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Tensions between the political, institutional, and project levels when developing professional digital competence in teacher education. A cultural historical activity theory analysis of inhibiting and facilitating factors

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ABSTRACT

This study is a Cultural Historical Activity Theory analysis of the tensions between object and motive at the political, institutional and project management levels for five digitalisation projects aimed at integrating professional digital competence (PDC) in Norwegian teacher education (TE). The study is inspired by ethnography and builds on a variety of qualitative data (including qualitative interviews ($N = 14$)) gathered through the author's participation in different roles (2017–2021). Identifying objects and motives across levels allows for the identification of factors inhibiting and facilitating factors the development of PDC in TE. An analytical model was developed to identify the objects and motives at each level, showing a political object of preparing for the future, an institutional object of creating high quality TE, and a project management object of delivering a lasting impact on TE. These differing objects and motives guide the activities at each level and reveal tension, including between the political push for change, project management's attempts to deliver impact, and a culture built on academic freedom which seems counterproductive by slowing things down. The study also reveals facilitating factors, such as funding and relevance in collaboration with schools, and inhibiting factors like academic freedom and the expected speed of change.

Introduction

Over the past decade, there has been substantial political interest in developing students' digital skills for an unknown future (Arstorp, 2021; Caena & Redecker, 2019; European Commission, 2020; OECD, 2018). Digital skills and competence are considered a way of preparing for uncertainties and transforming learning in a lifelong learning perspective (Erstad & Voogt, 2018; Erstad et al., 2021; Vuorikari et al., 2022). In this context, teacher education (TE) is considered an important instrument for change for future generations (Graziano et al., 2017; OECD, 2020), putting it under pressure to change and adapt its

practice (Aagaard & Lund, 2019). This accentuates teacher educators' (TEds) dual task of preparing future teachers to develop students' digital skills while continuously developing their own professional digital competence (PDC) (Erstad et al., 2021; Lindfors et al., 2021; Tondeur et al., 2018; Uerz et al., 2018). At the same time PDC has been and still is considered an ambiguous concept needing conceptualisation (Ottestad et al., 2014; Pettersson, 2018; Skantz-Aberg et al., 2022). Perhaps in a response to this ambiguity, numerous frameworks have been designed in the past two decades to operationalise and implement PDC including 21st century skills (Partnership for 21st Century Skills, 2002), T-PACK (Mishra & Koehler, 2006), ISTE (2007), DigComp (Ferrari & Punie, 2013; Vuorikari et al., 2022), DigCompEdu (Redecker & Punie, 2017) and the Norwegian framework for PDC (Kelentrić et al., 2017). These documents are often framed as calls to action regarding digital competence. Even with these policy initiatives, research shows that PDC in HE developed more slowly than anticipated (NIFU, 2022; Tondeur et al., 2018) and that it is demanding for TE to meet expectations (Ranieri & Bruni, 2018). Both Avidov-Ungar and Forkosh-Baruch (2018) and Fernández-Batanero et al. (2022) suggest this is particularly demanding for TE because digital technology pushes for change in ways that challenge existing understandings of teaching, the teacher's role and academic culture.

Previous studies and theoretical framing

Aagaard and Lund (2019) state that 'few institutions have been more stable, conservative, and even inert than the ones responsible for higher education (HE), especially when faced with digitalization' (p. 3). This absence of change is supported by Cuban's studies of anticipated but unrealised transformation with technology throughout education, including HE (Cuban, 1986, 2003, 2018). Cuban explains this with teachers' reluctance to change, strong pedagogical norms and institutional inertia (Cuban, 2003). Kirkwood and Price (2013) found that regardless of an anticipated digital transformation of teaching and learning in HE, reality 'is different with much university teaching remaining fundamentally unchanged' (p. 334), which they determined is due to deeply anchored beliefs about teaching and learning. Bates and Sangrà (2011) also give cultural and historical reasons for a slow change referring to it as the *challenge of change* in HE. Avidov-Ungar and Forkosh-Baruch (2018) found that technology can create change, challenging HE's 'relatively traditional approach' (p. 185), and that management support is important for TEds' professional identity as innovators. In a study of drivers and barriers for sustainability in HE, Blanco-Portela et al. (2017) found a 'lack of communication, group culture, conflicts, bureaucracy, and lack of commitment' (p. 566). Adserias et al. (2017) studied change to create diversity in the change-resistant institutions of HE, calling it a global challenge. Further, studying the implementation of technology in TE, Wang and Patterson (2005) speak of 'systemic technology diffusion' involving a paradigm shift in the way TE thinks about organisational change. This correlates with a Finnish review study (Hökkä & Eteläpelto, 2014) showing that TEds have a strong professional identity and individual agency impeding organisational development by making it slow and difficult. TEds are focused on securing their 'own autonomy and implementing teaching according to [their] own intentions and interests' (p. 45) and 'protecting their own pedagogical power and resources' (p. 46).

