Home schooling, remote teaching and digital Bildung in societal crisis

Extended editorial

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We live in a time of “epistemic uncertainty” (Kay & King 2020) and where home schooling and remote teaching as a consequence of COVID-19 has become a global phenomenon in recent months. By 19 March 2020, 102 countries globally had shut all schools, affecting almost 900 million children and youth (UNESCO 2020, OECD 2020). Further school shut-downs have continued from 19 March up to June 2020, involving more countries and regions and impacting over 60% of the world’s student population (UNESCO 2020). And UNESCO “is supporting countries in their efforts to mitigate the immediate impact of school closures, particularly for more vulnerable and disadvantaged communities, and to facilitate the continuity of education for all through remote learning” (p. 1). Since WHO (2020) states that we will probably experience similar pandemics as COVID-19 in the future, there is reason to believe that home schooling and remote teaching will affect and partly change education in the years to come. We therefore need to build on the current state of knowledge, examining “how teachers teach and learners learn” in this extraordinary coronavirus situation as well as how this affects pupils’ digital Bildung journey.

Background

Throughout history we have seen that certain severe and unforeseen societal crises have an existential impact, and where we have neither the experience nor a sufficient current state of knowledge upon which to build our research. The severe societal crisis as a consequence of the coronavirus has had an extreme existential impact, the likes of which we never have seen before, and this is one of reasons that we do not have a large amount of, for example, research on home schooling to build on in the majority of subject disciplines. The Nordic countries (as well as others) are confronted with the fact that some of the fundamentals of existence are “under attack”: lockdowns, quarantines, extensive layoffs, insecurity, powerlessness, unemployment, “economic depression”, vulnerability, mortality, and so on. This is worsened by the uncertainty of how long this crisis is going to last, and as of 29 May 2020 there seems to be a consensus by governments and political leaders that, despite some improvements, this coronavirus situation will last until the autumn at least and that the
consequences will endure for the coming years (as a consequence of e.g. bankruptcy, unemployment, etc.). In short: existential cornerstones of modern societies are at stake and together we are mobilizing the greatest fight of the post-war era against an invisible enemy (the virus), with all its consequences. At this point, we know little about when all this will be over, but we do know one thing: we will probably meet such virus situations on a global scale again in the near future (WHO 2020). The coronavirus has therefore created an exceptional situation around the whole world. Governments in most countries have introduced extreme measures and regulations normally used in conditions of war, while in Norway a coronavirus law has been introduced giving the government a license to decide how people ought to behave during this situation. This also means that a lot of people in Norway and other Nordic countries have been, are, and will go into quarantine.

Due to the coronavirus, pupils have been told to avoid human contact and physical face-to-face meetings as much as possible, to maintain social distancing and for the most part to stay at home. Since schools are closed, teachers are being told to perform their teaching from their homes and, in these circumstances, digital tools and remote teaching are being applied. But what happens when the main place of learning is no longer the classroom, but rather the private environment in pupils’ homes?

In the last months it has been much appreciated that educational researchers have carried out some research on the educational consequences of the current crisis. This is important to avoid the domination of stereotypes, anecdotal evidence and daily narratives from the “ups and downs” of remote teaching. We therefore need research to examine such experiences thoroughly. Even if some of the research that has already been published must be considered as “work in progress” and as being at the pre-publication stage (due to the short time span), it is still important as a backdrop for further investigations into the crisis and, since the shutdown of schools has created an urgent need for home schooling and remote teaching, we have now one of the greatest opportunities for many decades to carry out extensive research into educational technology. However, in order to examine the fact that the main place of learning during this period is no longer the classroom, but rather the private environment at home, we need to consider the underpinning premises for schooling since these have been altered for almost three months so far. It may therefore be relevant to take a epistemological step back and glimpse into some aspects of the current state of knowledge from before 12 March 2020 in order to be able to consider what seems to have changed and what has not, as well as to understand the complexity of digital Bildung that this extraordinary situation represents.

A glimpse into some relevant research areas

In such an extraordinary situation – one marked by a high degree of complexity and epistemic uncertainty – it is tempting to ask: “Which came first: the chicken or the egg?” In other words; what is “new” in this crisis and what did we already know from before? It seems to be important to address this when glimpsing at the current state of knowledge and the future need for research of, for instance, the consequences of home schooling and remote teaching over the last few months.

