from Greece and Finland has shown, the integration cannot be a meaningful event unless we rethink the totality of educational structures, not just in terms of infrastructure that is hardware and software-related. The digital integration can then be truly liberating, taken that the new spaces of experience extend time for as long as the needs of the actants require rather than what school timetables dictate. In this way it is possible that pedagogical action can become a project itself, one that is grounded within the world and the people's actual needs.

To this end, we need to give up on fixed notions of reality. As Bessette (2015) discusses, scholarly conversations not only open up opportunities for dialogue and collaboration online. They also open up spaces to dispute what it means to be professional, serious or worthy. Indeed, being a professional practitioner means different things nowadays than what it used to. It means opening up practices, whether teaching, pedagogical or scholarly, to diverse audiences. These practices of connectedness cannot capitalize on measurement, as this is not always the appropriate means to explain and understand performance. Anyway, performance is only one dimension of the whole pedagogical event and that is neither neutral, nor value-free.

But findings from research in the literature as well as my own studies reflect a view of an objective pedagogy that, in turn, resonates the metaphor of science as a system of signs (study I) and a deductive system of reasoning (study II). The notion of pedagogy as communicative event, however, calls for communicative practices and for transcendence from predictive pedagogies to pedagogies of disclosure. We should not be, therefore, apprehended to re-author the story of

pedagogy as intelligible unit that holds together circumstances, ends and means, initiatives and consequences, as pedagogy for meaning, not just numbers. Eventually, we should not be apprehended by the risks inherent in a pedagogy that invites the youth to take initiative for knowledge construction through collaboration and peer work that brings forward their own purposefulness. This is exactly the change I observed coming out from the analysis of the science educators' metaphors (study II).

## **4.2 Human versus machine intentionality: can the social media be agents?**

So far I have argued that social media for pedagogy should enable communication through discourses that enhance initiative and action. Also, another major aim has been to discuss the pedagogical thinking through the analysis of teacher action against the background of literature on open networks and popular social network activity.

In this section I will make a final remark expressing my concerns about whether the social network profile constitutes a representation of human activity and what possible meanings underlie a response pointing toward the opposite direction. I depart to do so through considerations that I put forward already in earlier sections. One relates to the notion of accumulation of usage metadata as foreshadowed by Downes (2004) to address the need for a central profile mapping out pathways and traces to be accessed and translated by intended audiences in a centrifugal mode. In this way, a person's activity on social software is made visible and hyperlinked with a diversity of opinions and ideas of others. But the way this prototype is fleshed out through social network sites rather demotes the promise of the web for access to diverse, non-hierarchical and decentralized information, as envisioned, for example, by Berners-Lee (2000).

Social network sites are a constantly evolving phenomenon that entails shifts in the degree and the way information becomes visible and is appropriated through their fundamental features (Ellison and boyd 2013). The profile is one such fundamental feature. Profiles display relationships, delineate who can access what content, and serve as filter through which viewers can browse profiles and discover friends in common. For users, these connections represent the collection of social relations of varying strengths and importance that a person maintains, and, thus form that person's social network. It is natural therefore, that social network activity has generated concerns in the field of education. Social network activity for learning is supposed to allow for personalization of content and that opens up the possibility for self-directed and autonomous learning experience. Personalization of content, however, is a myth. Ellison and boyd (2013) explain that what has changed recently in terms of social network

participation is a movement from navigating connections for profile views to streamed, clickable, traversable content that is often embedded to other tools.

This shift of centrality to textual and image-based content is both significant and challenging. Significance arises from the fact that the content-oriented turn of the social network activity can shape up a network-based storyline, coherent and consistent with the principles underlying the act of human communication.

Mainstreaming of the social network has shifted its identity into one that is closer to media-centric sites where the feature highlighted by the site structure is that of the most recently updated content (Ellison & boyd 2013). Recently updated content, however, is an automatically highlighted feature, which means that human agency is not the sole determining factor of what the profile looks like, as, in addition to the user, it is also the algorithm that determines this appearance when, for instance, algorithmic interpretations decide what advertising slots are embedded and how content is personalized. Even if machines do not take completely over human choice and intuition, the latter are still vulnerable not only to the ways algorithms interpret interactions; but also to the possible unpredictable consequences algorithmic initiative can have. Such possible misinterpretations can result in people getting rejected by colleges or limited job opportunities, boyd (2012) points out and goes on to conclude that algorithmic developments turn control of information into an impossible task.

Looking back, therefore, onto the era preceding the advent of social network sites into our lives, we realize that the hyperlink as the path connecting us with the plurality of information available on the virtual milieu has been replaced by the profile. The profile enables connectivity through social networks; however, it eventually paralyzes the dynamic of the power of the web. It does so by allowing the algorithm to choose content for us users, from what our connections and we have seen already and predict what is to be seen next. In a sense, we end up consuming the same content over and over again on our so-called personalized profiles. And this is a distorted notion of personalization, being actually centralization of content that sacrifices diversity in the name of efficiency (Derakhshan 2015). Algorithms are meant to solve the problem of information organization and thus render navigating the web more efficient in terms of time and effort. But seemingly they rather manipulate our judgment as they impose visibility for popularity over choice and critical readership.

At the same time that this type of personalization is so ubiquitous, people are unaware of how their data are aggregated with others to construct portraits that predict their interests based on other peoples' habits. Ellison & boyd (2013) point out that traversability of connections has become more important for machines than users. Application programming interfaces make the global network of linkages between all individuals within a system, or the social graph available to broader audiences (Fitzpatrick & Recordon, 2007). Algorithms are being designed to traverse the social graph and learn about the individual nodes'

relationship to one another. Such machine learning is the backbone of search engine technology and it is increasingly central to the development of social network sites. As the social graph has risen in significance, so has market leverage for more complex algorithmic work able to suggest relevant content, offer recommended contacts, and provide targeted advertisements. For example, technologies allow other websites to suggest unique content based on a person's network list. In this way, the social graph is increasingly used beyond the bounded space of the social network itself. Algorithms are embedded in software and are now everywhere, Sandvig (2015) says and adds, 'I have argued that "the algorithm" is now an object of marketing; that the processes of algorithms are now the objects of public relations; and that this produces distinctive representations of algorithms that have evolved from technical and educational imagery'.

Social networks nowadays constitute the ultimate expression of connected socialization as they gather huge amounts of digital data of interaction resulting from status updates and responses as comments in textual or moving and still image-based form. However, it seems that some contention arises as to whether they actually augment human capacity for communication or not. One reason underlying such skepticism relates to the types of boundaries advanced connective technologies bring forward, blur or hide. Technical developments, such as media streams, open application-programming interfaces and search engines, make possible the integration of technologies within technologies and the use of the same credentials from site to site. This does not only make technological boundaries unclear but also raises questions about the kind of stories written by and hidden in algorithmic configurations, and how far users are aware of their existence and what they can do.

It seems, for instance, that users in a social network did not know that their news feeds were filtered (Eslami et al. 2015) or that there were different results depending on whether search was a paid one or not (Sandvig, 2015). In either case there is a story hidden within the algorithmic configuration prioritizing content according to a set of criteria. This raises questions concerning, for example, the rights a user exercises on own profile. It is questionable whether and to what degree basic features of the Deep web serve the purposes of communication to the benefit of the user or the online community. Profiles and news feeds enable horizontal and vertical traversibility. Horizontal traversing involves exploring relationships of existing connections, or extending the network of linkages though profile navigation. Vertical traverse depends upon the layers of proximity that a user assigns to the totality of her connections and news feeds navigation makes it possible. However, traversibility is heavily dependent on machine learning.

It seems therefore that traversibility makes human communication vulnerable and evidences that the principle underlying network design is techno-social. And it is this technical nature that threatens the clarity of our perception of what



constitutes potential for human communication and what communication there actually means. Thus, although neither social nor cultural in essence, the network interferes and blurs boundaries in both. It does so when, for instance, it acts to redefine what constitutes culturally offensive or not. The removal, for example, of images of women breastfeeding allegedly violating rules against nudity, have raised controversies within communities of women while amendments of terms of use in the social network site policies actually end up policing the users' values instead of protecting them (Tarleton 2015).

Social network sites, therefore, not only reproduce cultural norms of the actual world by making space for phenomena such as misogyny, rape threats and trolling to appear. Also, in their attempt to prevent such situations they produce adjustment documents offering universal solutions for the sake of the protection of the diverse communities they host. Ultimately, it seems that social media platforms speak a kind of double language as, although they advocate the right of the user and the protection of the global community of profile owners, at the same time they prevent the user from exercising the right of ownership. In this sense, they act as if they own the community although what is actually theirs is the programming code of the networking system. If there is a text authored on social networks, it seems that it is not the user's story that is told there. Instead of empowered, the user becomes less and less powerful on social media. On the contrary, social media claim that kind of power that would characterize a dominant cultural apparatus (Giroux 2011).

How then can the profile or the content built around it be the main issue to care about when there are others (e.g., algorithmic programming and machine learning) that seem to sideline the act of human communication?

This brings forward the second consideration, the one about absence of control that both Downes (2004) and boyd (2012) discuss, although each attributes a somewhat different connotation to the word. On the one hand, Downes refers to the limited control a user can exercise over the hardware and software she buys for personal use. As manufacturing companies place lower levels of liability on products to protect own rights or retain rights of regulation over machines, user rights get restricted. On the other hand, what boyd addresses is absence of information control and relates this to the constituting elements of the network. According to boyd (2010), persistence, replicability, searchability and scalability are features that differentiate the network from other types of public and introduce new dynamics, requiring people to manage invisible audiences, collapsed contexts and a blurring between the public and the private. As they are unable to control how content scales out and, being exposed to, for instance, voyeurism, young people seem to develop defense mechanisms to deal with the fact that their content is not protected from parental surveillance or bullying.

Despite the differences, what is common in both cases of absence of control is the fact that the user ends up with limited rights and, therefore, less power

over equipment and content. Based on these, I can see two main strands of discussion arising here. I will discuss them here only briefly, as they can provide the basis for a future research agenda.

One relates to the fact that we have come so far as to produce more and more sophisticated and intelligent technologies that we possibly confuse artificial intelligence with human practice. The scalability that characterizes the outcome of human activity on the social network is energized by the capability of the technical network to transfer the information so that the human network can traverse it. Information, in this way, becomes the object towards which the action of human beings and of technological artifacts (e.g., the algorithms) that shape human action is directed. In this sense social media, by shaping human action and experience (Verbeek 2006), perform an intentional act.

Technology however is the manifestation of human practice and not the other way around. From an ethical point of view, technology is not neutral practice and it does not always produce socially beneficial results. It is not beneficial for the user or constructive for the society that, for instance, social media use algorithms to regulate content or terms of use to generalize over populations. It is the programmers', designers' and companies' responsibility to take measurements to amend problems arising in such situations. Similarly, it is our responsibility to be aware, show concern and take action when media interfere with our choices of what to read or what to watch.

As social media and networks claim a role in contemporary pedagogy, user control becomes an issue for debate. It is therefore critical to examine what share involved parties in this bet should have. For example, it is a teacher's responsibility to decide whether pedagogy would benefit from the integration of technologies. It is a student's responsibility to take initiatives and perform the learning task. And it is the policy makers' responsibility to design and forward such policies that protect the rights of the school that decides to integrate connective technologies into pedagogy.

As more and more actors take on a role in the stage of the pedagogical application of technology, the possibility that responsibility is side stepped or avoided increases. Therefore, how we define responsibility when it comes to technology is also crucial. Is, for example, the notion of responsibility as malfunction enough to cover the need arising when something goes wrong (Gotterbarn 2001)? And what does it mean that something goes wrong? Is over-exposure to social network activity considered as wrong? Is harassment part of the list of wrongness and how can young people be protected? Is it enough to base the technological integration on the culture of blame? On the other hand, as Nissenbaum (1994, 1997) argues, organizational and cultural contexts in which computer technologies are embedded are so complex that make systematic erosion of responsibility in computerized societies unavoidable. There are so many hands involved in technological design, application and integration that finding out

who is responsible, to what degree and in what ways is not always a feasible task. It might not always be the most appropriate task either. The situation becomes even more elusive when we consider views that attribute qualities such as moral agency (e.g., Floridi & Sanders 2004) to technological artifacts.