Petterson (2021) applied a CHAT perspective to creating change in schools through digitalisation, which she describes as being 'a complex process requiring large-scale transformative changes' (Petterson, 2021, p. 189). According to Pettersson, 'the object of the activity can also be considered a "sense-maker" for why and how organisations prioritise, develop, and transform in a certain way' (p. 200), and research should conceptualise 'the digitalization process via an organizational and multilevel perspective on change and transformation' (2021, p. 188). Arstorp (2015) also applied a three-level CHAT analysis to TE, showing tension between expectations at the political, institutional and actual practice levels with digital technology in TE. Aagaard and Lund (2019) applied a similar three-level CHAT perspective to studying digital transformation in HE by using a macro (national/international agents, policies), meso (educational institutions and their leaders) and micro level (teaching and learning situations). They argue that digital technology has epistemological consequences and requires educators in HE to have digital and transformative agency. Blanco-Portela et al. (2017) found several factors inhibiting change such as organisational inertia, 'departmentalism, conservative management, lack of incentives, low level of institutionalisation' (p. 577). They further characterised HE in terms of academic conservationism and traditions preserving 'old mechanistic mental models' (p. 566), while also stressing that HE is under external pressure to change.

Research questions

Against this backdrop, the following research questions were formulated to guide the study:

(1) What are the similarities and differences between object and motive at the political, institutional and project levels?
(2) How might the potential tensions between levels inhibit or facilitate the development of professional digital competence in TE?

The Norwegian context

Norway is 'well placed on the path to digital transformation, when compared to European peers' (OECD, 2017, p. 4) and was one of the first countries in the world to make digital competence a basic skill in 2006 (Tømte, 2015). As mentioned earlier, the framework for PDC was launched in 2017 followed by roughly NOK 90 million to 'digitalise TE' (Norwegian Ministry of Education and Research, 2017). Five TE institutions were given funding for 2018–2021 to make TE 'more digital' and '[contribute] to extensive digitalization', mainly focusing on developing TE students' PDC (Norwegian Ministry of Education and Research, 2017). Norwegian research shows TE struggles to actually improve PDC (Amdam et al., 2022; Tømte et al., 2019) despite a highly digitalised educational system (Erstad et al., 2021), substantial funding and a framework for PDC. This suggests that Norway could be an interesting case for studying tensions with a multi-level analysis of PDC in TE. Insights gained from such a unique case could contribute to the international body of research in the field.

The present study builds on projects at five different TE institutions (2018–2021) following a national call from the Ministry for Education and Research (MER). The Norwegian Agency for Digital Learning in Higher Education[1] (NADL) was appointed the task of handling the application process in cooperation with the Centre for ICT in Education (CICT). Eleven applications answered the call, and by 1 October 2017, five institutions were given funding and expected to start their projects 1 January 2018.

Theoretical perspective

The theoretical framework for this study is based on CHAT, which considers all human action as dialectically connected to and dependent upon context (Leont'ev, 1978; Vygotsky, 1978). CHAT allows for analysing and contrasting objects and motives at the political, institutional and project levels, revealing tensions, discrepancies, and similarities between levels. This study applies Cole and Engeström's (1993) understanding of activity systems as structures 'in which equilibrium is an exception and tensions, disturbances, and local innovations are the rule and the engine of change' (p. 8). By further relying on Leont'ev's theoretical work, which differentiates itself by emphasising the collective over the subject (Smagorinsky, 2010), this study focuses on the collective processes emphasising activities and what guides them rather than the subject in itself.