If we first glimpse at the latest meta-analysis concerning educational technology in teaching, we can see that Kulik and Kulik’s (1991) meta-analysis found an average effect size of 0.30. Rosen and Salomon (2007) found a mean effect size of 0.46 in their meta-analysis in mathematics. However, this increased to 0.90 when constructivist learning environments were applied. Tamim et al.’s (2011) second-order meta-analysis of 25 meta analyses, 1055
primary studies and 100,000 students found an overall mean effect size of 0.35. In their meta-analysis of the effectiveness of educational technology applications for enhancing mathematics achievement in K-12 classrooms, Cheung and Slavin (2013) find only a positive, modest effect of $d=0.15$. In another meta-analysis examining how features of educational technology applications affect student reading outcomes, they also find positive, modest effects of $d=0.16$ (Cheung and Slavin 2012). Further, Tamim et al. (2015) carried out a meta-analysis of 68 studies based on 27 quantitative studies and 41 qualitative research studies, finding an average effect size of 0.23. However, when examining the student-centred pedagogical use of educational technology, the average effect size was 0.68. And Sung, Chang & Liu (2016) found an overall mean effect size for learning achievement in their meta-analysis of 0.523. A tendency across these meta-analyses seems to be that more recent ones show higher effect sizes than the others; what variables are influencing this development needs to be examined in the coming years. Lai & Bower (2019) provide a framework for such an examination in their article “How is the use of technology in education evaluated? A systematic review”. From the abovementioned meta-analysis, there also is reason to claim that access to technology is not enough – there seems to be a consensus in the research community that it has to be closely attached to well-founded pedagogy and didactics in which the actual use of educational technology is connected to other teaching and research areas in school. In the coming sections we shall therefore glimpse into related areas that might underpin home schooling and remote teaching in the current situation.

If we start with the more general perspective, we all know that education and schooling in general are very important in many ways. In a recently published meta-analysis, Ritchie and Tucker-Drob (2018) found that “[e]ducation appears to be the most consistent, robust, and durable method yet to be identified for raising intelligence” (p. 1358). There seems to be very limited research on the effects of school shutdowns and their impact on intelligence. However, in the pre-digital era of schooling, Ceci (1991) found that IQ dropped between 0.25 and 6 points per year among pupils when schools are completely closed down (with no home schooling). However, school closings over the long term is rather rare in most countries, but the prevalence of home schooling is quite different. Ray (2016) found that there were e.g. 2.3 million home-educated students in the United States. A review of home schooling by Andrea Clements (2013) revealed that the current state of knowledge shows a higher rate of achievement among those pupils who are home-schooled than among children who are not. Some reasons for this are the benefit of one-to-one instruction (Bloom 1984), stronger parental involvement, better possibilities for adapted education and a tendency for better educated parents to support home schooling. Gaither (2017) reveal the same main tendencies, but also some methodological challenges.

A related topic to school closures and home schooling is school vacation (e.g. summer holiday). In a broader Bildung perspective, vacation is important for several reasons. However, a brief review by Matsudaira (2013) shows that even if vacation is important for pupils, summer holiday has an impact on school achievement and decreases this by an overall average of one month of schooling. Academically, lower class students and “low achievers” seemed to suffer most from this “vacation effect” (Cooper et al. 1996). Kim (2006) and Kim & White (2011) found that e.g. encouraging pupils to engage in some low threshold book reading during summer holiday solved some of this problem concerning reading skills. Lehman (2011) suggested replacing the two to three months of summer holiday with several shorter vacations during the whole school year in order to avoid some of this problem.

What do we know about remote teaching and distance learning compared to face-to-face learning in classrooms? Russel (1999) carried out a review of studies in the pre-digital
era from 1928 to 1998 and found no significant difference, and other meta-analyses have confirmed Russel’s findings (Cavanaugh, Gillan, Kromrey, Hess, & Blomeyer, 2004; Cavanaugh, 2001; Machtmes & Asher, 2000; Zhao et al., 2005). However, Zhao et al. (2005) found differences between studies prior to 1998 and post-1998 studies. Means et al. (2010) found better learning outcomes in online distance learning than in classroom settings in their meta-analysis. Meanwhile, the study “The effectiveness of online and blended learning: A meta-analysis of the empirical literature” found that online learning students performed a little bit better than students receiving face-to-face instruction (Means et al. 2013).