Such considerations, however, can lead to utopian assumptions that exert the role of technology over the scope of education and culture in the advancement of human affairs. Examples of these views can be found in transhumanist philosophers (e.g., More 2013) expressing a supra-reliance on the ability of technological application upon our selves to limit less desirable aspects of the human condition by eliminating pain, aging and death or to enjoy more refined emotions and greater cognitive abilities.

On the contrary, this thesis looks into agency and the ability for communication as human qualities. Although the findings here are not all bells and whistles there are indications that technologies can indeed enhance innovative pedagogies as long as the aim is to initiate new communicative pathways to knowledge, through practice, the application of skills and labor. I will discuss such possibilities for digital technology application more thoroughly in the following sections.

Taking, however, into consideration discussions on responsibility, I can see a point in Nissenbaum's (1994) suggestion for the need to open up a space for a culture of accountability, if the aim is to invite people to pay greater attention to safety, reliability and design. Accountability implies a manner of 'conducting [oneself] so that others can count on that person. As someone is counting on me, I am accountable for my actions before another' (Ricoeur 1992, emphasis in the original). I should be able therefore to provide answers not only for malfunctions threatening life-critical systems but also for those that cause, among others, individual losses of time, convenience and contentment (Nissenbaum 1994).

The notion of accountability is, therefore, all-inclusive and should gather the perspectives and needs of all involved stakeholders. As the findings of Study III indicate, these needs relate to the design of connective technologies and the types of action that are enhanced through them.

### **4.3 Pedagogical action with digital technologies**

Study III draws from the field of philosophy of technology and aims to respond to the research question asking what stabilities of mobile connective technologies emerge out of student-user experiences of storytelling in a mediated public. The position taken in this study is that technological artifacts are not neutral instruments but actively co-shape people's being-in-the-world: their perceptions and actions, experience, and existence (Verbeek 2006). Connective technologies and environments, where people store and share stories, make aspects of their identities and cultural landscapes visible. In this sense, as they enable different

interpretations of how humans experience the world, social networking technologies have intentions (Verbeek 2006, 364).

This view seems to contradict the stance taken in the thesis that connects intention with human action. An intentional act is the act of intending something. According to Ricoeur (1991, p. 13), intending is accomplished through the identifiable and re-identifiable unity of intended sense. Intentionality therefore is connected with the act of making sense or meaning making. Meaning is made visible through practice and technology is manifestation of human practice and not the other way around. Human practice articulates purposefulness for life improvement and social advancement. Human intentionality and technological intentionality are by no means equivalent terms.

According to Ihde (1990), technological intentionalities are multi-stable in the sense that technologies do not have a fixed identity but can have several stabilities. These depend on how they are embedded in a use context. Technological intentionalities are dependent on the specific stabilities that come about (Verbeek 2006). Stabilities, in turn, depend on user experiences and how the latter evaluate the context in use.

The idea of investigating technological intentionalities emerges out of the need to understand how the web-based social networking platform (Mobile Video Experience, MoViE) works and the ways young people relate to and through it. MoViE is the experimental technology that hosts student digital stories and aims to facilitate the integration of connective technologies into the pedagogical action.

The claim underlying the pedagogical integration is located in the belief that peer collaboration and knowledge building are related. The principle of collaboration matches with the alleged characteristic of social networks to enable relating and sharing content by building interest upon peer exchanges. But research findings in the field of computer-mediated communication that examines the type of interactions between young people and their peers online do not confirm this supposition. Overall, these findings pinpoint (Baym and boyd 2012, Baym and Ledbetter 2009, Quan-Haase & boyd 2012) the importance and the contribution of social network activity to the development of some kind of social support among the members of the network. Indeed, relating is an important aspect of youth activity there.

But how much of human bonding really rests in the connected part of life? Baym and Ledbetter (2009) point out that the lines of meeting and forming relationships online and offline are fluid, while in-person relationships can be mutually reinforcing. Also, Quan-Haase & boyd (2012) posit that while teen communities are important for identity development, feelings of belonging and social support, this does not necessarily mean that communities are formed online. Although online communities parallel offline social networks, teen communities

are more commonly organized based on pre-existing friendships. And it is the interest in relating rather than interest in content that activates the interaction.

What is characteristic however is not whether teens are online or offline nowadays, but the fact that they are increasingly mediated. Teens use technology to strengthen friendships, begin connections with familiar strangers and maintain connections when distance separates them. However, as Baym (2012) concludes in her work on relationship dynamics that celebrities develop with fans online, although there are benefits there is little evidence that social network activity online can serve as start up of a new friendship.

Teen communities are defined as social relationships that teens form with peers and can be investigated at different levels. These can vary from small groups to large social networks, cliques, crowds and subcultures (Quan-Haase & boyd 2012). No matter whether hosted online or not, these social formations nurture the goods and evils a person encounters in actual life. Loyalty, mutuality, communality, solidarity and agency constitute prototypical behaviors of intimacy that can distinguish a close friend from an acquaintance (Hall 2011) and are examples of the former. Bullying and rape culture are examples of social vices. Still, actual life places, such as schoolyards and neighborhoods, seem to remain the spaces where communities of youth form and early friendships establish and evolve.

#### **4.4 Innovative pedagogies**

Considering these, we may just as well ask whether it is indeed possible that social media contribute to the pedagogical purposes for initiative and action. Can we really have social media for pedagogy? The answer is yes; we can, given that pedagogy turns the media into a social, communicative event. This would take a definition of pedagogy drawing from social philosophy and aiming to empower the young to unfold capabilities and develop the literacies necessary to speak and read both the actual and the virtual world. Social pedagogy draws from and is rooted in the dialogue of the teacher with her students leading to reflection, communication and the ability to reason.

Social pedagogy is not divorced from the educational sciences or educational technology. On the contrary, it uses the findings of empirical investigations in order to understand how connective technology changes the thinking of individuals and how this translates into societal and educational change. In addition, it views social media and networks as the phenomenon under examination by examining signs, symbols and texts. This perspective draws from the work of Ricoeur (1991, 1997) and his argument that whatever is intelligible is accessible to us in and through language. In such accessibility all deployments of language can be interpreted. This stance positions my thesis, in addition to the educational sciences, in the field of hermeneutic anthropology.

Hermeneutics is an approach to philosophical anthropology, a discipline that seeks to unify empirical investigations of human nature in an effort to understand individuals as beings-in-the-world, both creatures of their environment and creators of their own values (Philosophical Anthropology 2015, Britannica). To reach such understanding, hermeneutics employs the discursive interpretation of the linguistic (Mara 2011) or any other sign system individuals deploy in a particular context. However, it goes beyond the examination of the linguistic, or any other system.

To be truly creative, social pedagogy should not set dialogue as its horizon. It should aim to build a text through the dialogical situation. Pedagogical action as text should not only aim for appropriate syntax, coherence and consistency, but for the truth of disclosure as well. Another way to look at disclosure is through the notions of sense and reference (Ricoeur 1991, 1997). The task therefore should be, in addition to the internal dynamic that governs the structuring of the work, and thus its sense, to look for the external projection of the text outside itself. This way of looking into the text opens up a world that could be the thing referred to and makes up the work of the text (Ricoeur 1976, pp. 17-18).

In pedagogy, the production of artifacts can be action aiming to make the sense and the reference of knowledge and knowledge construction and, thus, the work of the text, visible. The artifact in pedagogy with social media, depending on the knowledge domain it draws upon, packs the structure inherent in that field and makes the piece of work interpretable within this context. The digital story of the chemical experiment I described earlier expresses this idea. In this perspective, the skills employed and the code system used are not necessarily confined within sets of computer or networking dexterities. Neither do they presuppose, for instance, online presence. They need however to conform to the mode characteristic of the channel of expression. In social media and networks the mode of expression can be textual, image-based or moving image-based.

Be it an artistic creation, the performance of, for example, an experiment, a play or an argument, the artifact should be self-contained, inscribed and wrought. It is working to shape up content using a form of codification that assigns the artifact into a specific genre. Digital storytelling is one such genre, as it entails specific ways of language appropriation and process within the context where participant interaction takes place (Anguemiller et al. 2014). In turn, the production of the digital story articulates the young storytellers' practical activity. As the analysis of students' experiences in study IV shows, storytelling is a social activity and, therefore, entails collaborative practice.

This collaborative practice manifests at multiple levels, thus exceeding current notions of formal learning activity. As the young people plan clips for the digital story they need to activate filmic practices and shoot, for example, from a particular angle to convey a specific message. They need to think of the story in terms of both language and systems other than language. And this is where the

youth build multimodal literacies. Later, when they come to negotiate with peers what, for instance, the best shots are they need to come up with convincing arguments in order to prove their case. It seems that there are a few knowledge 'gaps' (Bingham and Sidorkin 2001) for young people to cover in the process of making and telling a meaningful story.

In addition to individual work and effort, filling in knowledge gaps brings about changes of knowing and being not only for oneself but also with others. Smyth et al. (2013) would possibly agree that this type of digital storytelling reconsiders fixed notions by offering alternative views of learning. Growing and learning with peers and building knowledge and relations in communities by no means represents a fixed notion of pedagogy or of pedagogy with social media. Collaborative practice with and through social media and digital technologies is therefore possible. And so is knowledge building.

Development in student thinking is evident in the ways they perceive collaboration, how their view of technology changes in the storytelling experience and how they deal with the content of learning. Not all student digital stories are of equal value from a literary, artistic or scientific point of view. They speak, however, to the need for a change in the course of everydayness in the school. As I mentioned above, the youth take action in order to make the change happen. They also take time and effort. This kind of time and effort, however, is different from time and effort spent on profile update for the production of self-referential texts. Rather than time spent to consume, this is time invested in producing content upon shared purposes for the benefit of the community of peers.





## 5 Methodological orientations

### 5.1 An interpretive qualitative approach

This dissertation looks into the intersection of social media and pedagogy and how social media and network-enabled communication can enhance the pedagogical event. To this end, the discussion follows a discursive path that draws from Ricoeur's interpretation theory (1976) and aims to validate the insights gained from the empirical studies. In order, for example, to explain the reasons underlying the Finnish and the Greek language teachers' observations about the quality of student network activity, the argumentation builds upon Ricoeur's (1976, 1991) view of discourse as text and action. In this way, a circular movement evolves back and forth, from insights gained through the empirical studies to the background literature in this overview.

This methodological choice aims to offer explanations as to why the phenomena under investigation happen. It also reflects the need to tie the findings of the empirical studies together. In this way, the overview departs to sustain the discussion and validate the main arguments against a solid framework. This back and forth movement, from the 'why' to the 'what', and from explanations to understandings, draws from the hermeneutical paradigm and the theory of interpretation.

The interpretive perspective is an approach and practice in qualitative research that attempts to bring forward understandings of phenomena rooted in lived experience (Denzin and Lincoln 2010). By qualifying them as 'local understandings', Denzin and Lincoln (2010) touch upon the very essence of qualitative research. Being a situated activity, qualitative research locates both the observer and the observed in the world. Following this tradition, the thesis uses the empirical material of the studies in order to make sense of pedagogical social media integration in relation to the meanings the study participants bring into the phenomenon. The totality of the dissertation, therefore, is based on interpretive qualitative methodologies.

As the study examines a plurality of contexts and situations, my task as qualitative researcher is to bring these elements together. In order to put slices of reality together and allow different voices and different perspectives to emerge, Denzin and Lincoln (2010) argue that the researcher performs a type of montage or quilt making. The montage of viewpoints and angles creates an interpretive experience aiming to offer reasonable arguments and enable a reconsideration of what social media for pedagogy means. As the goal is to reach understanding, the ultimate aim here is to generalize over the phenomenon under study rather than across populations.

