Mediatisations North and South

Epistemological and Empirical Perspectives from Sweden and Brazil

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Library
SE-141 89 Huddinge
www.sh.se/publications

Translation: Maddalena Simondi
Editorial Revision: Göran Bolin & Isabel Löfgren
Copy-editing: Maddalena Simondi

Cover design concept: Maddalena Simondi
Cover layout and execution: Isabel Löfgren & Maddalena Simondi
Graphic form, inlay: Per Lindblom & Jonathan Robson

Printed by E-Print, Stockholm 2024

Mediestudier vid Södertörns högskola, 2024:2
ISSN 1650-6162
ISBN 978-91-89504-91-2 (print)

Digital Competence as a Boundary Concept in the Mediatisation of the Future of (Swedish) Education

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Introduction

One of the recurring themes in mediatisation research concerns the relation between education and digitalisation and how media conditions and saturates the logics and practices of the educational sector. Most of this research has focused on how education adapts to digital educational technologies by substituting and changing the practices of teaching and learning, school administration, and classroom management (Breiter 2014). These rather direct forms of the effects of mediatisation concern communication and structuration *inside* schools. Other research has focused more on indirect effects, for example, the impact that journalistic representations of schools may have on educational governance (Rawohle & Lingard 2014). Another research area is how K12-schools respond to the deeply mediatised lives that the students live *outside* of the classroom, by training them in terms of media- and information literacy (MIL) and digital competence (Forsman 2020).

In other words, we need to ask not only what mediatisation does to education but also what educational governance does with mediatisation. The ambition of this article is to contribute to this discussion by offering a non-media-centric and non-tech-oriented perspective on the institutional relations between education and (digital) mediatisation. I do this by studying the emergence and implications of the concept *digital competence* by suggesting that it signifies both a regulative adjustment to rapid digitalisation and a critical response to the consequences of deep mediatisation.

Digital competence derives from the area of transnational policymaking (EU, OECD) and it can be described as an evolving *boundary concept* that mediates between different stakeholders and levels of governance (Ilomäkki et al. 2016). Digital competence is also a widely acknowledged concept that is often used by different stakeholders in different contexts and for different pur-

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poses. During the last decade, many reports (transnational and national) have described and suggested what kind of knowledge, skills, and attitudes digital competence is supposed to cover (e.g. Ala-Mutka 2011; Ferrari 2013; Vuokari et al. 2016, 2022). Several countries have aligned digital competence to their national curriculums and course syllabuses, Sweden being one of them (Godhe 2019).

My take on digital competence as a governing concept that aligns mediatisation with education is inspired by Hjarvard's (2013) institutional approach to mediatisation and I share his ambition to address large-scale and long-term structural changes in the relationship between media and different institutions in society (e.g. education). I am also encouraged by Hjarvard's (2013: 4) invitation to combine different theoretical ambitions as heuristic tools in the development of mediatisation research. It is in line with that I suggest that digital competence could be considered as being a so-called basic concept (Berenskoetter 2016; Koselleck 2002, 2004), which in turn can be connected to terms such as anticipatory governance (Flyverbom & Garsten 2021), soft power (Nye 2004), and certain forms of sociotechnical imaginaries (Jasanoff 2015; Rahm 2023). I argue that this approach can help us understand more about the relationship between the educational system's logic and mediatisation's logic. I also connect this ambition to "critical studies of educational technology" where researchers like Selwyn (2016) and Williamson (2017) have the ambition to open "the black box" of digitalisation concerning public education, with the theoretical and analytical means of political economy, ideology critique, and studies of dominant narratives, concepts, and imaginaries. It is in relation to the last-mentioned approach that I position this article.

The article starts with further development of this theoretical framework, followed by two empirical sections. The first one describes the emergence of digital competence and its role on the transnational agenda. Here I use material from the EU:'s *DIGCOMP* framework as an example. The second empirical section describes how digital competence, through official reports (SOU), and the work of the National Agency for Education, became a central concept in the digitalisation of Swedish K12 education. In the third and final section, I connect the elements of the rationale given here.