And Krumsvik et al. (2019b) find that remote teaching is not just about the practical and technical issues of streaming a lecture online – it requires systematic planning, a thorough digital didactic, and digital competence. Muir et al. (2019) also find that a number of factors affect the ability to teach online, where new skills are required in a variety of areas.

Another aspect that needs to be examined is our perception of homework when the main place of learning during is not the classroom, but rather the private environment in pupils’ homes. This home schooling based on remote teaching creates a need for reconsidering educational concepts such as homework. Traditionally, homework is defined as tasks “assigned to students by schoolteachers that are meant to be carried out during non-school hours” (Cooper, 2001, p. 7), the purpose of which is to allow students to learn through practice. It is often claimed that homework does not have any positive effect on student progress, but what does the research show? In one meta-analysis, one can see that in primary school student learning does not seem to benefit much from homework (Hattie 2009). However, in secondary school, we see a different picture in that “the effects do increase with age: primary students gain least from homework (d = 0.15) and secondary students have greater gains (d = 0.64)” (Hattie, 2009, p. 10). Other literature reviews and meta-analyses show either positive or neutral effects for homework on learning outcomes (Cooper, Robinson, & Patall, 2006; Maltese, Tai, & Fan, 2012). Homework can mean a good deal for learning outcomes, but the reason the effects are greater in middle school and secondary school than in primary school seems to be related to student maturity. The effect is also more prominent in subjects such as mathematics, which requires a great deal of practice and “volume training” (Eren & Henderson, 2011).

However, even if homework in general can contribute towards pupils’ learning, recent studies call for research going beyond surveys and self-reporting of homework (which has dominated), since such research designs seem to have better possibilities to overcome familiar reliability and validity problems with self-reporting of homework (Rawson, Stahovich, & Mayer, 2017). Recent research calls for more attention for homework quality and homework effort, rather than self-reported homework time (Xu 2013). For example, results from Rawson, Stahovich, and Mayer (2017) reveal that time-on-task (actual time spent on a task) is positively correlated with grades, where educational technology contributed towards avoiding some of the well-known methodological pitfalls in previous homework research. Hattie (2009) revealed an average effect size of d=.38 in his review of four meta-analyses when he examined 135 experimental studies concerning time-on-task.

Concerning the relationship between homework and educational technology, Roschelle et al. (2016) studied 2,850 mathematics students who used adaptive learning software and homework as central parts of an intervention. The authors found that students in the intervention group had higher scores in an end-of-the-year standardized mathematics assessment when compared with a control group that continued with existing homework practices. Moltudal, Høydal and Krumsvik (2020) examined the effect of completing 15 minutes of math homework every day using adapting learning tools. The findings of the study indi-
icated that use of adaptive learning technologies in homework at the upper primary level contributed positively to basic student learning in mathematics (ES = 0.39, P = 0.001). However, the students’ self-reporting revealed a discrepancy between their perceived learning outcome (subjective learning outcome) and their actual learning outcome (objective learning outcome) from the intervention.

Remote teaching, learning platforms and adaptive educational technology can provide new opportunities for turning attention towards homework quality and time-on-tasks, rather than homework time, since this makes such homework processes more transparent for teachers (and easier for teachers to follow up with their students). Such formative assessment processes in homework contexts therefore need further attention, but we still know little about whether home schooling during the COVID-19 crisis has utilized this potential (and we therefore need further research into this area).