The analytical model for this study (Figure 1) builds on Vygotsky's (1978)[2] three analytical levels, as well as on Cole's *concentric circles* (Cole, 1996) and Hedegaard's *planes of analysis* (Hedegaard, 2008, 2012).[3] The concentric circles in Figure 1 illustrate how the project management is situated within an institutional context which in turn is situated within a political context. This underscores the premise of CHAT, namely that
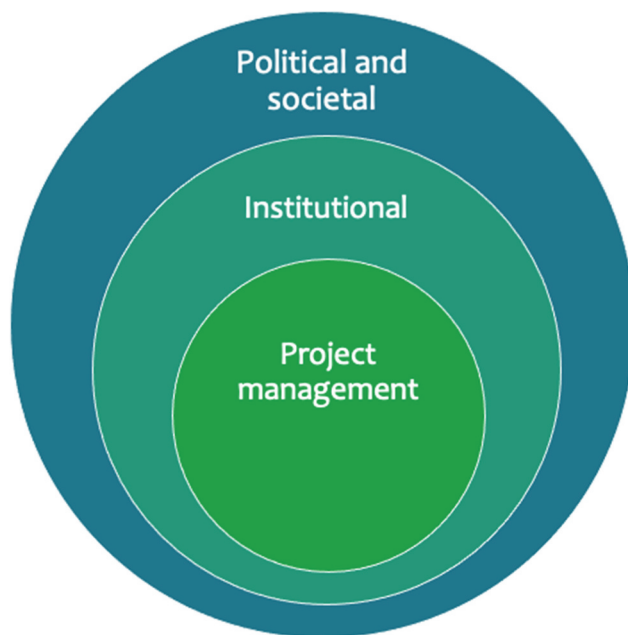

Figure 1. Shows the different levels of the analytical model.

Figure 2. Shows the relationship between the Leont'ev's different concepts.

every situation and every activity is situated in a context to which it is dialectically connected. An activity may arise from a need for something: in the case of this study, a need for teachers with PDC to meet the challenges of a future driven mainly by digital technology. The object is what gives the activity direction and purpose and thus allows us to analyse the nature of the activity, which cannot exist without an object giving it direction (Leont'ev, 1978). My understanding of motive draws upon Hedegaard (2008), who understands motive as engagement and intentions meaningful to the individual.

To sum up, the object is what we are oriented towards and strive to realise, and the motive shapes how we realise the object representing an ideal or an imagined practice (Hedegaard, 1999). Actions are taken within the activity guided by the object and motive, as shown in Figure 2.

Object and motive allow us to understand tensions between analytical levels as different levels can have different objects and motives, revealing their different orientations. Table 2 shows the processes and analytical perspectives of each level, making the analytical lens of this study explicit. It is worth noting that these tensions can be identified analytically without necessarily being noticed or articulated by the participants.

Methodology

Ethnography-inspired

Ethnography is a methodology which is conceptualised and applied in a variety of ways (Hammersley & Atkinson, 2019) with a central element of reflection making the explication of any pre-understandings important (Davies, 2008). As such, this study's ethnography-inspired approach impacts my role as a researcher, the types of data gathered, and the reflexivity of the process.

Throughout the project period, I had different roles, including being a *complete participant* (Davies, 2008) over a longer period of time. As an employee at CICT, I initially participated in writing the call for proposals (June 2017) ordered by the Ministry of Education and Research (MER) and answered questions from applicants. In August 2017, I was appointed to the assessment committee deciding which projects would receive funding. From January 2018, I assumed the role of national coordinator for the five projects, holding monthly meetings with the project managers (PM), visiting them, and co-presenting at conferences. My role developed into facilitating cooperation and sharing between projects, leading to me guest editing a special issue with research from the projects. I also hosted a podcast[4] where I interviewed PMs about their struggles and successes. Meanwhile, I attended meetings with MER to inform them of the projects' progression. In November 2019, I was hired as a consultant by NADL to assist them at the midterm review. By then I had transferred to my present position and was a project participant at that institution. This shows how my roles intersected throughout the process and how I moved between the roles of *supportive colleague* (when coordinating); *evaluating, assessing actor* (as committee member, consultant and reporting to the MER) and, in the

end, *project participant*. This understandably left me somewhat conflicted in the role of *the supportive colleague*. At the same time, it shows my oscillation between closeness and distance, zooming in and out, which is inherent in ethnographic research (Davies, 2008). And it shows how I, over time, understood more and more about the tensions at play as my roles provided me with insight into different aspects of the process and potentially conflicting perspectives.