Mediatising and Anticipating Digital Competence

It is by now well known that the term *mediatisation* does not refer to the concrete act of communication through mediation, but instead to an ongoing and long-term meta-historical process that is characterised by a growing dependence on the technologies, institutions, and media logics (Krotz 2009). This

means that we cannot conceive of media as being separate from culture and society. It also means that we are interested in how structural transformations of media are related to changes in the institutions and everyday aspects of human communication (Hjarvard 2013). mediatisation has been described as a "moulding force" in modernity and it can also be compared to other meta-historical processes, such as globalisation (Hepp 2013). In other words, mediatisation stands not just for a continuous development of media technologies and general historical changes, but for a certain technological, tempo-spatial, and structural logic. There are also suggestions that we have now entered a new era of *deep mediatisation,* that is characterised by the post-mass media condition, and defined by ubiquitous and converging network-based media; that are mobile, personalised, and participatory; and fuelled by algorithms, automation, datafication, platformisation (Hepp 2020).

There are different approaches to mediatisation. One of them is a social constructivist and phenomenological interest in how mediatisation affects everyday life practices, meaning-making, and identity formations on the micro level (Couldry & Hepp 2018). Another approach that is discussed by Bolin (2014) that suggests that we need to understand mediatisation also in relation to "the political economy of signs", referring to Baudrillard's discussion about objects and images. What I propose in this article can possibly complement Bolin's suggestion, since I conduct a conceptual study where I propose that *digital competence* is a sign and conceptual vehicle for both an adaptation to rapid digitalisation and a reaction to deep mediatisation.

However, my approach is first and foremost related to Hjarvard's (2013) *institutional approach* to medialisation, wherein he underlines the relationship between media and other domains in society seldom are linear or direct, nor should be understood as a form of technological determinism. What Hjarvard instead suggests is that this relation should be regarded as being dynamic and dialectic and characterised by co-development and reciprocity. In line with this, I suggest that digital competence, by being used often in reports that offer complex frameworks, has become a *resource* for and a form of *regulation* of how the educational systems adapt to digitalisation and respond to deep mediatisation. This could be described using Hjarvard's (2013) terminology (cognitive schemas, normative compasses, mental scripts) as the expectations for individuals to engage with mediatisation reflexively and responsibly.

This production of future directions and subjects can be related to what Jasanoff (2015: 19) calls sociotechnical imaginaries by which she means "collectively held, institutionally stabilised, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and techno-

logy". Some of these imaginaries are related to education (Knox et al. 2020; Rahm 2023; Selwyn 2016; Williamson 2018) and forms for *anticipatory governance*, i.e., "knowledge-based, performative phenomenon that addresses potential and desirable futures and operates as a mode of shaping, controlling and orchestrating organisations" [by making] "phenomena, problems and opportunities visible, knowable and possible to act on" (Flyverbom & Garsten 2021: 3f).

A Conceptual Approach

It is hard to discuss the future of education and the future of citizens in a digital society without referring to *digital competence*. This opens the door to conceptual analysis.

The classical approach to concept analysis is *the scientific approach* that focuses on etymology and definitions, linguistics and semantic clusters, empirical meanings, and how concepts travel in time and across social space (Berenskoetter 2016: 164f). From this perspective, we can note that "digital competence" is constituted through a combination of two concepts: digital and competence. While the semantic cluster around "digital" refers to technology, the semantic cluster around competence is more related to a behavioural understanding of how subjects perform in non-standard situations (Pikkarainen 2014).

It can here also be noted that *competence* stems from the Classical Latin term *competere* (be sound, capable, applicable), which coincides with *com* (together) and *petere* (attack, compete, desire) (Pikkarainen, 2014: 622). Our modern understanding of competence points to task-based skills, individual flexibility, and competence training, meant to meet the needs of a rapidly changing labour market. This approach to competence came with American behavioural psychology in the 1950s before it was profiled in the 1980s and 1990s during the shift from industrial to post-industrial society when there was a large demand for competence development (SOU 1991: 56). The use of competence thus indicates a shift from formal knowledge and academic disciplines towards a more practice- and work-based idea about the individual's capacity to mobilise skills and attitudes to meet the demands of new and complex contexts (Pikkarainen 2014; c.f. OECD 2018). Another important observation to bring is that digital competence often is implicitly used in a normative and prescriptive way.