Another aspect into which we need more research is whether the schools, teachers, pupils and parents have similar remote teaching experiences or various remote teaching experiences from home schooling during this crisis. From the current state of knowledge more generally, Koedel, Parson, Podgurksy and Ehlert (2015) find both that teachers are not a homogenous group and that significant variations exist between the contributions of individual teachers to pupils’ learning. Nye, Konstantopoulos and Hedges (2004) find “[…] much larger teacher effect variance in low socioeconomic status (SES) schools than in high SES schools” (p. 237). Furthermore, Chetty, Friedman and Rockoff (2014) have investigated the effect of teachers changing schools, and the study confirms the importance of teachers’ contributions to pupils’ learning. Meanwhile, Steffensen et al. (2017) note that “attending one of the schools that contributes the most over attending one of the other schools that contributes the least is equivalent to one year’s worth of learning progression for the pupils at the school” (Steffensen et al., 2017, p. 96). Further, a comprehensive study from the United States shows the same tendencies: “[…] the most effective teachers generate learning in their students at four times the rate of the least effective teachers” (Wiliam, 2011, p. 534–535) and a study from Slater, Davies, and Burgess (2009) found that a student in a high-impact teacher’s classroom has an almost one-year advantage over his or her peers in a lower-effect teacher’s classroom (Hattie 2012). How are such research findings affected by the current crisis and home schooling? Will remote teaching and home schooling strengthen or weaken these variations between teachers’ contribution to pupils’ learning? Do teachers digital competence, class management and digital didactics play any role in this context?

Since this is an extraordinary situation, it might be interesting to examine some preliminary anecdotal evidence from different schools, where some teachers seem to be able to go far beyond only the practical/technical issues of home schooling and remote teaching. For example, teachers’ class management during daily morning gatherings with all the pupils through a video-conferencing system, combined with individual dialogues and “break-out rooms” for pupils’ group work (with teacher tutoring), seem to (re)create some of the class community feeling at school. In addition, anecdotal evidence shows that some teachers make extensive use of written feedback loops in their subjects through learning platforms during the school day, which seems to keep the pupils more “on task” and in the “learning zone” for a longer time; homework seems to be blended more into other subject activities during this home schooling. It might be interesting to examine if some of these anecdotal tendencies, teachers’ discretion and frequent, extensive written feedback in light of Valerie Shute’s (2007) research on formative assessment, where she advises “[t]ry to avoid delivering feedback orally”, “for low-achieving learners, use immediate feedback” and ”why com-
puter-based feedback is often better than human-delivered in some experiments is that perceived biases are eliminated” (p. 29–33) (see also Kluger & DeNisi, 1996). Also Goe’s (2013) findings about that teacher quality is often associated with commitment and resilience, as well as “enthusiasm for teaching” (Keller, Neumann & Fischer 2013) can also be relevant to examine in the months to come.

In the abovementioned example we can see concept feedback is important, and this is a central aspect of formative assessment and a core element of primary school in Norway. In several noted meta-reviews, feedback has been shown to be the most important factor in student learning (Black & Wiliam, 1998; Hattie, 2009; Hattie & Timperley, 2007; Shute, 2007, 2008). However, a recent study, *The Power of Feedback Revisited, A Meta Analysis of Educational Feedback Research* (Wisniewski, Zierer, & Hattie 2020), reveals that feedback is still important and powerful. However, it also reveals that this depends on what kind of feedback is given and finds that some feedback is more powerful than other types of feedback. Therefore, while Hattie (2009) found an average effect size of 0.70 in his meta-analysis and Hattie and Timperley (2007) found an average effect size of 0.79 in theirs, Wisniewski, Zierer and Hattie (2020) found an average effect size of 0.48 in their recent meta-analysis. This calls for an awareness around what kind of feedback is most powerful in pupils’ learning – also when schools are closed and home schooling and remote teaching are being carried out. Are teacher’s digital competence (Krumsvik, Jones & Eikeland 2016; Krumsvik et al. 2019a), classroom management (Moltudal et al. 2019) and digital didactic (Krumsvik et al. 2019b) affecting this and the ability to give feedback in home schooling (also in light of Shute’s (2007) recommendations above?). Or are other aspects influencing this area?