By following the projects from inception until completion, I gained insight into difficulties that I naïvely thought wouldn't exist with such large amounts of funding as I assumed everyone would 'be on board'. This insight led to an initial analytical focus on inhibiting and facilitating structures, but during the interviews my attention was drawn to conflicting perspectives emerging between the three levels. These tentative analytical findings shifted the study's focus to exploring tensions between object and motive at three analytical levels: political, institutional and project.

Data

Because I had different roles over time, I also had access to several different types of data which are incorporated into this study (see list in Table 1).

When including documents such as proposals, reports, press releases, policy documents etc. as data, it is important to consider their situatedness in a given context. As such, these documents are viewed as written expressions of values and perceptions (Mik-Meyer, 2005) and as products of a political arena (Cardno, 2018) reflecting political intentions and ideals (Fan & Popkewitz, 2020) and written to give strategic direction (Bell et al., 2009). This study is interested in identifying the intentions (object and motive) in these types of data. These contextual understandings of intentionality and social context are an important part of the analytical process.

The study also includes semi-structured interviews, which are viewed as accounts with a performativity potentially connected to legitimising or making excuses (Coffey & Atkinson, 1996). The interviews were conducted with PMs (*N*=9) (in pairs when project had two PMs) and institutional managers (IMs) (*N*=5) deemed relevant by the PMs. All consented to participate and were promised full anonymity. The interviews were conducted in the participants' native language[5] via Zoom to minimise travelling and for the convenience of the informants.[6] The interview guides for PMs and IMs had similar questions regarding project progression and changes and only differed regarding their specific roles. Questions were related to what influenced the projects positively and negatively as well as difficulties and surprises, e.g.:

- What seemed to stimulate and support the process in terms of organisation and structure?
- What inhibited or slowed down the process in terms of organisation and structure?
- What turned out to be difficult?
- Was anything easier or turned out better than you expected? [author's translations].

Informants are numbered (PM1, PM2 etc.) and no further information is disclosed to avoid compromising their anonymity.

Table 1. Show the different types of data included in the study.

Initial process with proposal	• Letter from MER to NADL about funding • Call for proposal • Press release related to call • Press release about funding • Assessment documents • Proposals from all applicants • Notes and presentations from start-up seminar with all PMs, IMs and NADL in January 2018 • Own notes from meetings
Through the project period	• Presentations and notes from presenting progress for MER • E-mails from NADL about the cooperation and progress • Press releases from the institutions on receiving funding • Articles, podcasts, and text on individual institutions' websites • Informal conversations with IMs • Monthly meetings with PMs including meeting minutes • Seminars at the five institutions • Podcast recordings with four of five PMs • E-mails and telephone conversations with PMs • Presentation and notes from presenting at national conference with all five projects • Proposal for special issue on research from the projects • Own notes from meetings
After the project period	• Interviews with IMs • Observations and emails from the role as guest editor • Role as project participant at one of the five institutions

Table 2. Shows the three levels of the analytical model.

Level	Process	Analytical perspective on data
Political	Political expectations or even demands for TE regarding the use and integration of digital technology	Expectations or demands located in political initiatives, national guidelines, and strategy papers
Institutional management (IM)	Practices, traditions, and values at the institution shaping the institutional practice, e.g. IM expectations for and approach to digital technology	Expectations or approach located in local institutional documents and interviewing IMs
Project management (PM)	Practices, motivation, engagement, values, and intentions related to the specific PMs	Expectations or approach expressed through qualitative interviews with PMs, project descriptions, evaluations, and project websites

Ethnography and abduction

The ethnographical approach is also embedded in the analytical process for this study, as the in-depth understanding of projects and their institutional and political context are utilised as context. Coffey and Atkinson (1996) view ethnographic data as inter-woven, representing different aspects of the object of study, that are there to think with and to think about. By applying abductive reasoning to the ethnographic analysis, I am letting perspectives from CHAT inform the creation of codes used to identify objects and motives. In a purely ethnographic study, the process would lean more towards induction, but the combination of ethnography and abduction allows for contextualising empirical data with theoretical knowledge (Bajc, 2012). Consequently, the analytical model was developed in a process informed by theoretical conceptualisations and data. For example, as I conducted the interviews, I was surprised to learn that PMs and IMs had diverging views on similar situations, which

had not surfaced in previous meetings, reports, or podcasts but were brought up in confidence in the interviews. The PMs and IMs also articulated their frustrations with MER and NADL and what they perceived as a lack of understanding for processes in TE. Such observations of tension between levels exemplify Bajc's (2012) point about ethnography and abduction: observations can become hypothetical ideas contributing with insight.