Another observation to make is that "digital competence" is used rather normatively in reports that often present rather extensive and complex frameworks, with main categories and subcategories, themes, indicators, learning outcomes, and assessment criteria, that are meant to describe and define digital competence, in relation to future orientations. This can, in turn, be related to a second approach to concept analysis, strongly influenced by Michel Foucault's

studies of governance and bio-politics, in a less linguistic and more political (critical) approach, since it explores how concepts become reified and relate to the production of power and knowledge, through their use across different social domains (Berenskoetter 2016: 168f).

A third form of conceptual analysis, with a connection to political language and processes of governance, is more historical in its approach and mainly connected to German historian Reinhard Koselleck (2002, 2004) and his temporal hermeneutics. What Koselleck wants to understand is how certain concepts become hegemonic by functioning both as indicators of change and by being transformative forces in themselves (Berenskoetter 2016: 162f)).

A central part of Koselleck's approach is his discussion about "basic concepts" (Grundbegriffe). Koselleck argues that certain concepts become basic when they not only exist as a specialised term but have become a fundamental cultural code, that permeates political language and public discourse. Hereby they come to govern major organisations and movements, and they become objects for research about and with them. This means that basic concepts also take on a central role in everyday life. In other words, they become indispensable and something that we cannot do without (Berenskoetter 2016). It can for example be difficult to discuss "the future of education" without reference to digitalisation or digital competence. Basic concepts are thus both descriptive and regulative, and they are at the same time objects and premises for the debates and processes they evoke.

Another dimension of basic concepts is that they are of temporal and teleological importance concerning modernity and the idea of progression (Berenskoetter 2016). They are also connected to the dialectic between historical experience and historical expectations (Cordero 2016). Among the examples of basic concepts that Koselleck suggests, we can find the following: State, Revolution, Crises, Development, Future, Utopia, Democracy, and Citizenship. It can be debated if digital competence is fully qualified as a basic concept in the sense that Koselleck put into this term. However, it is notable that "digital" tends to appear in combination with some of the basic concepts suggested by Koselleck, for example in *digital revolution, digital citizen,* and *digital future*. Still, the temporal and political inclinations and indications of a major technological and societal shift with digital competence as a basic concept need to be further investigated.

Transnational and Loose

Digital competence emerges from the term digital literacy, which was used during an earlier phase of computerisation, digitalisation, for example by Gilster

(1997), who suggested that the post-typographic situation and the development of "new media" required new forms of literacy that can help citizens use and navigate networked technologies and interpret digital messages (c.f. Bawden 2008). After the turn of the millennium, digital literacy morphed into digital competence. One step in this direction was when the OECD (The Organisation for Economic Co-operation Development) defined digital competence as a necessary *21st-century skill* (OECD 2005). Hereby suggesting that all citizens, and not least younger generations, must acquire a certain level of digital competence to be active in society and find a position in the economy of the future (Ala-Mutka 2011).[2] Digital competence has also been associated with terms such as digital natives, millennium learners, employability, entrepreneurship, and innovation (Gallardo-Echenique et al. 2015). It can also be connected to communication, democracy, and critical thinking, as well as to personal development, happiness, creativity, personal expression, participation, and responsibility (Erstad et al. 2021; Vuorikari et al. 2022).

Digital competence stands for a combination of *knowledge (*concepts and facts)*, skills* (abilities to carry out processes), and *attitudes (*dispositions to act), and it has for a long time been central to reports from the OECD, such as the triennial report *Trends Shaping Education,* or in projections and prognoses given by *Future of Education and Skills 2030* (OECD 2018). Also, the European Commission (EC) has used digital competence extensively in its agendas and strategies for competitive and sustainable growth. It was in 2006 that the European Parliament and Council first put forward digital competence as one of eight key competencies that were suggested under the umbrella term *Lifelong Learning*. Digital competence has also been described as being a *transversal competence*, since it is considered to be necessary for the development of the other seven skills that reside under the umbrella of Life Learning, i.e., Communication, Citizenship**,** Critical thinking, Collaboration, Creativity, Information literacy, and Self-directed learning (EC 2019).