**Digital Bildung in the digitalized society**

Bildung has long traditions in education in several Nordic countries, but has certain contextual underpinnings that makes it challenging to translate it to global settings. With this reservation, it can be related to values education and rather than focus on school achievement per se, “Values education and associated variants (e.g., character education, moral education) have in common a primary concern for the whole development of students, including emotional, aesthetic, and spiritual, but especially personal and social-moral development (Lovat 2013). The digitalization of society and educational institutions has had ontological impact on growing up in the digital era and is making an impact on young peoples’ digital Bildung journey (digital dannelse/digital danning). As mentioned, the COVID-19 crisis, with lockdowns, quarantines, home schooling and remote teaching, have added a new layer to this digital Bildung perspective, where values of education continuously need to be considered. Even if values in education and Bildung has a normative and “higher order skills” underpinning, Carr (2006) found that teachers with high integrity with a focus on different aspects of Bildung and who had a sound relationships with pupils, seemed also to inspire pupils more to learn (Carr 2006). Today we find values of education and Bildung as a central part of the national curricula in the Nordic countries and it is reasonable to say that much of the conceptions from the pre-digital era is visible in these curricula. This is natural since the prefix *digital* does not necessarily represent something completely new, but adds a new layer in young peoples’ Bildung journey in school, at home and in society.

To illustrate some of what the prefix *digital* might represent in the digital era, a White Paper about education in Norway stated some concerns in light of Big Data, machine learning, AI and algorithms: “One must be able to ask new critical questions: Can anyone hack into my pacemaker? Can the use of big data reinforce inequalities in society? Is it okay that
Facebook filters the news I read? What are the digital characteristics of real and fake news stories on social media?” (KD 2017a, p. 12). This digital development in combination with the requirements for social distancing and school shutdowns in this situation have changed some of the underlying premises for critical thinking as a result of this development, where extensive use of online and virtual communities⁴ to maintain some semblance of human contact has become mainstream. As such, existential cornerstones of modern societies are at stake where digitization is making an impact on the basic conditions of schooling and daily life. UNESCO reminds us to be particularly aware of the vulnerable and the disadvantaged (UNESCO 2020). It is reasonable to say this increasingly affects pupils’ digital Bildung journey in various ways; the relevance of the concept seems to be particularly great in digitalized societies – also in light of the COVID-19 crisis. In the General Plan for Fagfornylesen (subject renewal) (KD, 2017) in Norway it is also explicitly mentioned that Bildung should be an important part of the school-home collaboration, which have been extra important in the COVID-19 situation with home schooling and remote teaching. But what is the background for the digital Bildung concept in the Norwegian school context?

In many ways, digital Bildung is a normative concept since it describes individuals’ personality, enculturation, personal growth, behaviour and morality in our digitalized society. Some seems to think that this concept was launched rather recently, though this is not a new concept in Norway and has roots going back to the 1990s. In Norway it appears as though the concept of digital dannelse (digital Bildung) was first published in a scientific context (based on a research seminar in 1999) in the article “Interactivity – Keywords or passwords for future pedagogy?” by Morten Søby (ITU 2000). In the policy context, policy documents reveal that in 2000 the Norwegian politician Odd Einar Dørum was demanding the government’s view on the need for greater focus on digital dannelse (digital Bildung) (Norwegian Parliament (Stortinget) Negotiations 2000/2001, p. 1517). The concept of digital dannning was further mentioned in Stortingsmelding nr. 49, Breiband for kunnskap og vekst (2002, s. 59) [White paper no. 49, Broadband for Knowledge and Growth (2002, p. 59)], where it was stated: “Such a fourth basic competence is referred to as “Digital dannning” [digital Bildung], “digital literacy” and “digital competence”. In the Official Norwegian Report (NOU), I første rekke (2003), which (together with the White paper nr. 30, Kultur for læring) laid the foundation for the school reform The Knowledge Promotion, it is mentioned that: “The committee will emphasize that digital competence is linked to both the Bildung (danning) aspect and the skills requirements in the training” (p. 77) and writes a relatively good deal about digital competence in this NOU as early as 2002/2003. It is this NOU that has formed the basis for both the previous school reform and, partly, the new school reform, Fagfornylesen (subject renewal) in 2020 in terms of digital competence and digital dannning (digital Bildung). In the Norwegian Parliament (Stortingets) Negotiations 2003/2004 (p. 33) this is again highlighted (in the White paper nr. 30, Kultur for læring).