Providing reasonable argumentation is one way to validate possible interpretations. Using a variety of research methodologies is another. It is the task of the following section to discuss the methods used in the empirical parts of the study.

## **5.2 On empirical studies, participants, aims and methods**

Although the initial research plan involves the teachers' perspectives, the students' viewpoints come to be part of it. One reason for this shift is rooted in the current trends in the qualitative tradition. Nowadays, in order to serve purposes qualitative research uses inductive strategies. Inductive strategies localize knowledge and practice through evolving thinking (Flick 2002, p. 2). Qualitative research is therefore tied to the inductive logic in science (Polkinghorne 1983).

In a similar way that metaphors engender one another one study leads to another with evolving questions and emergent themes. As research questions evolve, so do considerations and orientations. My research questions kick off from the pedagogical thinking of teachers to extend onto social networks for learning and to finally raise the problematic of what the pedagogies of the future will look like. In this evolution process my terms also develop. One example of such development is the shift from 'mediated publics' (Study III) to 'pedagogical social media' (Study IV).

Qualitative research is inherently multi-method in focus (Flick, 2002, pp. 226–227). However, the use of multiple methods, or triangulation, rather than aiming for objective reality, reflects an attempt to secure an in-depth understanding of the phenomenon in question. As objective reality can never be captured, triangulation does not serve as tool or strategy of validation. Instead, it is an alternative to validation (Denzin & Lincoln 2010, Flick, 2002). The combination of multiple methods, empirical material and perspectives in a study is understood, then, as a strategy that adds rigor, complexity, richness, and depth to the inquiry.

Table 1 below presents the studies, and key themes. The main task of the studies is to look into the pedagogical thinking of teachers and students when social media and digital technologies are integrated into practices aiming to serve pedagogical purposes. Overall, data collection covers a time span starting from May 2011 and ending in November 2013.

**Table 1.** The thesis publications and key research themes.

	Teacher pedagogical thinking		Student pedagogical thinking	
Publication	<b>Social Media in Pedagogical Context: A Study on a Finnish &amp; a Greek Teacher's Metaphors</b>	<b>Science teachers' metaphors of digital technologies and social media in pedagogy in Finland and in Greece</b>	<b>Tracing the multi-stabilities of social mobile technologies for learning: From story generators to mediated publics?</b>	<b>The pedagogies of the future: Through young people's eyes in storytelling experiences with the digital in Finland and Greece</b>
Key themes	Language learning with social media and digital technologies	Science learning with social media and digital technologies	Young people's views of online pedagogical environments in digital storytelling	Young people's initiative in digital storytelling

### 5.2.1 The studies on teacher metaphorical thinking

I co-authored the papers on *Teachers' Metaphors* (Study I and II) with the supervisors of my thesis. As we were interested in the ways the integration of social media and networks changes the pedagogical thinking, we set off to examine the purposes underlying practices. At the time of putting the first study together there had already been efforts on the part of the Ministries of Education in both Finland and Greece to train teachers on ICT use and introduce school curricula toward this direction. However, only a small percentage connected their students beyond classroom boundaries. We considered, therefore, the teachers who integrate social media for pedagogy as Avant guard practitioners. As this was a new phenomenon to investigate, I proposed metaphor analysis in order to get as much as possible about the new reality through the analysis of the teachers' speech.

#### ***Research on social media integration as new reality***

The focus here is on the semantics of speech and metaphors are the vehicles to extract socio-cultural conventions the teachers accept or reject. One criterion for inclusion in the metaphor dataset is the element of contrast or incongruity with the basic meaning. The transfer of meaning is another (Cameron et al., 2010). To identify metaphors, we used insights from the discourse dynamics approach that sees in metaphorical language the synergy of a variety of cognitive processes. In addition, the dynamic view bases the analysis upon the subtleties of meaning. Subtleties of meaning link the ways metaphors are used with an account of the ways language is used and interpreted and can be located literally everywhere (e.g., in prepositional phrases). These are conventional metaphors with an overwhelming presence in speech and convey major concepts (e.g., locality).

Out of these, sets of systematic metaphors arise. Systematic metaphors are linguistic metaphors that connect with a particular topic or theme (Cameron et al., 2010). Concretization, one of the major systematic metaphors of the study, emerged as a result of revising groups of codes that semantically converged into the notion of ‘rendering solid or united and kept within limits at a particular place’.

Following the analysis, we decided to perform an inter-rater reliability test in order to validate the interview-based data. To this end, I randomly selected metaphors comprising 16% of the dataset and my supervisors arranged the metaphors into notional categories. To ensure shared understanding of categories, we used definitions from the Oxford English Dictionary (<http://www.oed.com>). In this way, we checked whether our interpretations of metaphorical meaning overlapped and to what degree. The result indicated high inter-rater reliability (Cronbach  $\alpha=0.9$ ).

Overall, our analysis of metaphors aimed for two broad categories: obvious (or conventionalized) and novel. According to Ricoeur’s (1976) theory of metaphor, at some point in the historical process the extended meaning of a metaphor becomes part of our everyday lexicon through repetition. In this way, the polysemy of the words increases and everyday meanings are augmented. Metaphors, therefore, are supposed to tell us something new about reality.

### ***Research on teachers’ approach to science and technology***

While the focus of analysis in *The Language Teachers’ Metaphors* is on linguistic units, in the *Science Teachers’* paper metaphors come up through the analysis and review of categories and sub-themes.

The second study departs from the assumption that the prevailing definition of science education changes into one that blends both deductive and inductive modes of thinking in the teaching of science and technology, with technology. This transposition involves an insight into (natural) phenomena and related concepts that complements or even precedes an approach that relies upon laws, formulas and calculations. This way of blending a more ‘naturalistic’ with the core ‘scientific’ approach positions organically the study of science-related concepts into the living experience and enriches student learning with digital technologies, whether this occurs in the classroom, the school laboratory or outdoors.

A twofold research aim seems to arise. One concerns the logic underlying the teachers’ approach to science. The other relates to the type of science-technology relationship that becomes visible out of the pedagogical integration.

The dataset of the study results from semi-structured interviews that cover three phases of collection. The first is held in May 2011 and involves two one-hour long discussions. One with a female Biology and Geography teacher from an upper secondary school in Helsinki, Finland and another with a male Computer Science teacher in Northwest Greece. Both respond to questions about the

ways they integrate web-based and digital environments and tools into the pedagogical practices. The interview reveals the need for the Greek teacher to circumvent limitations imposed by the lower secondary Computer science curriculum. In this way, the teacher deals with issues relating to obsolete content of learning and insufficient subject teaching time.

Considering this, a second round of interviews followed in the next calendar year (October 2012). In addition to the Computer Science teacher, the group of study participants is enlarged with his volunteer colleagues, a female Technology and a male Computer Science teacher. They were interviewed separately for approximately 20 minutes each and questions were more focused on whether technologies can fail the overall teaching plan; how this can be amended; and what this whole pedagogical scheme means for students and the learning process, as well as for the teachers' professional development.

The final round of data collection takes place in November 2013 and involves two female science education experts at the University of Helsinki, one postdoctoral and one doctoral researcher. The interview comes, in reality, as an informal discussion (Denzel and Lincoln 2003) between three colleagues, i.e., the Finnish researchers and the lead author where the former elaborate on the experience of research into learning Physics and Chemistry with digital and mobile technologies in two primary schools in Finland.

Table 2 below summarizes the participants, main research questions, aims and methods of the research on teachers' metaphorical thinking.

**Table 2.** Research on teachers' metaphors: participants, questions, aims & methods

	<b>Study I</b>	<b>Study II</b>
Participants	The dataset of the study involves interviews of one Finnish and one Greek language teacher	The dataset of this study involves interviews of Finnish (N= 1) and Greek science teachers (N= 3) and science education experts (N= 2) from Finland.
Questions	In what ways do language teachers integrate social networking sites and digital tools for pedagogical purposes?	What metaphors emerge in science educators' speech discussing the use of digital technologies and social media to promote science-related concepts and literacies?
Aims	The aim is to trace metaphors in the speech of a Finnish and a Greek state secondary school language teacher. Metaphors are the units of analysis in teacher talk.	The study aims to understand the directions science education is taking by looking into science educators' speech, and tracing and interpreting prevalent metaphors.
Methods	Linguistic analysis of discourse segments that draw from interviews aims to trace shared and contextual metaphors in teacher talk.	Data collection covers 3 phases of interviews with questions asking, for example, about the ways pedagogical practices change when teachers deal with obsolete content of learning and insufficient subject

		teaching time; and how social networking spaces enhance student understanding of scientific concepts. Content analysis aims to trace emergent metaphors.
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### 5.2.2 The studies on student pedagogical thinking

I co-authored the papers on student pedagogical thinking (Study III and IV) with colleagues at CICERO Learning Network, research unit at the Faculty of Behavioral Sciences, University of Helsinki. The studies discuss student digital storytelling views and experiences in activities that took place as part of the ‘Boundless Classroom’ and MoViSTEM projects.

‘Boundless Classroom’ and MoViSTEM are subdivisions of two broader projects. Finnable 2020 was an internationally based plan that took place from October to December 2012. SAVI (Science Across Virtual Institutes) investigated video stories for inquiry-based learning in Finnish primary schools in autumn 2013. The background for both was the use of digital media and connective technologies for the creation and sharing of stories drawing from the human and the natural sciences. In the Finnable 2020 project there was a total of 34 participating classrooms while SAVI involved 6 classrooms (Phase 1). The selection of participating schools was made randomly upon convenience logic.

As the projects aim to connect teachers and students across regions and countries, school selection in Finland, Greece and the US mainly relies on the networking and connections of the Finnish, Greek and US-based researchers.

The projects span across a variety of pedagogical contexts and, therefore, we apply a needs-based approach to project activity design. This means that overall we aim to have digital and mobile technologies integrated organically in the school everydayness while storytelling is the common pedagogical background. To connect teachers and students we use the web-based, experimental platform Mobile Video Experience (MoViE) (<http://cicero-movie.edu.helsinki.fi>).

#### ***Project-based research on digital storytelling***

In the Boundless Classroom case teacher plans address the needs of own classrooms and researchers provide technical support during implementation. In addition, researchers connect teachers online and coordinate the storytelling activities. In order to resolve situations that sometimes hinder the process (e.g., student short attention span, gender-related issues etc.), the teachers apply different methodologies and design more or less structured tasks. For example, more structured tasks involve students taking on specific, alternating roles (e.g., directors, script writers etc.). In other more autonomy oriented learning environments students decide how to distribute roles and reach joint decisions by discussing and voting for or against suggestions and ideas.

Study III draws from semi-structured interviews of focus groups of students from California, Finland and Greece. The school in California is a single-sex, private institution for female students. The storytelling activities took place during a week for special courses and projects. During that week, students work on the project for about half of a school day. Two teachers are involved in the project: one with a literature and theater background and another with an art and technology background. The project focus is on student expression and storytelling, and the students make digital stories independently, and all over the school and school grounds.

The Greek students build their scenarios and present their work in the school lab and in the classroom (2-4 students per computer). They rehearse presentations in groups and then shoot the videos. Decisions are reached in unison in teams or in plenary depending on the problem. Teams are engaged with other projects as well. All projects are Web 2.0-based, involve collaborative work and are focused on experiences with digital technologies. We collected the data while the activities were still running, by observing students shooting the scenes, working together at the computer lab to edit the short videos with MoViE or other editing tool; while preparing for the scene of, for instance, a debate, updating a scenario or shooting from different angles to catch the best shot. In this phase we interviewed small focus groups of (3-5) students according to who was working with whom for story making and telling. Duration of interviews was approximately one hour.