Data analysis

Applying an ethnography-inspired, abductive approach means generating theoretical ideas throughout the research process (Coffey & Atkinson, 1996) and allowing intuition, surprises and observations to guide one in the process (Bajc, 2012). Recurring terms in the data allow us to access what is important in the field: for example, during an interview, I was surprised that IM2 supported most claims by stressing the importance of *relevance*, which exemplifies what in ethnography is referred to as a *sensitising concept* (Coffey & Atkinson, 1996). And *relevance* eventually became a point of analysis. Another surprise happened in a meeting with MER, early in 2018, where a colleague and I were invited to report on our work with these five projects. We were asked how the projects were moving along and, based on their progress, whether we thought the remaining eight TEs would benefit from receiving the same funding. It surprised me that MER was expecting this type of assessment only a few months in and made me wonder if they understood how TE processes work. It also suggested an expectation that the funding would have some type of immediate effect. This was contrasted by my own observations that some PMs spent 6–8 months getting their teams together, planning the projects or even completing a project management course.

My approach also informed the coding process when identifying objects and motives, for example in the initial coding of the political documents, where I first marked the paragraphs mentioning digital technology and teacher education and identified patterns, which I categorised as *didactics, future, change, aim* and *competence*. At the IM and PM levels, I wanted to identify points of importance, challenges and potential tension. This resulted in these initial codes: *management, academic culture*, and *structures*. As is often the case, these initial codes were too mundane (Hammersley & Atkinson, 2019; Thompson, 2022) and did not serve the analysis. Therefore, to gain a deeper understanding, a second round of codes were developed: *academic freedom, professional culture, opposition, project relevance, engagement/motivation, management, project aim, relations, cooperation, deadline, structure, game changer, time* and *financial resources*. These codes allowed me to generate the final themes: collaboration, relevance and academic freedom.

Results

The results are presented in two parts. The first part identifies the object and motive for each level while the second presents the tension between levels identified following the first part of the analysis.

Objects and motives for each level

Political level

Across the policy documents, the reasoning is that society is confronted with substantial changes and challenges, largely driven by technological development ([MER]: Norwegian Ministry of Education and Research, 2017). It is pointed out that technology changes the way we work and that digital technology is a prerequisite for innovation and productivity (Norwegian Ministry of Education and Research, 2017). These perspectives are also found in the call for project proposals (Norwegian Agency for Digital Learning in Higher Education, 2017) where the integration of PDC in TE is connected to preparing for the future, making PDC a means to an end. It is further argued that digital technology needs more attention in schools and TE to ensure the individual development of skills and competence to strengthen 'the handling of digital technology' and deliver 'an updated work force' ([MER]: Norwegian Ministry of Education and Research, 2017, p. 6 & 10). Moreover, student teachers need PDC to be able to realise the potential for teaching and learning with digital technology to provide their future students with the needed skills ([MER]: Norwegian Ministry of Education and Research, 2017; [MER]: Norwegian Agency for Digital Learning in Higher Education, 2017). This suggests that the object at this level is preparing for a future need for certain skills and competences, and integrating PDC in TE is thus the motive for realising the object. This suggests that digital technology is viewed as a kind of facilitator for preparing for an unknown future.

Institutional management

Amdam et al. (2022) mention that these PDC projects had clear requirements for active inclusion of educational management as institutional managers (IMs) were considered important for the projects' success. In the analysis of the IM interviews, different priorities emerged alongside a common object. IM1 explained that the project was about 'creating movement' and 'moving minds', and it was therefore important that it not become 'yet another stunt and a fun project (...) it has to interfere, which deep down is a question about learning' (interview, IM1). IM1 described the main goal as getting PDC into the didactics of the different disciplines and subsequently contributing to students' learning. IM1 was concerned with getting the right people on board to work on PDC, thereby inspiring TEds and creating change.

As mentioned earlier, IM2 continually brought up *relevance*, citing it as the most important part of the project. IM2 explained the project was widely perceived as 'one that suddenly came in from the sidelines, seemingly for those particularly interested', thus having questionable relevance for everyone. IM2 further related this to the fact that 'not everyone has the same level of engagement which goes back to "how relevant do I perceive this to be" (...) It has to be perceived as useful and relevant for the individual teacher educator to be incorporated into their teaching' (interview, IM2).