In the same period, Søby (2000, 2003), Hoem (2003), Erstad (2005, 2007), and Krumsvik (2006, 2007) published different publications on the concept of digital Bildung (digital dannning/digital dannelse) intertwined². In her literature review, Lillian Gran (2018) finds that the concept of digital dannelse has been increasingly applied in books, doctoral theses and scientific articles over the last ten years. But what position does it have in Norwegian schools today?

When it comes to the Overall part (KD 2017b) in Fagfornylesen (subject renewal), the concept of dannning (Bildung) is mentioned 18 times over its total of 20 pages, which in itself

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1. See Bauman (2007) and Morgan (2011) concerning such issues.
2. Løvlie (2003) used Techno-cultural Bildung in the same period.
is interesting. Here a distinction is made by pointing out that the school has both Bildung assignments (“dannelsesoppgdrag”) and educational assignments (“utdannelsesoppgdrag”). It is the first time in the Norwegian history of schooling that dannning (Bildung) is structurally anchored and explicitly mentioned in the Education Act §1.1, while the concept of competence is defined for the first time in the curriculum in this overall part of the school reform. Different aspects of digital dannning are mentioned in this overall part of the Fagfornypelsen. The framework for basic digital skills mentions that “[d]igital literacy also involves developing digital judgment by acquiring knowledge and good strategies for web usage”, (The Norwegian Directorate for Education 2017, p. 10). In “Digitaliseringsstrategien for grunnopplæringen 2017–2021”, digital Bildung is mentioned more explicitly, and on p. 18 it is mentioned that “[s]chool, students and parents must therefore relate to digital Bildung in everyday life” (KD 2017c, p. 18). The Framework for Teachers Professional Digital Competence is recently anchored in all national plans and academic regulations for teacher education in Norway (e.g. GLU, PPU, etc.) and notes that:

Digital bildung is a term closely related to the German notion of Bildung and tradition of self-cultivation, and as such is often used as an English translation for the Nordic concept of digital dannelse. Digital bildung refers to the integrated development of the individual as a whole person, maturing in a digital culture. It therefore entails actively developing a person’s social, cultural, and practical competence in interaction with the digital environment, and being able to link their own digital experiences to the world around them. It also entails a personal maturity, that enables each individual to act in line with social expectations and ethical norms in a digital culture, as well as to reflect critically, and make well-considered and independent decisions (The Norwegian Centre for ICT in Education 2017, p. 12).

Often, Humboldt and Klafki’s perspectives are applied when trying to establish a theoretical underpinning for digital Bildung, and in some way this is understandable. Even if these are highly relevant for our understanding of Bildung in general, the prefix digital is attached to the complexity of digitalization of societies and educational institutions in the digital era. And again – COVID-19, quarantine, home schooling and remote teaching adds a new layer to our understanding of today’s digital Bildung, which is highly complex and difficult to grasp. To strengthen our ontological and epistemological understanding of the intertwined dialectic association between Bildung and digital technology, it might be relevant to consider more thoroughly the semantics, philosophy of science and theories that deal with our understanding and perception of technology. For instance, Post-phenomenology and Technoscience (Ihde 2009; Berg, Friis & Crease 2015 ) seem to make a contribution towards this. The thoughts of Marshall McLuhan, Pierre Levý, Seymour Papert, Maurice Merleau-Ponty, Timothy Koschmann, Manuel Castells, Marx Wartofsky, James Wertsch, Michael Cole and others around cultural artifacts and technologies can contribute to a more foundational understanding of digital Bildung. And we should not forget that the Norwegian philosopher Hans Skjervheim also had some thoughts about technology in 1991: “(…) a globalization of the basic technological competence (…) is the most important cultural alteration which have happened in modern times. We are dealing with an aspect that no one who pursues cultural sciences and cultural philosophy can overlook. Technology and technological competence are an equally important cultural phenomenon as literature and literary ability, even for humanists” (Skjervheim, 1991, p. 88–89). The Norwegian “Dannelsesutvalget” (Bildung Committee) (UHR 2008) also underlines the need for technological philosophy, a broader understanding of how not only personal growth, identity development, and democracy but also informal learning trajectories are influenced by digitalization and technology.
An example of the digital lifestyle and digital Bildung journeys among screenagers of today leading to “spillover” effects in learning is the significantly positive results in recent years (2014–2019) for boys in fifth grade on National Tests in English (the Norwegian Directorate for Education and Training 2019), who now are performing better than girls in the subject. This seems to be based on boys’ identity development and extensive “volume training” of English through boys’ gaming culture outside school (a combination of the extensive use of English in computer games, YouTube clips, smartphones, social media, etc. in their spare time, which seems to have a spillover effect on school achievement in English) (Krumsvik, Berrum, Jones & Gulbrandsen). It is therefore fair to say that there seems to be an ‘association’ between boys’ digital lifestyle and digital Bildung journeys outside school, and their English skills in school. However, these are preliminary tendencies, and we require further research to examine such phenomena (in order to reveal possible correlation or causation within this area). At the same time the example illustrates that the need both for a more substantial understanding of technology in digital Bildung and to achieve a more holistic understanding about how children and youth learn, as well as how they develop their identity in their digital lifestyle outside the school context.