The Finnish students in the Boundless Classroom (Study IV) choose topics that interest them, write scripts, plan the filming and work independently during and after school hours to make the video stories. One major goal is that students use digital technologies for content, rather than for entertainment only, and learn in a safe networking environment. Another goal is to learn how to handle situations where the schedule is tight and invisible technological systems (e.g., bandwidth, device compatibility etc.) impede, even temporarily, the pedagogical process.

In the case of MoViSTEM (Study III), the focus of project design is on inquiry-based learning. During a period of fourteen inquiry-based lessons, the Finnish students film practical experiments about motion and edit clips to create digital stories. The student task is two-fold. First, students make stories on the basis of the themes of the lessons. Later, to promote their progress and activity, students are given a frame story to attach their videos clips to. All the activities are part of the curriculum.

Researching into perspectives of students from a variety of contexts not only broadens the scope of the studies. It also entails a series of implications. Grounding shared understandings of the diverse classroom and educational situations as well as language differences are examples of such implications.

Analysis and co-authorship therefore took effort and collaborative work in order to achieve mutual understandings and reliable results. Ongoing discussions on meanings underlying student interview data and the content of digital stories aimed toward that direction.

### ***Reaching shared research understanding***

One way to resolve language problems was to focus on our own separate databases. Having collected observation and interview data from schools in Greece, I worked with the Greek empirical material, transcribed and, later, translated into English. I hold a BA in Greek and English language and literature and a MA in EFL teaching with a 20 year long experience. Although I am confident with English I collaborated with other Greek and English language experts to cross-examine my understandings of the data. My Finnish colleagues followed a similar path. In addition, we discussed thoroughly the educational contexts in relation to the Greek and Finnish interview and filmic data in order to establish shared understandings and reach joint decisions on codes, emergent themes and categories in the analysis process.

We applied, therefore, a variety of methods in order to add rigor to the studies and achieve reliable results.

In study III the aim is to gain understanding of technological mediation by looking into how users interpret and appropriate networking environments and software. In this way, we expect to trace multi-stable relationships that emerge between students-users and MoViE as an example of mobile connective (or networking) technology.

The analysis progresses from empirical data to categories and emergent sub-themes. As such, this constitutes an abductive content analysis. Abduction is an act of interpretation in the sense that it offers a possible explanation of events (i.e., those discussed in student interviews) by limiting them to members of a class (i.e., through categorizing, thematizing etc.) (Polkinghorne 1983, 123). Findings in the study result from the first cycle of content analysis (Saldana 2009).

We apply similar methods to study IV where the aim is to understand how students think when learning with technologies. More particularly, in this study we aim to examine the types of intervention and the subsequent changes that take place in storytelling pedagogical social media experiences.

The analysis progresses from specific (i.e., actual words) to more abstract levels where the 'what' and 'how' of storytelling are described in terms of changes in the pedagogical process. In the next phase main categories and themes emerge. Emergent categories add to our thinking and the evolution process of research questions.

Table 3 summarizes study III and IV in terms of participants, research questions, aims and methods. Both studies aim to investigate the young people's



thinking when making and sharing digital stories on a social network for pedagogical purposes. The activities and topics draw from the human sciences (e.g., History, Languages etc., in the Boundless Classroom) as well as the natural sciences (e.g., Chemistry and Physics in MoViSTEM).

**Table 3.** Research on students' pedagogical thinking: participants, questions, aims & methods

	<b>Study III</b>	<b>Study IV</b>
Participants	<p>Two groups of 6-8 graders (8 students) from one school in California telling stories about water as part of an arts-based curriculum</p> <p>Two groups of 6th graders (total 8 students) from two schools in Greece (in one school students retell the myth of Europe while in the other students tell stories drawing from daily life)</p> <p>9 groups of 5th graders (total 34 students) from a primary school in Finland studying motion in Physics class</p>	<p>During interviews the students (in the Finnish case, N= 14, and in the Greek case, N= 24) responded to questions concerning the process of making stories, what problems they met and what actions they took in order to resolve these. Also questions about the key moments of the experience were addressed.</p> <p>The Greek students are 6th (12-year olds) and 3rd graders (8-year olds), and work in groups where they reach joint decisions by discussing and voting for or against suggestions and ideas.</p> <p>The Finnish students are 5th and 6th graders (i.e., 12 and 13 year-olds respectively) and choose topics that interest them, write scripts, plan the filming and work independently during and after school hours in order to make the digital stories.</p>
Questions	What stabilities of mobile connective technologies emerge out of student-user experiences of storytelling in a mediated public?	'What initiative do young people come up with when telling digital stories in pedagogical social media?'
Aims	This study aims to trace multi-stable relationships that emerge in the interaction of students-as-users with a connective networking environment.	The paper examines the type of initiative and action young adolescent students from Finland and Greece develop as digital storytellers when collaborating in physical and virtual spaces.
Methods	The analysis of content in this study draws from field observations and interviews of student focus groups.	Data collection included student interviews and observations.



## 6 Findings: Overview of the empirical studies

### 6.1 Teacher pedagogical thinking

#### 6.1.1 The language teachers' metaphors

Study I is an initial attempt to configure how teachers think about technology and what they take as the truth about it. The analysis of interview data shows that teachers take a step forward to reach out and understand their students' needs. In this way, they cater for the requirements of the networked society to augment social connections and access different types of networks. In terms of professional growth, both are pioneers in the teaching field. In the interviews they articulate thoughts and discuss decisions and actions concerning essential aspects of human experience (e.g., space as expressed in the category of locality). This indicates their concern that the digitally enhanced pedagogical meeting is a safe space and guarantees student privacy.

There is no clear evidence, however, that the teachers view the network as space where young people unfold and perform identities through textual and multimodal artifacts, by sharing and telling stories with connected peers. While it is clear that there is need for change, the teachers' metaphors do not signify an orientation toward an understanding of the motives underlying student actions when using social media for pedagogical purposes.

When young people use networking technologies in the classroom they do so on the basis of the pedagogical decisions of their teacher. They are therefore accountable to their teacher for their actions, for how they use the technological devices and the software in order to connect with peers and interact and learn on the network. Similarly, teachers count on their students that they will take advantage of the opportunity to learn in a different, blended environment, combining the actual and the virtual, with state-of-the-art technology.

Some of the metaphors that come up in these teachers' speech are *shared*. Some others are rooted in situations that characterize each educational context. A major systematic shared metaphor entails the notion of concretization. This meaning expresses the need for networking through digital learning environments that protect the young people's privacy. Sociality is another major metaphor and is associated with the notion of connectedness, being part of a group and visibility and has an affective dimension. *Contextual* metaphors arise from the particular situation that each teacher is called upon to deal with, such as controversial situations, how to channel student initiative and how to manage successfully the teaching process.

This initial study points to the need for further investigation into the issue and a methodological re-orientation from metaphors arising from the semantics of

teachers’ speech into metaphors engendered at the intersection of their views of the knowledge domain with the integration of digital technologies. Therefore, it leads to the second study of the thesis that seeks ways to respond to the research question asking about the ways science educators use digital technologies and social media to promote science-related concepts and literacies.

**6.1.2 Science educators’ metaphors**

*Science as way of thinking* is one main metaphor in the study participants’ speech. Overall, the analysis of science educators’ thinking indicates instances of deductive logic. In this sense, the view of science connects with regularities like those of universal laws inferred axiomatically (Olsen 2010, Polkinghorne 1983). The other main metaphor, of *science as method*, concerns digital environments as spaces where young people build knowledge and identities. In such learning spaces, getting connected with peers enhances development and growth through an appreciation of the world. This metaphor indicates that the teachers’ view of technology shifts away from the almost exclusively adopted, current means-to-ends, instrumental approach (Heidegger 1977, Riis 2010).

By running after-school, project-based activities and integrating seventh with eighth and ninth graders, these teachers work after hours on a voluntary basis and eventually construct a ‘parallel’, flexible curriculum. Participation depends on student choices of themes that draw from the human and the natural sciences, is technology enhanced and uses digital environments for communication with peers across classrooms and locations.

In this study an approach to digital media as interpretive, relational spaces emerges and the kind of learning that does not aim for the ideal of certainty. On the contrary, it builds certainty gradually as young people gain insights through multiple interpretations of peers’ and own cultural landscapes.

In addition, as the summary of findings below (Table 4) shows, the analysis reveals the teachers’ underlying conceptions of science.

**Table 4.** Summary of findings: teachers’ metaphors

Study I	Study II
Shared metaphors: Concretization (i.e., kept within limits at a particular place) Action (as accomplishment), Sociality (i.e., to associate or form in social groups) and Movement (origin, continuation)  Context-dependent metaphors:	Metaphors of science as: Way of thinking (e.g., knowledge construction in science requires experimentation, measurement and so on) and  Method (e.g., digital technologies and connective environments are spaces where the youth grow and develop)

Structure, Control, Controversial situations, Disclosure and concealment, and Student initiative	Underlying conceptions (i.e. values that seem to influence the teachers' thinking)
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Underlying conceptions of science are made visible where, for example, decrease in science learning interest is related to age and gender, where a pessimistic view of development as scientist–educator shows up and where imaginative and creative thinking is seen as separated from hard work and the natural sciences.

However, the overall analysis points toward the notion of knowledge building that does not aim for explanation through measurement only. It includes understanding, dialogue and argumentation. This finding indicates a shift toward more communicative practices and a pedagogical landscape that acknowledges the plurality of meaning, welcomes unpredictable responses and views and encourages critical thinking and agency. This movement away from the ideal scientific certainty embraces the view of connective technologies as interpretive, relational spaces. Thus, it creates the space for the subsequent study aiming to further examine the use of web-based social connective environments for pedagogical purposes.

## 6.2 Student pedagogical thinking

### 6.2.1 Young storytellers' experiences with social connective technologies

The analysis of students' experiences in Study III indicates that there exist different stabilities (or multi-stabilities) in using Mobile Video Experience (MoViE) as mediated public space for learning. One relates to the view of the connective environment as context for the learning experience. This context allows for building knowledge and relationships by opening up the space for a representation of reality through video stories. At other times, however, it can discourage an appreciation of the projected phenomena (e.g., natural phenomena and cultural landscapes), the people or the medium of communication. The stabilities of the connective environment, therefore, entail an element of unpredictability in the sense that it is difficult to predict the ways in which technologies will influence human actions.

In all cases, however, the mediated public allows storytellers to look at connected peers' perspectives as well as project own views. This learning space enhances building knowledge and relations as peers exchange ideas, use imagination and 'travel' across settings and situations, in order to create, share, and

respond to peers' stories. In this environment, where technological mediation is activated, storytellers re-consider how they perceive the world and the learning process and how they act.

Acting through technologies enables embodiment in learning by bringing close and making visible what was previously at a distance and invisible. Acting with the connective technology allows user interpretation to appear. This involves not only interpretation of connected peers' cultural landscapes but a critical look into the different aspects of the technology as well. The latter becomes visible when sub-themes, such as technical unpredictability and invisible systems come forward in the study participants' speech. These are issues that call for consideration in the design and the evaluation in the process of future development.

As students tell stories and build knowledge and bonds with connected peers in physical and in virtual proximity, mediation through the technological artifact enables the extension of the bodily self-experience. In addition, it allows for the peer-to-peer and the user-technology dialogue to start up and evolve. Technological mediation in mobile connective environments for learning, therefore, seems to be related with both the perceptual and the relational experience of students-users. In this process the interpretive element of connectivity emerges. It is this connectivity that young people transfer into the storytelling experience.

The analysis of the students' pedagogical thinking reveals that connectivity relates to the willingness of the youth to use digital media and connective technologies for purposeful learning and can result in unpredictable outcomes in terms of technology and human relations. It is possible therefore that connectivity transforms into initiative and action to share stories in order to, ultimately, reach a shared understanding of content and of what it means to work and collaborate with others.

### **6.2.2 Young people's initiative in digital storytelling**

In study IV we used Ricoeur's (1976, 1992) theory of identity and interpretation in order to discuss the youth initiative for learning with digital storytelling and pedagogical social media. The insight we gained through this experience shows that what keeps the dialogue alive is student initiative. Initiative can shift the way the young people perceive the self, the peers and the world. Learning for skills and literacies per se does not suffice.