One aspect of the long-term engagement that EC has with digital competence, has been a more than a decade-long venture with the formatting of a

[2] In 1997 OECD launched a program for the Definition and Selection of Competencies (*DeSeCo)* which was a conceptual framework meant to identify key competencies that could help define overarching goals for the educational systems in relation to lifelong learning and systems for international assessments (e.g., PISA) (Ananiadou & Claro 2009; Rychen & Salganik 2003). Partnership for 21st Century Learning (P21) should also be mentioned here. P21 was a constellation of US-tech-corporations (Apple, Cisco, Microsoft Dell et al.) that also emphasised digital competence as an inevitable skill for the future. As Voogt & Roblin (2012) and others have shown, there have been several other and similar initiatives made in collaborations between major ed-tech industry interest, national educational boards, and transnational bodies such as EC, OECD, UNESCO.

Framework for Developing and Understanding Digital Competence in Europe (DIGCOMP). The ambition behind the DIGCOMP framework has been to *identify* the main components of digital competence and *develop* a conceptual framework with guidelines, as well as *propose* a road map with descriptors for all levels of learners. In the first report that presented the DIGCOMP framework (Ferrari 2013), digital competence was defined broadly as "a confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society" (ibid: 2). This first version of the DIGCOMP-framework also suggests five general areas of digital competence: information, communication, content-creation, safety, and problem-solving; all of them are related to ICT (information and communication technologies). For each one of these areas, there are brief descriptions, plus a list of three to six competencies, as well as several dimensions (proficiency level, examples of knowledge, skills, attitudes, applications to purpose in terms of learning and employment). So far there have been two updates of the DIGCOMP framework, both of which have the subtitle: *The Digital Competence Framework for Citizens.* This indicates that the framework takes a wider perspective than just K12. However, the importance of education in relation to the future is clearly underlined.

In *DIGCOMP 2.0* (Vuorikari et al. 2016) the understanding of digital technology, digital communication, and digital content is upgraded to reflect changes that have occurred in the digital landscape. The importance of citizens understanding and being able to do programming and coding is underlined and it is suggested that it is now time to talk of "digital environments" rather than about "being online" since we have reached a new stage of digitalisation (c.f. deep mediatisation). In DIGCOMP 2.2 (Vuorikari et al., 2022), over 250 new examples of emerging themes are presented. These examples aim to assist in revising and updating national curriculums to align with technological advancements and the evolving needs of young learners. This is particularly important in an era focused on green solutions and sustainability and characterised by the prevalence of Artificial Intelligence, Virtual and Augmented Reality, Robotisation, the Internet of Things, Datafication, Misinformation, and Disinformation (ibid: 1f).

There have been several other reports published under the DIGCOMP umbrella. Some of them with a clear connection to the educational sector (Redecker 2017). One such example is the *DigCompEdu* (The European Framework for the Digital Competence of Educator). This report aims to help teachers to identify individual levels of digital competence as well as support them in developing this further, by proposing a framework, with six areas and 22 competencies. *DigCompOrg* (Digitally Competent Educational Organisa-

tion) addresses school staff more generally and suggests seven key elements and 15 sub-elements; for each of these, there are descriptors (a total of 74). This complexity and scope can make one look for a somewhat more concise description of digital competence. This is how EC described digital competence in 2018:

> Digital competence involves the confident, critical, and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competencies related to intellectual property, related questions, problem-solving, and critical thinking.[3]

The conceptualisations and frameworks described above are crafted by policymakers and then implemented by professionals, such as teachers. The reports that perform these processes of governance are motivated by new and emerging digital technologies, anticipations of future job markets, and suggestions on how to improve public education.

The role that the concept of digital competence has in these processes can be described as being fuzzy and "loose" since digital competence is a concept that is still emerging, and functioning as a *boundary concept* that seems to be: "plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites" (Ilomäki et al. 2016:656). This is a conceptual ontology that can be related to what Flyverbom & Garsten (2021:7) refer to as "the capacity to guide organisational processes of anticipating the future". This form of future-making is mediated by *templates for anticipatory governance* such as statistics and tables, visual and graphic design, illustrative examples and scenarios, narratives and speculations, indicators, and assessment criteria (ibid).