Another moment that stood out in the interviews was IM3's mention of conflicts between TEds and PM3. IM3 described PM3 as having a 'strong drive' and explained that when introducing new things such as this project, one 'has to tread carefully and maintain dialogue'. IM3 described the role as 'being the link[7] between the PM and their colleagues'. IM3 explained that TEds often object when someone 'comes from the

outside with no professional integrity and hasn't talked to them before'. IM3 recalled telling PM3: 'hold on, this needs organisational anchoring, and we have to rephrase, otherwise it's going to be counterproductive'. IM3 recalled intending to slow everything down but also reported that they ultimately accomplished 'exciting new things', giving TE a 'vitamin boost'.

To sum up the different IM perspectives, IM1 expressed wanting to change old traditions and create change in TE, IM2 stressed *relevance* as being crucial for TEds' involvement and IM3 saw slowing down as a way to get everyone on board. However different these might seem, we can identify a common object of creating good teacher education. The motive is getting people on board and involved to create change in TE practice. At this level, PDC is seen as a driver of change in TE, a way of modernising TE and subsequently better preparing students for the future. These perspectives are also supported by the project proposals and the evaluation reports throughout the period.

Project management

PMs also had different ways of explaining what mattered to them. PM1 spoke of encountering resistance from TEds and recalled thinking that 'the project has to move on, even though some are less active. We will just have to document all processes as best we can [for the reports and evaluations and make] sure it was written down'. To PM1 the intention was making sure that TEds 'created their own development plans (...) so that the project wouldn't be over when it was over'. For PM2 it was important to introduce routines, regular seminars, online information, and mandatory assignments. However, they commented: 'I don't think I would have the guts to do it like that today (...) [I thought that] when you are a part of a project, you complete it. It wasn't until later that I understood the culture of academic freedom'. This led to creating structures of support and reaching out to colleagues: 'you haven't delivered, how can I help you? Just call me'. PM2 further explained the main success as collaborating with local schools which 'was perceived as highly relevant [to the participants] because they developed their work through sharing and discussing'.

PM4 described giving colleagues the freedom to develop their own contributions to the project as an important and deliberate measure: 'to create ownership', to engage and motivate. 'If you don't get the right people to see how they can benefit from being in the project, I don't think you can get the level of engagement that we believed was needed'. For PM4 'the most exciting development of PDC happened in teams that did not attend any type of training but developed their work with teachers from the neighbouring schools'. Another important aspect was the orientation towards 'bridging the theory-practice gap' by employing in-service teachers to teach alongside regular teacher educators in TE classrooms. These accounts are also present in the project evaluations, project websites, and podcast interview although in broader terms.

To sum up: The PMs expressed a kind of consensus on the importance of bridging the gap between TE and schools through the projects. This was further related to TEds' professional development as schools are viewed as a kind of true practice that TE has to relate to. However, PMs also described how being responsible for large projects meant creating routines, documenting processes and applying mandatory assignments. They wanted to ensure a lasting impact and applied support and other structures to create a sustained practice. This suggests an object of creating change in TE, with a motive of running a good project as PM, which would realise the object.

Table 3. Sums up the main findings from the analysis of the three analytical levels.

Level	Object	Motive
Political	Preparing for the future with the needed skills and competences	Enhancing teachers' PDC in order to apply digital technology in schools
Institution	Creating good/high quality TE	Getting people on board and involved and thereby changing the practice of TE
Project	Creating change in TE	Running a good project as PM

To summarise and compare the three levels, the objects and motives differ notably between levels as displayed in Table 3. At the political level, the objects and motives represent a larger view of the purpose of PDC. At the IM level, the objects and motives have more of an institutional perspective on how to create the best TE. At the PM level, the objects and motives represent a focus on developing sustainable and successful projects to create change in TE. At the same time, there seem to be several common threads across levels, such as giving TE the best conditions for educating competent future teachers.

Discussion

In the following, I present and discuss themes surfacing in the above analysis for further insight into the facilitating and inhibiting factors.