In the initiative-based learning space students develop an embodied rather than exclusively cognitive perspective and display an ability to respond with new interventions and actions. This becomes obvious through mainly three ways of student action. By taking on a role and *acting-as* (e.g., directors, actors etc.), story-making process becomes space for decisions and problem solving. As the students transfer the story making into the field, they discover the material di-

mensions of what it means to set and shoot the digital story. They take on roles and act as professionals while storytelling opens up the opportunity for youth to view themselves as subjects, from a position different from the one of being student. By entering into dialogue with peers in digital storytelling the young people *act with* respect for others. They also *act in order to* explore and understand deeper and better. In this sense, students do not simply enact a role that has been assigned to them, but learn and grow by changing through own efforts and encourage others to change within a community of solidarity and collaboration.

Table 5 below summarizes the findings of the studies on student pedagogical thinking. Overall, it seems that pedagogical settings where outcomes are unpredictable benefit from student initiative to act for communication through social connective technologies. In such contexts, initiative, action and knowing, although not mutually exclusive, are related.

**Table 5.** Summary of findings: students' pedagogical thinking

Study III	Study IV
<p>Young storytellers' experiences make different stabilities of the connective environment visible.</p> <p>Stability as context for the learning experience (as the space opens up for a representation of reality through digital stories, students build both knowledge and relationships)</p> <p>Stability as interpretative appreciation (e.g., of natural phenomena, cultural landscapes, people and the medium of communication)</p>	<p>Sharing stories and experiences with international peers is an important aspect for all students.</p> <p>Students initiate the transferring of storytelling to informal settings and discover the material dimensions of what it means to set and shoot the digital story.</p> <p>Although they are instructed to focus on subject matter content, the students tell their international peers stories about daily life.</p> <p>It seems that student initiative leads to a shift in the way the young people perceive the self, the peers and the world.</p>





## 7 Discussion of findings

### 7.1 Toward the pedagogies of the future

#### 7.1.1 From certainty to disclosure

Conventional metaphors reveal that the teachers' initiative concerns, rather than the discourse event, the channel of communication. Certainly, the channel affects the communicative function of discourse and therefore it is an important decision to blend learning in the physical space with virtual learning environments. Departing from the need to cater for implications arising in their own particular contexts, the Finnish and the Greek language teacher integrate a variety of Web-based platforms and apply more or less similar techniques. They set up groups in popular social network sites and post questions to kick-off conversations hoping for interactions and exchanges that will lead to deep student thinking and learning.

Instead of the argumentation and the elaboration anticipated, however, the teachers are faced with a kind of reluctance from the part of the students. Certainly, the teachers' decisions exhibit an orientation to establish collaboration patterns online in order to achieve a twofold goal. On the one hand, they extend classroom time and, in this way, deal with an all-time classic limitation in schools. Time is never in plentiful and student needs often have to be attended individually. Asynchronous communication offers such an opportunity. On the other hand, the teachers aim to enhance the dialogue both locally and across classrooms, with students from other schools and similar content areas to strive for. In this way, students' views can be benefited from multiple perspectives and deal successfully with the task to end up with the production of long, well-structured, oral and written, texts exhibiting the ability to critically reflect on issues arising in the fields of Language, Literature and History, as the Upper secondary curricula in Finland and Greece require.

The teachers' thinking however seems to be overwhelmed by a kind of pedagogical idealism. Teachers expect from students to assume responsibilities that the practice of studentship negates. Teaching practices do not leave much room either, as discussions are rather teacher initiated and students have to go along with them. In addition to dialogical shortcomings, the scope of interactions on the social network does not extend very far either. Interactions on the network produce hybrid discourses that, even if inscribed, bear the limitations and the narrowness of spoken discourse and result in exchanges that address rather the identification needs of the utterance in the post than its predicative functions.

A question inviting, for instance, a discussion on the features that problematize our current idea of anthropogenic climatic disruption in Tarkovsky's filmo-

graphy would probably cause a post linking to a filmic database providing general information about the question or the repost of a published related video. Instead of centering upon what carries the weight of the exchange and is expressed through the predicate of the question, this reaction eventually aims to satisfy the poster's desire to receive a response. Inscription of spoken interaction blurs the boundaries of discourse and, as symbols replace sounds, a kind of shortcut occurs. While this shortcut accords with the identity of the medium, it nevertheless fails to fulfill the scope of meaning. Eventually, the dialogical situation is undermined, as is pedagogical action.

To resolve discrepancies arising in the social network activity the language teachers decide to integrate other social software available on the Web. These are services offering platforms for collaboration (e.g., wikis) and free publishing and sharing of user-generated content (e.g., weblogs). The ability to exercise moderator rights and control over student interactions online seems to encourage the teachers and firm their belief that risk is minimized and students are safe from hacker and cyber predators. The metaphor of blended learning taking place within concrete boundaries articulates such belief. The outcome however is rather discouraging.

As the Finnish Biology teacher in Study II admits, despite time and effort spent on building a weblog, her students' rarely post their views on a subject-matter-related topic. Neither do they feel motivated to take an active role in online group work, as the Greek language teacher admits. In addition, one of the Computer Science teachers in Study II expresses his worry that students' posts that address their peers in a cross-country collaborative project on the class wiki are rather formulaic presentations of themselves, their school and their city. In all these settings, online communication takes places mainly asynchronously, in groups that are set up by teachers and host discussions and exchanges in textual or image-based format. In addition to safety, one more condition characteristic of the pedagogical integration seems to be control.

Teacher sensitivity to risk factors is of course both welcome and necessary. It is not however sufficient to enable the transformation of the virtual space into a kind of public sphere-like learning space. On the contrary, it is evidence of the certainty that the good old ability to exercise control will suffice for the new experimental pedagogy to emerge, as the state-of-the-art digital technology promises. There is a lot of faith invested in technology. Yet, young people nowadays exercise control over their own devices and they can even hack them. Since they can access the Web from within or outside school, why should they be tempted into 'writing' a text if this is not their own? Good old practices are simply not good enough any longer.

In the case of science educators' pedagogical thinking the analysis comes up with two main metaphors. Although the science teachers' and educators' metaphorical thinking reflects instances of deductive logic, their approach to digital

media as interpretive, relational spaces does not happen without implications for both the design and the content of learning. This kind of learning does not aim for the ideal certainty. On the contrary, it builds certainty gradually as young people gain insights through the multiple interpretations of peers' and own cultural landscapes. As this view reflects the logic of argumentation that supports a conclusion-making process, it indicates an instance of inductive reasoning. Anyway, as Polkinghorne (1983, p. 128) puts it (referring to Peirce's words), although 'there is no hope for eliminating all error' in order to reach the ideal, an agreement between what constitutes belief and reality can be reached through experience, in a process of negotiation with others of what the real is over time.

The metaphors in their speech reveal that science educators are in such process of negotiation between what used to be 'known' and what is 'new'; or, as Kansanen et al. (2000, 65-66) would put it, a negotiation toward a new empirical reality. I would add that they disclose the path to a new pedagogical reality that calls for communicative practices. To this end, transcendence from predictive to pedagogies of disclosure is required.

### **7.1.2 Social media and networks for pedagogical purposes**

The analysis of digital storytelling experiences reveals that the students are willing and do take initiatives and act in order to use technologies and communicate through them. Also, it seems that students not only transfer features of popular network activity onto the pedagogical storytelling experience but they make own purposefulness explicit as well. As students tell stories and build knowledge and bonds with connected peers they also take the learning off the classroom, off school and, quite often, after hours. They also take charge when teachers' mastery of technology seems to fall back. For example, they download software to convert videos into appropriate format, make remixes to improve the quality of their digital stories, they rehearse and evaluate the outcome and shoot scenes again; they even decide on what themes to act out in addition to the ones proposed by the teachers.

It is important therefore to understand the students' viewpoint, how they act with and through technologies, as it is clear that the young people wish to 'author' a different story and pedagogical action. This story involves initiative, peer collaboration and content co-construction.

In this context storytelling takes practice, technique and work in togetherness. These stories no longer focus exclusively upon individual work but on work in small groups and larger teams. They discuss multiple themes and draw from diverse fields or subject matter. From an educational technology perspective, this agrees with a broader interpretation of technology as a field that involves the systematic application of all sources of organized knowledge (e.g., literature, science, the arts), suggesting that art, craft and science all have roles to play in

Information Technology (Seels 1995). The digital story can have one or multiple audiences, one or multiple endings or, in other words, take a life of its own.

In such environments where technological mediation creates the space for interaction, storytellers re-consider how they perceive the world and how they act. It seems therefore that this experience has opened up an opportunity for young people to think of technology as means to build and convey meaning in an online community of storytellers like the one that MoViE provided. The features of MoViE enabled student communication by opening up content and making it accessible and visible. Such settings mark the potential for pedagogical action where young students intervene to synthesize their own story of learning. Also, this can be the inauguration of a new definition of schooling and of learning with technologies.

There is a need therefore to reconsider how we define not only the pedagogical action but also the connective environments for blended or online learning. In both cases, there should be space for young people to articulate own voices as agents and participants in the construction of the 'text' leading to new pedagogical genres. The young storytellers' experiences make clear the need for the youth to act creatively within the space that project activities open up. In addition, therefore, the need comes up for us to rethink how we design research in the educational sciences.

Such design should echo the view of pedagogy of both correctness and disclosure where young people are agents whose intentions, interactions and circumstances intersect. This initiative-oriented design can cater for complex experiences by opening up opportunities for communication and collaborative work and by extending the formal learning time and space. This context allows for authentic learning experience to come up.

### **7.1.3 Pedagogies and methods for unpredictability**

Pedagogies of disclosure therefore require initiative for change. Pedagogies for initiative need pedagogical methods to realize them. Digital storytelling seems to be one example of such method that promotes the communicativeness of the pedagogical action and allows young people to author their text as narrative and as action.

Sharing stories and experiences with international peers seems to be an important aspect for all schools, as students from all sides state. Crossing boundaries toward an internationally based learning context across the world is equally important. It seems that, if initiative is to be activated to resolve different sorts of unpredictable issues, this builds upon the source of willingness and desirability. Getting connected with peers across the world seems to be an important kick-off of student initiative.

As the young storytellers need to coordinate multiple technologies in order to address pedagogical purposes, the digital story serves similar purposes. It is therefore a pedagogical digital story (Vivitsou et al. 2014). This one, however, breaks away from what we consider as student work to date. Not only is the medium different (from paper and pencil to computers, mobile devices and software) from what it used to be. The code of communication entails, in addition to language, a spectrum of non-linguistic signs that can mean different things depending on, for instance, the angles of shooting, camera movements, facial expressions, gestures and so on. Student work, in this way, becomes, rather than one piece, a collage of text, technique and labor with technologies that perform in concert in order to convey the young people's message. In this sense, the digital story, being the articulation of student work, conveys the storytellers' pedagogical purposes (Vivitsou 2015).

The pedagogical story therefore is a collage, not only in terms of the media used but of purposes and practices that make the storytelling action possible as well. Purposes and practices give birth to the structure of the story as action and ensure the coherence of the plot for a collage. Within this perspective, the fact that digital stories allow for collaboration and require multiple implementation stages enables deeper involvement and thus increases the degree of 'authorship' for the young people. While teachers in the traditional school have so far provided the student with the tools (e.g., diagrams, formulas and so on) necessary for studying and planning, digital storytelling work allows the student to build upon the basics drawn from teacher-led purposefulness (Vivitsou 2015).