Sweden Wants To Be the Best

"Sweden should be the best in the world at taking advantage of the opportunities offered by digitalisation" – this goal was articulated more than ten years ago in the portal sentence of Sweden's national digitalisation strategy (Regeringskansliet 2011). The goal remains (Regeringskansliet 2017) although a lot has happened since this was first articulated, not least in terms of digital develop-

[3] Council Recommendation on *Key Competences for Life-long Learning*, 22 May 2018, ST 9009 2018 INIT.

ment. Another paragraph from 2011 that still stands suggests that "the modernisation of Sweden begins in schools" (Digitaliseringsrådet 2018).

In 2011, the Swedish government specified 22 societal areas where digitisation was seen as being the prerequisite for true progression. Among these 22 areas, we find: "Schools and education" and "Digital Competence". In 2012, the Swedish government appointed a Digitalisation Commission and assigned them to present digital agendas for all the 22 suggested areas. Between 2012 and 2016 the Commission published three reports (SOU) and all of these are characterised by a strong belief in the possibilities of digitalisation: "We have so far only seen the beginning of the abilities of digitisation" is a statement from the preface to the Commission's first report: *A digital agenda at the service of people – a bright future can be our*s (SOU 2014:13).

So how did the Commission approach digital competence? In their final report, *For Digitalisation in Time* (SOU 2016:89), the Commission mentions digital competence frequently. There are also references to how the OECD, EU, and other organisations have argued for the importance of digital competence. However, in the second part of the report *Make Sweden in the Future – Digital Competence* (SOU 2015: 28), the Commission defines digital competence as: "The extent to which one is familiar with digital tools and services and can keep up with digital developments and their impact on one's life" (2015: 16). In this report, digital competence is described also in terms of four general abilities.

- Skills to search for information, communicate, interact, and produce digitally;
- Skills to use digital tools and services;
- Understanding of the transformation that digitalisation brings to society with its opportunities and risks;
- Motivation to participate in the development.

As we can see, digitalisation refers both to a technological transition and to a social transformation, and for these to happen, everyone needs to have a certain attitude towards digitalisation. The Commission also writes that "digital competence is today something that is required throughout life – and even more so in the future" (SOU 2015: 28: 12. Author's translation).

This could be related to what Wormbs (2010) calls *the digital imperative*, which refers to the promise of a digital future that will be efficient, inclusive, and comfortable. Another dimension of the digital imperative concerns different constructions of "the ideal citizens" (Forsman 2020). Dickel & Schrape (2017) exhibit a similar line of thought in their article "The logic of digital utopianism" where they describe digitalisation as a "futurised concept" that is

based on the promise that digital technologies eventually will solve the problems of the present, but for this to happen, the technological development and its markets must be kept from major interferences or restrictions from the authorities. Another condition for the accomplishment of the expected future is that public institutions such as schools are positive and adaptive to digital transformation.

Educating Competence

It was through the Digitalisation Commission that digital competence became a key concept in Swedish K12 education: When the National Agency for Education (NAE) (Skolverket) was commissioned by the government to present a strategy for 2017–2022 on how to increase digitalisation in the Swedish K12 system, the assignment included a request for a special focus on how to develop digital competence among students and teachers, as well as how other members of the school staff should develop. The strategy suggested by the NAE focused on the development of what they termed *adequate digital competence* (Skolverket 2019). By using adequate as a prefix, NAE left it quite open to teachers and school principals to decide on the local level what to consider as being "adequate" concerning different school subjects, age groups, student abilities, staff, etc. One of the reasons why NAE chose to not go into detailed descriptions or instructions regarding digital competence was that the technological and social development led by digitalisation is so rapid that it makes it almost impossible to predict what will happen, even from a five-year perspective.