More generally, the semantics of digital Bildung in school discourses often deals with concepts that frequently focus on developing an awareness of the implications of the concept in daily life inside and outside school: values of education, freedom of speech, democratic understanding, solidarity, no discrimination, privacy concerns, GDPR, ethical considerations, critical thinking, digital lifestyles, face-to-face versus virtual communication, physical and psychological health, etc. Physical and psychological health seems especially important in light of the new interdisciplinary subject “Livsmestring og Folkehelse” (KD 2017), which highlights the importance of a focus on physical and psychological health in school. This new subject is partly based on what seems to be the emergence of a “generasjon prestasjon” (generation performance, Lunde, 2011) in Norway, where increased stress, pressure to perform and psychological problems among pupils might be attached (to a certain degree) to school achievements, good grades, SES (socioeconomic status) and a digital lifestyle. In Norway, for instance, research shows that 20.7% of girls in secondary school reported anxiety and depression problems in 1995–1997, while this percentage has increased to 44.5 % in 2017–2019 (Sund, Rangul & Krokstad 2019). The same tendency can be found in the UngData study (Bakken 2019) in Norway. Since the problems have increased in the digital era (and especially after the launch of smartphones in 2007), one cannot ignore (despite epistemic uncertainty) that there might be some kind of association (not causality) between the high density of technology in Norway and the extensive use of social media such as Instagram, Facebook, and Snapchat among girls. Without drawing hasty conclusions, it is relevant to mention that in their systematic review into the influence of social media on depression, anxiety and psychological distress in adolescents, Keles et al. (2019) found that time spent, activity, investment (putting effort and time into social media) and addiction (addiction refers to the state of being dependent on social media) correlated with depression, anxiety and psychological distress. And, when quarantines occur, and the main place for learning in home schooling is the private environment in homes – does this influence pupils psychological health in home schooling? There is yet very little research into such slow-motion disasters, but in the new review article “The psychological impact of quarantine and how to reduce it: rapid review of the evidence” published in February 2020, Brooks and colleagues found that the negative psychological effects are quite typical when applying quarantine in extreme societal situations. They found that the majority of studies reported stress reactions and different stressors caused by
longer quarantine duration (Brooks et al. 2020). Even if such effects are probably larger in countries with the highest infection rate, mortality rate and the most stringent quarantine restrictions, it is still important to consider if such contextual effects can affect pupils’ psychological health and their more general digital Bildung journey. “As more schools close, we must pay special attention to the most vulnerable, not just physically, but also academically and psychologically” (OECD 2020, p. 1). It is therefore not only especially important to examine whether the COVID-19 crisis has increased or decreased the abovementioned research findings, but also to look into educational technology research by Jennifer Dolan (2016) showing that the “…actual use of technology is heavily influenced by the socio-economic status of both the individual and the school they attend (…) Socioeconomic status appears to be one factor that is common across all findings, from the availability of technology to students to the ways in which students use the available technology in and outside of schools” (Dolan, 2016, p. 32 & 27). Also Krumsvik et al. (2020b) reveal some of the same tendencies as Dolan (2016).