Importantly enough, storytelling expresses the storytellers' purposes and, thus, challenges the established view of the student as recipient of knowledge. In this sense, the stories are manifestations of the young people's initiative to act and speak to what creative pedagogies in the school should be like. This happens independently from the medium, as storytelling is always the act of communicating a message (Ricoeur 1992). In the case of pedagogical purposes digital storytelling is the experience of both performing the story and sharing with connected peers on a social network. It is in the making of the story where the possibility for communication and mutual subjectivity opens up toward the collaborative production of the artifact. The digital tools enhance the story making process as the young storytellers experiment with state-of-the-art technology. In this pedagogical setting it is the experience of working together that is founding the experience of working with technologies.

It is this view of pedagogy as communicative action that, as study IV argues, being pedagogy of the future, should open up spaces of unpredictability. Rather than perpetuating notions presenting knowledge as stable entity, we should be ready to suspend certainty and re-negotiate with students what, how, where and with whom they want to learn. Suspending the certainty of knowing what is known or what needs to be known and keeping up the pedagogical dialogue as

action are essential elements of pedagogies of unpredictability. In such spaces young people have the opportunity to build relationships, imagine alternative positions of themselves as subjects in the world and figure out what divergent social designs of this world could look like (Freire 2005). These spaces of pedagogical and learning experience call for discourses that are work oriented and aim toward the production of meaningful artifacts.

Social media can be helpful for pedagogy here as they can host and allow communities of storytellers to grow by sharing artifacts and networked interaction. The features, therefore, of social media and networks (e.g., share-ability, spread-ability, Baym and boyd 2012) are important. For example, limited visibility of content on pedagogical social media can inhibit accessibility and therefore narrow the students' perspective on a particular theme. It can therefore generate inequalities. This is the reason underlying my argument on responsibility and accountability. This is also the reason underlying my belief that all stakeholders' viewpoints need to be taken into account in technological design. Technological features are therefore important in more than one respect in pedagogies for disclosure and initiative.

An essential aspect of pedagogies for initiative is to open up the space where students can articulate their thinking and develop genres of discourses that place reality in context rather than paint a neutral picture of the world (Vivitsou 2015). The findings of my studies provide evidence that young people take the opportunity and work toward meaningful discourses. The storytelling experience, however, reflects the situation that generates it and produces both descriptive and critical genres. I will discuss two examples from the Boundless Classroom here, in order to delineate my point.

When young Greek storytellers tell the story of a local museum they project a rather utilitarian view of reality, such as manuals or brochures bring forward (Vivitsou 2015). The essence of the museum as cultural apparatus should entail, however, more than the display of exhibits or surroundings. Museums enliven history and understanding the world's' history should be a more profound goal than advertising culture. Excavation findings played a role and carried certain meanings for the people and the lives they lived at that time. It is the task of public education and the school to bring these meanings into light rather than act as the marketer of cultural heritage.

Other stories go bolder and adopt a more critical stance when students discuss, for example, the effects of the current financial crisis and austerity when they enact the ancient Greek myth of Europe. In an effort to interpret what the common currency means to the people of Greece, the young storytellers paint a picture of a society of misery where the people become poorer and poorer to finally end up servile, begging for survival. This version of the story indicates how the youth use the love adventure of Zeus and Europe that the school taught them and turn this knowledge against the current reality by using elements from

it. Instead of remaining faithful to its grammar and simply reenact the storyline, the young storytellers change the syntax and ‘author’ their own text. As a result, their imagination in action produces a metaphor. In this sense, through the digital story the youth perform semantic innovation and add new meaning to the pedagogical lexicon.

As it goes beyond the level of reproduction of content knowledge, this is communicative pedagogical action. Being communicative, it reflects a humanistic rather than a modernistic view of what novelty and innovation (Ricoeur 1991, p. 8) should look like. It does so by bringing forward the students’ own interpretation as product of reasoning and collaborative practice. Although this is an instance of hope for pedagogy, the meaning underlying the young people’s interpretation is not hopeful at all, as what it presents is a culture of suffering, surrender and disdain. The pedagogical discourse however should be never ending so that the text be kept open ended. It takes effort, ongoing practice, technique and labor to sustain a culture of hope. In this setting, to hope means to renew the promise ‘before the ghosts of those who are not yet born or who are already dead’ (Derrida 1994). As Derrida puts it, ‘In dark times hope speaks to the need to extend the horizon of justice by making education central to imagining a democratic future that is worth living for’.

As it is indeed dark times what we are going through nowadays, for instance, in Greece, the US, Finland, Britain and Spain, it is also best time to work toward social media for the pedagogy of disclosure. It takes, however, systematic effort to establish such innovative pedagogies as the dominant educational paradigm rather than aiming for sporadic, circumstantial events. Such innovative pedagogies aim, rather than the advancement of technology, for the advancement of the individual, the school and, overall, the society.





## 8 Wrapping up the thesis and conclusions

### 8.1 Possibilities and vulnerabilities in social media communication

The main aim of this thesis has been to seek responses to questions asking whether and to what degree social media and networks serve the pedagogical purposes and the need for change in pedagogy and education. Questions result from the need to understand whether the intersection of social media and pedagogy generates possibilities or vulnerabilities to human communication and knowledge building. Certainly, there are other, more focused questions that I pose in the supporting parts of the thesis where, among others, I discuss my decisions and experiences as researcher, doctoral student and scholar in Greece and in Finland, in more detail. These circumstances constitute the context of the dissertation. The thesis, therefore, reflects the evolution of my thinking in philosophical, epistemological and methodological terms that explain the orientation toward social media as an organon for change through communicative acts. Has the goal for change in education with social media been reached so far?

The analysis and discussion here show that it has not. Instead, what comes out is a shift toward a lexicon with technical definitions that narrow the notion of communication. They do so by, for instance, translating visibility into publicness, artificial intelligence into personalization and human choice, and circumstantial interaction into text. These new meanings that emerge out of social media eventually reduce the polysemy of communicative action with a click to share, like or tag media content perpetually tied to the situation that generates it. Along with language, the pedagogical event does not seem to benefit very much either. It makes sense, therefore, that thinkers like, for instance, Heidegger (1977), challenge the quality of the contribution of technology to human affairs, while Habermas (1991, 2006) disputes the ability of the media to create or sustain a public sphere for dialogue and deliberation.

Social media for pedagogy, however, is not about vulnerabilities only. Although talking about a meaningful change seems not to be possible at the moment, what we can definitely talk about is the potential for change. Initiative to change the established course of things, however, cannot be left upon the social media. Instead, the initiative belongs with the stakeholders in pedagogy and requires action and informed judgment and decisions. The analysis of the study empirical data and the discussion of the background literature shows that, under certain circumstances, content shared online can be self-contained wrought entity able to generate discourses that promote linguistic reasoning and communicative practices.

Building the discussion on essential structures of meaning (Sokolowski 2000), I presented earlier my understanding of communicative practices and explained how they, being the articulations of the pedagogical purposes, influence the discourse in the pedagogical action. The intertwining of purposes and practices acts as enabler of consciousness elevation from perception into intellection or, what can be called, knowledge building. Borrowing from Aristotle's *Organon* (Aristotle, Works), I would argue that purposes and practices should aim for the development of logic through, for example, the classification of reality into categories; the promotion of propositional thinking for informed judgment; the ability for demonstration and definition; inductive and inferential thinking for correctness and disclosure; as well as the promotion of rhetoric as argumentation.

Of course this is not news. The Aristotelian logic has long influenced the Western thought, culture and education. It might be good time however, to rethink of Aristotle under the lens of the hermeneutical dialectic of explanation and understanding. To this end, although the list of pathways to approach knowledge is not exhaustive, which would anyway be beyond the scope of this dissertation, I will add one more dimension. This concerns the need to gain an insight into pedagogy as text. Within this perspective, pedagogy and education break away from the limits of a self-indulging monologue and extrapolate onto the world.

By looking into both the internal structure and external projection of pedagogy outside itself we position education within the science of hermeneutics. What exactly hermeneutics does is that it enriches the discourse that departs from the system of signs and the level of utterance, or the semiological, to the level of text as action, or the semantic (Ricoeur 1991). Like with text, in order to make sense of action, the hermeneutical arc moves back and forth, from understanding to explanation and extends the scope of education away from the idealism that characterizes form and its underlying structure. Subsequently, the science of hermeneutics can expand our current understanding of the educational sciences and educational technology. Being informed from the nomological sciences, educational technology research is to a large extent oriented toward law-like explanations through the measurement of results and learning outcomes. This orientation mainly aims toward the investigation into the development of skill and the learning of technique and echoes a functionalist view of technology. Drawing the analogy upon pedagogy, I can see that this perspective is mainly concerned with the internal structure of the pedagogical 'text'. This study, however, shows that this is not necessarily the case.

In the same way that we need to develop communicative and rational pedagogical practices, we also need to redefine purposes in educational research and aim toward an understanding beyond the structure underlying the pedagogical action as text.

The goal here should be not only to unlock the ‘text’ as system but also the discourse that the communicative act generates. This creates a distance from the structural model that objectifies the pedagogical action. Explanation follows understanding and what the former brings into light is the deep level of the structure of action. Understanding action entails, among others, observation, identification of emergent patterns and juxtaposition of experiences against a background literature. These are possible ways leading to a guess of what the details of the action are. Explanation is what validates the guess against possible and probable interpretations that reveal the inner structure of action as text and as social phenomenon. Validation leads to a new guess and this is how the hermeneutical circle evolves into scientific explanation based upon logic and probability. This approach of hermeneutics of action, or critical hermeneutics, builds upon Ricoeur’s (e.g., 1976, 1978, 1991, 1992) work and philosophy that is rooted in the philosophical tradition of phenomenology. Like hermeneutics, phenomenology is the study of the human “presence” in the world (Phenomenology 2015, Britannica; Spiegelberg 1982).

As such orientation is directly associated with the study of pedagogy as action and extrapolation onto the world, it seems only natural to consider the question asking what the world actually needs today. I will discuss these needs under the light of the findings of the empirical studies of the thesis. With regard to the aforementioned analysis and discussion, there are three possible scenarios for pedagogical integration of social media and connective technology.

One produces utilitarian pedagogical genres and reflects a functionalist view of technology. The integration here mirrors the existing situation in education where school life is canonized by fixed timetables and curricula and individualizes the engagement of the student with technology and the knowledge building process. Although methodologies can include work in pairs or small groups, the discourse mainly builds upon the student-teacher interaction pattern and integration aims to solve problems resulting from the student-digital technology relationship. This perspective sees knowledge building with technology as an additive process where skill development is the primary concern.

Another orientation is more communicative and dependent upon group work and the dialogical situation of the pedagogical event. The cases of the Language and Science teachers in my studies reflect the transcendence from the previous to this more communicative type of pedagogical integration. This perspective is practice-oriented and methodology-dependent, while the aim is to build meaning through an emphasis on sense rather than reference. The discourse that it generates therefore, although broader, is still narrow, being limited by the situational character of the interaction.

The third orientation is initiative-oriented, reflects the view of knowledge building as both additive and cumulative process and is community-based. This type of integration of social media and networks emerges from instances of in-

novative pedagogical action that seeks unpredictability and disputes certainty. In this milieu, the space opens up for young people to externalize their purposefulness and become producers of artifacts and discourse through practice, skill and labor. Most importantly, these open up the space for young people to act as architects of own learning, as planners of curricula and as thinking individuals.

This is a view of novelty as an outcome of human communication that elevates the discourse and forces us to think better and deeper, to act, to intervene and to endure. This could be the new paradigm for pedagogies of innovation, one that emerges out of the experiences of the youth with the digital as well as of discourses online that dispute the technically oriented status quo. This meaning of novelty is more humanism than modernism. And this is what the world needs nowadays.

It becomes then evident that the network is important. It is however the human network that is important. While this is an all-inclusive conclusion that encompasses the interests of stakeholders in education, whether teachers, students, policy makers, curriculum planners, university researchers or scholars, practice divides into instrumental and communicative networking. It is therefore a challenge and an academic interest to look into how communities of action, scholars, policy makers and practitioners think toward this direction.