It was also around this time, that digital competence was connected to the national curriculum and its course syllabuses. Those changes in the curriculum, in terms of digital competence, that attracted the most public interest was the implementation of computational thinking and programming. A reinforcement of source-critical thinking was also widely acknowledged. On a more comprehensive level, NAE summarised digital competence in terms of four overarching capacities (Skolverket 2017a, b).

- To understand the impact that digitalisation has on society and the individual;
- Be able to use and understand digital tools and media;
- Have a critical and responsible approach to digital technology;

- Be able to solve problems and put ideas into action in a creative way by using digital technology.[4]

As we can see there are some obvious similarities between these four principles and the four principles that the Digitalisation Committee suggested in 2015. However, in relation to the Swedish K12 curriculum and its syllabuses, notably, digital competence sometimes is used to refer to technical skills (using digital tools, problem-solving), and at other times to refer to cultural and civic skills (communication, identity, critical thinking). Again, digital competence is a *boundary concept* that is used by different interests, in different contexts, for partly different purposes, to adapt and relate to technological and societal transformations. We have also seen that digital competence can be part of a dominant ideology, as well as used as a biopolitical requirement in the qualification, socialisation, and subjectification of the future citizen (Biesta 2005; Forsman 2020). This resonates with how digital competence is conceptually and discursively articulated in reports and frameworks from the OECD and EU but also in how Google, Microsoft, Apple, and others with major interests in the transnational ed-tech sector (Selwyn 2016; Williamson 2017) articulate the future.

The New Language of Learning and Beyond

Before concluding I want to connect digital competence to what Gert Biesta who is a professor of public education and the philosophy of education calls "the new language of learning" (2005: 54f). What Biesta is referring to is an increasingly influential and instrumental discourse on learning, that contrasts a more explorative learning as well as the long-term ideals of *Bildung*. Biesta describes this construction of preconceived "learning outcomes" in relation to assumptions and expectations regarding future labour markets as a process of "learnification". This is a process that makes education into a market, with students as customers and teachers as service providers. Biesta argues that this transformation is related to and can be explained by four structural changes, namely: the erosion of the welfare state, the questioning of the modernist project of education, new theories of knowledge and learning, and an individualised ideal of learning. To this list, I would add rapid digitalisation and deep mediatisation.

In his discussion about changes in the philosophical, pedagogical, and political foundations of public education, Biesta does not say much about digitalisa-

[4] Translation by the author.

tion. Still, it seems reasonable to think of digital competence as a (basic) concept that belongs in "the new language of learning" since it refers to an instrumental and individualised approach to (lifelong) learning, and the demands of future job markets (21st Century Skills). Another connection between learnification and digitalisation could be *learning analytics*, which is used to collect, measure, and report data on how individual students progress and perform in relation to predefined learning outcomes, in the context of platformisation and datafication, often with references to the benefits of personalised learning through automated feedback, AL and machine learning (Knox et al. 2020).

Conclusion

I have in this article used Hjarvard's (2013) institutional approach to mediatisation to make a brief and tentative conceptual analysis of *digital competence*. I have shown that digital competence refers to certain forms of knowledge, skills, and attitudes and that it tends to appear coupled with terms such as lifelong learning and 21st-century skills. Digital competence has also been extensively used in transnational reports and frameworks over the last 20 years. It has also been aligned with the Swedish national curriculum. Furthermore, I have suggested that digital competence could be considered as being a so-called basic concept (Berenskoetter 2016; Koselleck 2002, 2004) since it prescribes progress and is related to how historical experiences and expectations regarding the qualification, socialisation, and subjectification of future workers, citizens, and individuals, is formed.

In the realm of mediatisation research, digital competence can be considered a response to the ongoing and rapid advancement of digitalisation and deep mediatisation. This term, as outlined in reports and the intricate frameworks they entail, in addition to how it is linguistically and mentally conceptualised encompasses both critical awareness and the instrumental and psychological adaptation to technological changes and evolving modes of communication. From the prism of critical studies of educational technologies, digital competence can be said to resonate with a deeply mediatised sociotechnical imaginary and "chronological imperialism" (Facer, 2012: 98) that may subject students to neoliberal governance and corporate interests in a way that can restrict possibilities for both individual freedom and social progression.

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