However, in a digital Bildung perspective it is interesting that home schooling and remote teaching also perhaps requires us to go beyond stereotypes about traditional schooling. Anecdotal evidence from parents, teachers, pupils and others during the coronavirus situation shows some unexpected side effects of home schooling: some pupils say they think they are performing better academically during home schooling; pupils who start their school work earlier in the morning and work more efficiently than before; teachers who are seeing greater engagement for learning among some pupils than before; pupils who never would have played piano in front of their whole class in the classroom suddenly performing for their whole class online; pupils who say they are less stressed during home schooling than at school; and pupils who feel they are more included in home schooling than at school; the list goes on. Even if this anecdotal evidence might represent a minority of the pupils, it is interesting in a digital Bildung perspective and needs to be examined more thoroughly with research in the coming months (in light of e.g. inclusion and adapted education). And we should keep in mind that even if there is not any direct causality between a high priority of values in education (Bildung etc.) and school achievement, Lovat (2013) reveal that research findings “seem to provide strong indications of a connection” (p. 268).

Summary
In this Editorial I have glimpsed into some of the current state of knowledge from before COVID-19 occurred on 12 March this year and how this societal crisis might affect pupil’s digital Bildung journey to a certain degree. There seems to be a consensus both from UNESCO and WHO that we will probably experience pandemics similar to COVID-19 in the future. There is therefore reason to believe that home schooling and remote teaching will affect and partly change education in the years to come. We thus need to use the educational experiences from the coronavirus situation this spring to be even better prepared for the next time similar incidents might occur. We also need further research into home schooling and remote teaching under such circumstances. And since this has been an extraordinary new situation in many ways, we need not only more educational research in general, but also to examine teachers’ discretion and anecdotal evidence, which might go beyond traditional stereotypes about, for example, remote teaching versus ordinary teaching in school classrooms. However, in such extraordinary situation like COVID-19 it is also important to be aware of that the teacher profession have higher level of job stress than in
other professions (Stoeber & Rennert, 2008) and especially highly motivated teachers are more likely to experience burnout. Therefore, we also need to examine how COVID-19 eventually have affected this area and if “worn out teachers” have decreased or increased as a consequence of the job-situation during COVID-19.

We also need a broader understanding of digital Bildung during such societal crises and to develop a more substantial, technology-conceptual underpinning of digital Bildung. In some research designs we might need socio-cultural perspectives (e.g., Vygotsky 1979; Wertsch, 1998; Cole, 1996) as theoretical underpinnings and as “lenses” to understand broader educational phenomena with home schooling and remote teaching (with e.g. Design-Based Research, Brown 1992; Collins et al. 2004), while in others we might need to glimpse into Lai & Bower’s (2019) systematic review when examining the use of educational technology in education. In addition, on a more micro-level it can also be relevant to apply cognitive load theory (Sweller, Ayres, & Kalyuga, 2011), cognitive theory of multimedia learning (Mayer, 2014), self-efficacy theory (Schunk & Pajares, 2009), self-determination theory (Deci & Ryan 2020) and attribution theory (Graham & Williams, 2009) as “lenses” to understand possible associations, correlations and causation when implementing home schooling and remote teaching. It is therefore important to consider the semantics of these concepts in the educational COVID-19 research in order to be aware of the paradigm stance they represent (Greene 2007). We should be aware of the possibilities and limitations this provides when the research phenomenon deals with the practice field where not only ‘what works’ (in controlled settings), but rather ‘why things work’ in practice (Deaton & Cartwright 2018), are the most essential. This means that we have also have to accept that research always will have some kind of “epistemic uncertainty” (Kay & King 2020) which require us to not forget that teachers’ discretion and anecdotal evidence always needs to be considered – especially in such times of upheaval as COVID-19 represents.

References


KUF (2002). Stortingsmelding nr. 49, Breiband for kunnskap og vekst. Oslo: KUF.


Krunksdepartementet (2017a). Stortingsmeldinga Kultur for kvalitet i høyere utdanning. Oslo: Kunnskapsdepartementet


White, M. (1982). _Distance education in Australian higher education – a history_. *Distance Education*, 3(2), 255–278. [https://doi.org/10.1080/0158791820030207](https://doi.org/10.1080/0158791820030207)