Facilitating factors

Relevance and collaboration

Throughout the data, it was clear that classroom collaboration between teacher educators and in-service teachers was considered of great importance. This could stem from the call for proposals requiring this as a way of creating relevance (Norwegian Agency for Digital Learning in Higher Education, 2017) or from the national strategy for TE (Norwegian Ministry of Children and Education, 2018). Andreasen (2023) calls it a push for more coherence between schools and TE, which supports the previous point that the political level considers TE an instrument for creating change in schools (political object and motive). As shown earlier, relevance seemed to make the projects meaningful and get colleagues on board and engaged (IM motive), which was considered a prerequisite for developing and potentially modernising TE (IM and PM object). PMs met the political requirement by hiring in-service teachers to teach in TE alongside TEds and by building collaborative arenas, which PM2 pointed to as their main success. Both IMs and PMs pointed to this as a way of making TE relevant. As such, establishing collaboration with schools stands out as a way of delivering a successful and relevant project meeting political requirements, making it a motive for running a good project (PM motive). Jones et al. (2016) point to collaboration as a way to transform TE, and Burroughs et al. (2020) find that it has potential to break down embedded hierarchies between schools and TE. In a scoping review, Daza et al. (2021) found that conceptually framing such partnerships as a *third space* was popular yet caused tension due to asymmetry between schools and TE. Another related point is that these partnerships are seen as relevant to

both TE's task of preparing future teachers by developing their digital competence and TEds' need to continuously develop their own PDC (Erstad et al., 2021; Lindfors et al., 2021; Uerz et al., 2018). Following this, partnerships between schools and TE seem to be a facilitating factor responding to the objects and motives at all levels, although they are embedded with asymmetry (Risan, 2022) and tensions (Daza et al., 2021).

Funding

Not surprisingly, another facilitating factor seems to be funding. Such large-scale development projects presumably give participating TEs the advantage of moving in a collective direction. Amdam et al. (2022) confirmed that funding did create change in some areas when comparing one TE with project funding to two without. At the same time, the evaluation report for the five projects suggested that they did not realise the expected potential for additional impact in schools and TE institutions without funding (Oxford Research, 2022) which was an expressed aim in the call for proposals (Amdam et al., 2022; Norwegian Agency for Digital Learning in Higher Education, 2017). This lack of impact outside of the institutions with funding could be related to the fact that creating change both in- and outside an institution is demanding. It seems plausible that the political expectation of impact beyond the institutions was overly ambitious. It is worth noting that research did show a positive effect on TEds' awareness and understanding of PDC in the five TE institution (Amdam et al., 2022; Daus et al., 2019; Pedersen & Vika, 2022).

Inhibiting factors

Academic freedom

The implication of academic freedom was mentioned by PMs and IMs across the data as an important cultural element and a reason why 'top-down projects' won't work. As mentioned, IM3 experienced PM3 'coming from the outside' and being more focused on getting the project up and running and less on getting everyone on board. IM3 wanted PM3 to slow down and secure 'organizational anchoring' to get people on board. On the other hand, PM3 expressed frustration but found it necessary to 'document how the process had been done properly' and ended up accepting that not everyone was on board. This example supports the theoretical point that discrepancies between objects and motives can cause tension. Another example of a cause of tension between levels was the short time frame between the call for proposals and the deadline for submitting them.[8] This created a tension between what appears to be a political pressure for a rapid start with tight deadlines, IMs' motive of getting everyone on board and some PMs' desire to start according to the project plan while others took their time. This tension was also documented in the evaluation of the five projects (Oxford Research, 2022).

At the same time, research highlights digital technology pushing for change in ways that challenge existing understandings of teaching, the teacher's role and academic culture (Avidov-Ungar & Forkosh-Baruch, 2018; Fernández-Batanero et al., 2022). Aagaard and Lund (2019) argue that digital technology requires a digital and transformative agency while HE is characterised by being stable, conservative, and inert, especially regarding digitalisation. Hökkä and Eteläpelto (2014) found that TEds' strong professional identity and individual agency inhibited organisational development as

TEds were focused on maintaining autonomy and pedagogical power. Petterson (2021) found that digitalisation processes in schools are difficult and must be addressed as organisational and multilevelled transformations. Based on this, it makes sense that creating organisational changes while dealing with such strong academic and cultural pulls can be difficult.

The speed of change

The findings also indicate that the political demands had a strong impact on the projects. These demands were presumably intended to facilitate and ensure progression, delivery, and impact. However, they were a potentially inhibiting factor by forcing processes to move faster than structures in TE would allow, creating tension within these structures regarding staffing and engagement. As a consequence, PMs didn't get enough local parties involved in writing the proposal, which led to trouble later as TEds felt the project was 'forced upon them, which created resistance'. IM4 mentioned structural elements that created tension: 'It's the curse of the matrix organisation structure, where even the dean of TE can't make a decision because it is up to each faculty section to decide'. This tension was also documented in the evaluation of the five projects (Oxford Research, 2022).