This thesis does not come to dispute the very existence of schools or to argue against formal education. On the contrary, it is built upon the humanistic ideal that views public education as space of equal opportunity and a gateway to knowledge for the future citizens of the world. This fundamental principle of education, however, is challenged nowadays. One reason is that public education is stuck with the model of patterns of work with social media that reproduce uniformity and standardization at the expense of plurality and creativity. But the world has seen enough of that scene where conformity to the pattern of action as causality is repeated. What we do know now is that action is larger than causality (Ricoeur 1991). It is high time therefore to deviate from the established model and look for new metaphors of innovation through communication and action.

## **8.2 Agenda for future research**

Based on these considerations, my view is that research in educational technology in the future should entail:

- The intertwining and development of practices with social media and connective technologies that enable youth initiative and lead to an understanding of the phenomena that create heated debates nowadays (e.g., women in science; the integration of immigrant students in the school and the wider community; teenagers and violence in the school; how a philosophy of well being is built up in peer networks and online communities of storytellers)

- In terms of social media and university pedagogy, we need to gain insights into:
  - The ways the notion of scholarship changes through online discourses and practices
  - The practices that enable pedagogies of disclosure and enhance university teacher-students' initiative and pedagogical action
  - The new ethos of scholarship that emerges out of blending of actual and virtual academic worlds
- As far as the design and development of connective technologies for pedagogy are concerned, we will need to ask critical questions about:
  - User rights, privacy and protection; user views of technological design; and what role accountability plays in pedagogical networks
- Finally, one more area of concern is building cultural and academic bridges. Two possible pathways toward this direction are:
  - Networks of international peers setting principles leading to innovative curricula and pedagogies for initiative
  - Online publications aiming to create a forum for dialogue on technologies for human communication.



## References

- Anguemiller, J., Maingueneau, D. & Wodak, R. (Eds.) (2014). *The Discourse Studies Reader: Main Currents in Theory and Analysis*. Amsterdam, Netherlands: J. Benjamins, B. V.
- Aristotle *Organon and Other Works*. Translated under the editorship of W. D. Ross. Archived at: <https://archive.org/stream/AristotleOrganon/AristotleOrganoncollecte dWorks#page/no/mode/2up>
- Baym, N. K. (2010). *Personal connections in the digital age*. London: Polity.
- Baym, N. K. & boyd, d. (2012). Socially Mediated Publicness: An Introduction, *Journal of Broadcasting & Electronic Media*, 56:3, 320-329, DOI: 10.1080/08838151.2012.705200.
- Baym, N.K., Ledbetter, A (2009). Tunes that Bind? *Information, Communication & Society*, 12 (3), pp. 408-427.
- Bell, F. (2011). Connectivism: Its place in theory-informed research and innovation in technology-enabled learning. *The International Review of Research in Open and Distance Learning*, 12(3), 98-118. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/902/1664>
- Berners-Lee, T. (2000). *Weaving the Web*. New York: HarperCollins.
- Bessette Skallerup, L. (2015). Social Media, Service, and the Perils of Scholarly Affect. *Hybrid Pedagogy*, published 7.02.2015. Retrieved from: <http://www.hybridpedagogy.com/journal/social-media-service-and-the-perils-of-scholarly-affect/>
- Bingham, C. & Sidorkin, A. (2001). 'Aesthetics and the Paradox of Educational Relation', *Journal of Philosophy in Education*, 35(1), pp. 21-30.
- boyd, d. (2008). Can Social Network Sites Enable Political Action? In Allison Fine, Micah Sifry, Andrew Rasiej and Josh Levy (Eds.) *Rebooting America*. Creative Commons. 112-116.
- boyd, d. (2010). Social network sites as networked publics: Affordances, dynamics, and implications. In Z. Papacharissi (Ed.), *A networked self: Identity, community and culture on social network sites* (pp. 39-58). New York: Routledge.
- boyd, d. (2012). Networked Privacy. *Surveillance & Society* 10(3/4): 348-350. <http://www.surveillance-and-society.org>. ISSN: 1477-7487
- boyd, d. & Ellison, N. (2007). Social Network Sites: Definition, History and Scholaship. *Journal of Computer-Mediated Communication*, 13 (1), pp. 210-230.
- boyd, d., & Hargittai, E. (2010). Facebook privacy settings: Who cares? *First Monday*, 15(8).
- Bruns, A. (2010). Exploring the Pro-Am interface between production and produsage. In Proceedings of *The Internet Turning 40: The Never-Ending Novelty of New Media Research?*, 17-19 June 2010, Chinese University of Hong Kong, Hong Kong
- Cameron, L. & Maslen, R. (2010). (Eds.) *Metaphor Analysis: Research Practice in Applied Linguistics, Social Sciences and the Humanities*. London, UK: Equinox.

- Castoriadis, C. (1991). The Greek polis and the creation of democracy. In David Ames Curtis (Ed.), *Philosophy, Politics, Autonomy: Essays in Political Philosophy*, pp. 81-123. New York, NY: Oxford University Press.
- Cover, R. (2012). Performing and Undoing Identity Online: Social Networking, Identity Theories and the Incompatibility of Online Profiles and Friendship Regimes. *Convergence: The International Journal of research into New Media Technologies*, 18 (2), pp. 177-193.
- Cottom McMillan, T. (2015). "Who Do You Think You Are?": When Marginality Meets Academic Microcelebrity. *Ada, A Journal of New Media and Technology*, 7. Retrieved from: <http://adanewmedia.org/2015/04/issue7-mcmillancottom/>
- Damon, W. (2008). *The path to purpose: Helping our children find their calling in life*. New York: Simon & Schuster.
- Damon, W., Menon, J., & Bronk, K. C. (2003). The development of purpose during adolescence. *Applied Developmental Science*, 7(3), 119-128.
- Denzin, N. K. & Lincoln, Y. S. (2010). Introduction: The discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (pp. 1-17). Thousand Oaks, CA: Sage.
- Derakhshan, H. (2015). The Web We Have To Save. Matter, published online 7.14.2015. Retrieved from: <https://medium.com/matter/the-web-we-have-to-save-2eb1fe15a426>
- Derrida, J. (1994). *Specters of Marx*. New York, NY: Routledge.
- Donath, J. & boyd, d. (2004). Public Displays of Connection. *BT Technology Journal* 22 (4), pp. 71-82.
- Downes, S. 2004. Educational blogging. *Educause Review* 39 (5): 14-26. <http://www.educause.edu/ir/library/pdf/ERM0450.pdf> (accessed May 31, 2008). Archived at <http://www.webcitation.org/5YEm0595r>
- Downes, S. (2006). *Learning networks and connective knowledge*. Paper presented to the Instructional Technology Forum. Retrieved from <http://it.coe.uga.edu/itforum/paper92/paper92.html>
- Downes, S. (2007, February 3). What connectivism is [Web log post]. Retrieved from <http://halfanhour.blogspot.ca/2007/02/what-connectivism-is.html>
- Downes, S. (2008). gRSShopper [Web log post]. Retrieved from <http://www.downes.ca/cgi-bin/page.cgi?post=44682>
- Ellison, N. B. & boyd, d. (2013). Sociality through Social Network Sites. In Dutton W. H. (Ed.), *The Oxford Handbook of Internet Studies*. Oxford: Oxford University Press, pp. 151-172.
- Eslami, M., Hamilton, K., Karahalios, K., Langbort, C., Rickman, A. & Sandvig, C. (2014). Uncovering Algorithms: Looking Inside the Facebook News Feed. A lecture presented to the Berkman Center for Internet & Society, Harvard University, Retrieved from: <http://cyber.law.harvard.edu/events/luncheon/2014/07/sandvigkarahalios>
- Fairclough, N. (2014). A Critical Agenda for Education. In Anguemiller, J., Maingueneau, D. & Wodak, R. (Eds.), *The Discourse Studies Reader: Main Currents in Theory and Analysis*. Amsterdam, Netherlands: J. Benjamins, B. V. pp. 379-387.
- Fitzpatrick, B. and D. Recordon. (2007). 'Thoughts on the Social Graph'. Brad-Fitz.com. <http://bradfitz.com/social-graph-problem/>
- Flick, U. (2002). *An introduction to qualitative research*. (2nd ed.). London: Sage.



- Floridi, L., & Sanders, J. (2004). On the Morality of Artificial Agents, *Minds and Machines*, 14(3), pp. 349–379.
- Fournier, H., Kop R. & Durand, G. (2014). Challenges to Research in MOOCS, *MERLOT Journal of Online Learning and Teaching*, 10 (1).
- Freire, P. (2005). *Pedagogy of the Oppressed*, Trans. M. G. Ramos, NY: Continuum.
- Giroux, H. A. (2011). The Crisis of Public Values in the Age of the New Media, *Critical Studies in Media Communication*, 28(1), pp. 8-29.
- Habermas, J. (2006). Political communication in media society: Does democracy still enjoy an epistemic dimension? - The impact of normative theory on empirical research. *Communication Theory*, 16(4), 411–426.
- Habermas, J. (1991). *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*. Cambridge, MA: MIT Press.
- Hall, J. A. (2011). Sex Differences in Friendship Expectations: A Meta-analysis. *Journal of Social and Personal Relationships*, 000 (00), pp. 1-25.
- Heidegger, M. (1977). *The Question Concerning Technology and Other Essays*, New York: Harper Torchbooks.
- Hargittai, E. (2008). The role of expertise in navigating links of influence. In J. Turow & L. Tsui (Eds.), *The hyperlinked society* (pp. 85–103). Ann Arbor, MI: University of Michigan Press.
- Ihde, D. (1979). *Technics and Praxis*. Dordrecht, Holland: D. Reidel Publishing Company.
- Ihde, D. (1990). *Technology and the Lifeworld: From garden to earth*. Bloomington and Indianapolis: Indiana University Press.
- Kansanen, P., Tirri, K., Meri, M., Krokfors, L., Husu, J., & Jyrhämä, R. (2000). *Teachers' Pedagogical Thinking. Theoretical Landscapes, Practical Challenges*. New York: Peter Lang.
- Kansanen, P. (2009a). Subject-matter didactics as a central knowledge base for teachers, or should it be called pedagogical content knowledge? *Pedagogy, Culture & Society*, 17 (1), 29–39.
- Kansanen, P. (2009b). The curious affair of pedagogical content knowledge. *Orbis Scholae*, 3 (2), 5–18.
- Knox, J. (2012). The Limitations Of 'Access': Opening Up Education Technologies #OER #MOOC #EDTECH. Published in Blog, 09.21.2012. Retrieved from: <http://jeremyknox.net/2012/09/21/the-limitations-of-access-opening-up-education-technologies-oer-mooc-edtech/>
- Laurillard, D. M. (1993). *Rethinking University Teaching: A Framework for the Effective Use of Educational Technology*. Routledge, London.
- Leichter, D. J. (2012). Collective Identity and Collective Memory in the Philosophy of Paul Ricoeur. *Études Ricoeuriennes / Ricoeur Studies*, 3 (1), pp.114-131.
- Litt, E. (2012). Knock, knock. Who's There? The Imagined Audience. *Journal of Broadcasting & Electronic Media* 56: 3, pp. 330-345.
- Mackness, J., Mak, S., & Williams, R. (2010). The ideals and reality of participating in a MOOC. In L. Dirckinck-Holmfeld, V. Hodgson, C. Jones, M. de Laat, D. McConnell, & T. Ryberg (Eds.), *Proceedings of the Seventh International Conference on Networked Learning* (pp. 266-274). Lancaster, UK: Lancaster University. Retrieved from <http://www.lancaster.ac.uk/fss/organisations/netlc/past/nlc2010/abstracts/PDFs/Mackness.pdf>