Adserias et al. (2017) describe HE as change-resistant institutions while Blanco-Portela et al. (2017) refer to it as academic conservationism. Kirkwood and Price (2013) found that digital technology challenges teaching and learning in HE, which remains largely unchanged. Along with the preference for bottom-up implementation processes in TE, presumably more time-consuming than top-down process, this suggests some rigidity in TE processes. Having academic freedom in mind, a political push for rapid change could be perceived as a push for more compliance and faster transformation, possibly making TEds push back. This rigidity could potentially explain the finding that PDC in TE developed more slowly than anticipated (NIFU, 2022; Tondeur et al., 2018). The findings suggest that academic freedom and a preference for bottom-up processes make such TE projects work slower, possibly even counterproductive to political intentions.

Conclusion and implications for research and practice

This multi-layered analysis has illuminated objects and motives, some of which appear counterproductive, across three levels. At the political level, the object of the call was to prepare future teachers better by enhancing their PDC, which was identified as the motive. The institutional level had the object of ensuring high quality in TE with a motive of getting everyone on board. The project management level focused on an object of creating change in TE with a motive of running solid projects. This multilevel analysis of objects and motives across levels demonstrates how PDC is cultivated in a juxtaposition of different perspectives with different objects and motives. These competing, or even contradictory, approaches can lead to tensions between levels, which again can shed light in the facilitating and inhibiting factors in such processes.

The study suggests that collaboration with schools is a facilitating factor for developing PDC in TE as it was perceived to have relevance for both TE and TEds. Also, the projects created awareness about the need for PDC (Amdam et al., 2022) and revealed

changes in TEds' PDC over time (Daus et al., 2019; Pedersen & Vika, 2022), which not surprisingly suggests that funding is a facilitating factor.

However, several inhibiting factors were also identified, one of which was academic freedom. Research suggests that this is related to a reluctance to change in HE and TE. This explains the difficulty of getting people on board while not pushing too much, and it stands out as counterproductive to the projects' aim: creating change in a limited time-frame. Further, digital technology pushes not only for academic change but also epistemic change (Aagaard & Lund, 2019) which challenges TE in different ways. These findings suggest that academic freedom and a preference in TE for bottom-up processes make such projects advance more slowly than the political level intends and in some respects they might even seem counterproductive.

As mentioned when introducing the Norwegian context, Norway has a lot of structures in place in TE that would suggest that such projects would be highly impactful and successful. Nonetheless, a number of inhibiting factors exist alongside facilitating factors, a finding it could be beneficial to address before planning similar projects outside of Norway.

Limitations and future research

A clear limitation to this study was the lack of interviews from representatives of the political level, which could have both supported and challenged this study's finding at the political level. Particularly, the suggestion that the political level lacks understanding of structures and practice in TE could have been nuanced. It would be highly relevant for further research to address both this and the impact of leadership and institutional management for similar projects in HE and TE, as this is not addressed in the study but would be important for future research to address.

Notes

1. Norwegian Agency for Digital Learning in Higher Education (NADL) was a national agency under the Ministry for Education and Research. It is now integrated into the Norwegian Directorate for Higher Education.
2. Vygotsky's levels are society, interpersonal and intrapersonal (Vygotsky, 1978).
3. Hedegaard's levels are society, institution, activity setting, person (Hedegaard, 2008) and human biology (Hedegaard, 2012).
4. https://www.usn.no/podkast/arkiv/digitale-refleksjoner
5. The excerpts have been translated to English by the author.
6. The data collection was approved by the Norwegian Centre for Research Data and the rules and regulations for consent from informants and storing data have been adhered to accordingly. Ethics committee member: Maren Omdahl Urheim, Institution: SIKT— Norwegian Agency for Shared Services in Education. Reference number for approval is 917,041. All data have been anonymised, and the data is presented here in a manner which ensures the highest level of anonymity.
7. 'Being the link' was used to describe the role of mediator.
8. Call for proposals 27.06.17. Deadline for proposals 01.10.17. Application results 30.10.17. Project start 01.01.18.

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Disclosure statement

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