- Mangueneau, D. (2014). The Scene of Enunciation. In Anguemiller, J., Mangueneau, D. & Wodak, R. (Eds.), *The Discourse Studies Reader: Main Currents in Theory and Analysis*. Amsterdam, Netherlands: J. Benjamins, B. V. pp. 147-154.
- Mara, P. E. A. (2011). The Capable Human Being and the Role of Language in Paul Ricoeur's Hermeneutical Philosophical Anthropology. *Kritike*, 5 (1), 51-61.
- Marwick, A., & boyd, d. (2011). Social Privacy in Networked Publics: Teens' Attitudes, Practices, and Strategies. Presented at Oxford Internet Institute's A Decade In Internet Time, September.
- Matusov, E. (2009). *Journey into Dialogic Pedagogy*. New York: Nova Science Publishers, Inc.
- McLoughlin, C. & Lee, M. J.W. (2008) Future Learning Landscapes: Transforming Pedagogy through Social Software , *Innovate: Journal of Online Education*, 4: 5, Article 1. Retrieved from: <http://nsuworks.nova.edu/innovate/vol4/iss5/1>
- More, M. (2013). The Philosophy of Transhumanism. In More, M. & Vita-More, N. (Eds.) *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*, First Edition. Wiley & sons, Inc.
- Moustakas, C. (1994). *Phenomenological Research Methods*. Thousand Oaks, CA: Sage Publishers.
- Mylläri, J., Kynäslähti, H., Vesterinen, O., Vahtivuori-Hänninen, S., Lipponen, L., & Tella, S. (2011). The student's pedagogical thinking and the use of ICTs in teaching. *Scandinavian Journal of Educational Research*, 55 (5), pp. 537-550.
- Nissenbaum, H. (1994). Computing and Accountability, *Communications of the Association for Computing Machinery*, 37(1), pp. 72–80.
- Nissenbaum, H. (1997). Accountability in a Computerized Society. In B. Friedman (ed.) *Human Values and the Design of Computer Technology*. Cambridge: Cambridge University Press, pp. 41–64.
- Olsen, J. K.B. (2010). Becoming through Technology. In Olsen J. K.B., Selinger, E. & Riis, S. (Eds.) *New Waves in Philosophy of Technology*, p. 40-61.
- O' Reilly, T. (2007). What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software. *Communications and Strategies*, 65 (1), pp. 17-37.
- Phenomenology. (2015). In *Encyclopædia Britannica*. Retrieved from <http://global.britannica.com/topic/phenomenology><http://global.britannica.com/topic/phenomenology>
- Philosophical anthropology. (2015). In *Encyclopædia Britannica*. Retrieved from <http://global.britannica.com/topic/philosophical-anthropology><http://global.britannica.com/topic/philosophical-anthropology>
- Polkinghorne, D. (1983). *Methodology for the Human Sciences - Systems of Inquiry*. Albany, NY: State University of New York.
- Quan-Haase, A. & boyd, d. (2012). Teen Communities. In Barnette, G. (Ed.), *Encyclopedia of Social Networks*
- Ricoeur, P. (1976). *Interpretation Theory: Discourse and the Surplus of Meaning*. Forthworth: Texas Christian University.
- Ricoeur, P. (1978). *The Rule of Metaphor: Multi-disciplinary studies of the creation of meaning in language*. Transl. R. Czerny with K. McLaughlin & J. Costello, S.J. London, UK: Routledge & Kegan Paul Ltd.

- Ricoeur, P. (1991). *From Text to Action: Essays in Hermeneutics II*, trans. Kathleen Blamey and John B. Thompson, Evanston: Northwestern University Press.
- Ricoeur, P. (1992). *Oneself as Another*, trans. Kathleen Blamey, Chicago: University of Chicago Press.
- Rainie, L. and Wellman, B. (2012). *Networked: The New Social Operating System*. Cambridge, MA: MIT Press.
- Romele A., (2013). Narrative Identity and Social Networking Sites. *Études Ricoeuriennes / Ricoeur Studies*, 4 (2 ), pp.108-122
- Saadatmand, M. & Kumpulainen, K. (2012). Emerging Technologies and New Learning Ecologies: Learners' Perceptions of Learning in Open and Networked Environments. In Proceedings of the 8th International Conference on Networked Learning 2012, Edited by: Hodgson V, Jones C, de Laat M, McConnell D, Ryberg T & Sloep P.
- Saadatmand, M. & Kumpulainen, K. (2014). Participants' Perceptions of Learning and Networking in Connectivist MOOCs, *MERLOT Journal of Online Learning and Teaching*, 10(1), pp. 16-30.
- Saldana, J. (2009). *The Coding Manual for Qualitative Researchers*. London, UK: SAGE Publications Ltd.
- Salter, A. & Blodgett, B. (2012). Hypermasculinity and Dickwolves: The Contentious Role of Women in the New Gaming Public. *Journal of Broadcasting and Electronic Media*, 56 (3), pp. 401-416.
- Sandvig, C. (2015). Seeing the Sort: The Aesthetic and Industrial Defense of "The Algorithm." *Media-N*. vol. 10, no. 1. <http://median.newmediacaucus.org/art-infrastructures-information/seeing-the-sort-the-aesthetic-and-industrial-defense-of-the-algorithm/>
- Seels, B. (1995). Instructional design fundamentals: Issues of integration. In B.B. Seels (Ed.), *Instructional design fundamentals: A reconsideration*, pp. 247-253. Englewood Cliffs, NJ: Educational Technology Publications, Inc.
- Siemens, G. (2006). *Knowing knowledge*. Retrieved from [http://www.elearnspace.org/KnowingKnowledge\\_LowRes.pdf](http://www.elearnspace.org/KnowingKnowledge_LowRes.pdf)
- Siemens, G. Gacevic, D. & Dawson, S. (2015). *Preparing for the Digital University: a review of the history and current state of distance, blended and online learning*. Athabasca University, University of Edinburgh, University of Texas Arlington & University of S. Australia.
- Smyth, J., McInerney, P. & Fish, T. (2013). Blurring the boundaries: from relational learning towards a critical pedagogy of engagement for disengaged disadvantaged young people, *Pedagogy, Culture & Society*, 21:2, 299-320.
- Sokolowski, R. (2000). *Introduction to Phenomenology*. Cambridge Press, New York.
- Spiegelberg, H. (1982). *The phenomenological movement: A historical introduction* (3rd ed.). The Hague, Netherlands: Maritus Nijhoff.
- Stewart, B. (2015a). In Abundance: Networked Participatory Practices as Scholarship, *The International Review of Research in Open and Distributed Learning (IRRODL)*, 16 (3). Retrieved from: <http://www.irrodl.org/index.php/irrodl/article/view/2158/3343>
- Stewart, B. (2015b). Open to influence: What counts as academic influence in scholarly networked Twitter participation. *Learning, Media, and Technology*, 40(3), 1-23. doi: 10.1080/17439884.2015.1015547

- Swayles, J. (2014). Genre and Discourse Community. In Anguemiller, J., Maingueneau, D. & Wodak, R. (Eds.) *The Discourse Studies Reader: Main Currents in Theory and Analysis*. Amsterdam, Netherlands: J. Benjamins, B. V. pp. 306-316.
- Tarleton, G. (2015). Facebook's improved 'Community Standards' still can't improve the central paradox. Culture Digitally, published 03.18.2015. Retrieved from: <http://culturedigitally.org/2015/03/facebooks-improved-community-standards-still-cant-resolve-the-central-paradox/http://culturedigitally.org/2015/03/facebooks-improved-community-standards-still-cant-resolve-the-central-paradox/>
- Tella, S. & Mononen-Aaltonen, M. (1998). Developing Dialogic Communication Culture in Media Education. Media Education Centre. Department of Teacher Education. University of Helsinki. *Media Education Publication* 7.
- Tella, S. & Mononen-Aaltonen, M. (2000). Towards Network-Based Education: A Multidimensional Model for Principles of Planning and Evaluation. In S. Tella, *Media, Mediation, Time and Communication Emphases in Network-Based Media Education* (pp. 1-58). Helsinki: Media Education Publication 9, MEC, HY.
- Thomasson, A. (2007). Artifacts and Human Concepts. In *Creations of the Mind. Theories of Artifacts and Their Representation*, E. Margolis and S. Laurence (eds.), Oxford and New York: Oxford University Press, pp. 52-73.
- Tirri, K. (2011). Holistic School Pedagogy and Values: Finnish Teachers' and Students' Perspectives. *International Journal of Educational Research*, 50, 159-165.
- Tirri, K. (2012). The core of school pedagogy: Finnish teachers' views on the educational purposefulness of their teaching. In Niemi, H., Toom, A., & Kallioniemi, A. (Eds.) *Miracle of Education? Teaching and learning in Finland*. Sense Publishers.
- Verbeek, P. (2006). Materializing Morality: Design Ethics and Technological Mediation, *Science, Technology, and Human Values*, 31(3), pp. 361-380.
- Vesterinen, O. (2011). Media Education in the Finnish School System – A Conceptual Analysis of the Subject Didactic Dimension of Media Education. PhD Thesis, Faculty of Behavioral Sciences, University of Helsinki.
- Vivienne, S. & Burgess, J. (2012). The Digital Storyteller's Stage: Queer Everyday Activists Negotiating Privacy and Publicness. In *Journal of Broadcasting & Electronic Media*, 56:3, 362-377, DOI: 10.1080/08838151.2012.705194.
- Vivitsou, M. (2015). Young storytellers building knowledge and communication with digital stories. Proceedings ICODL, Greece, November 2015 (accepted).
- Vivitsou, M., Penttillä, J. & Kallunki, V. (2014). Tracing the multi-stabilities of social mobile technologies for learning: from story generators to mediated publics? In Proceedings, World Conference on Educational Media and Technology, EdMedia, Tampere, Finland, 23-26.06.2014, 1, pp. 2601-2611.
- Vivitsou, M., Penttillä, J. & Kallunki, V. (2015). Young storytellers' pedagogical digital stories: what are they like? Paper presentation in Media Education Conference, Salla, Lapland, Finland, 15-17.06.2015 <http://www.ulapland.fi/loader.aspx?id=10782615-cff7-4a77-aa7d-f3e02fafa798>

- Vivitsou, M. & Viitanen, K. (2015). The pedagogies of the future: Through young people's eyes in storytelling experiences with the digital in Finland and Greece. In Zlitni, S. & Lienard, F. (Eds.) *Electronic Communication: Political, Social and Educational uses*. Bern: Peter Lang Europäischer Verlag der Wissenschaften, pp. 110-123.
- Vivitsou, M., Tirri, K. & Kynäslähti, H. (2014). Social Media in Pedagogical Context: A Study on a Finnish & a Greek Teacher's Metaphors. *International Journal of Online Pedagogy and Course Design*, 4(2), pp. 1-18. DOI: 10.4018/ijopcd.2014040101
- Weller, M. (2011). A pedagogy of abundance. *Spanish Journal of Pedagogy*, 249, pp. 223-236.
- Wellman, B., Salaff, J., Dimitrova, D., Garton, L., Gulia, M. & Haythornthwaite, C (1996). Computer Networks as Social Networks: Collaborative Work, Telework, and Virtual Community. *Annual Review of Sociology*, 22, pp. 213-238.
- Zhao, S. Grasmuck, S., & Mason, M. (2008). Identity Construction on Facebook: Digital Empowerment in Anchored Relationships. *Computers in Human Behavior*, 24, pp. 1816-1836.
- Zobel, G. (2015). Why Open Educational Resources (OERs) are Important for Critical Pedagogues. *Hybrid Pedagogy*, published 6.10.2015. Retrieved from: [http://www.hybridpedagogy.com/journal/why-open-educational-resources-oers-are-important-for-critical-pedagogues/?utm\\_source=feedburner&utm\\_medium=feed&utm\\_campaign=Feed%3A+HybridPed+%28Hybrid+Pedagogy%3A+A+Digital+Journal+of+Teaching+%26+Technology%29](http://www.hybridpedagogy.com/journal/why-open-educational-resources-oers-are-important-for-critical-pedagogues/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+HybridPed+%28Hybrid+Pedagogy%3A+A+Digital+Journal+of+Teaching+%26+Technology%29)

