

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

# Learning, Culture and Social Interaction

journal homepage: [www.elsevier.com/locate/lcsi](http://www.elsevier.com/locate/lcsi)

## Student teacher podcasting: Agency and change

Lisabeth Carson<sup>a,\*</sup>, Magnus Hontvedt<sup>a</sup>, Andreas Lund<sup>b</sup><sup>a</sup> Department of pedagogy, University of South-Eastern Norway, 3603 Kongsberg, Norway<sup>b</sup> Department of Teacher Education and School Research, University of Oslo, P.O. box 1099 Blindern, 0317 Oslo, Norway

### ARTICLE INFO

#### Keywords:

Teacher education  
 Student agency  
 Podcast  
 Dialogic space  
 Interaction analysis

### ABSTRACT

This article aimed to investigate how student podcasts, under specific circumstances, can constitute a novel and potentially powerful format for student agency. We examined a specific teacher education programme in which a student initiated podcast was created as a space for dialogic and reflection on vital educational issues. Taking a sociocultural approach, we study the enactment of agency as the student teachers critically interact with different members of the profession and educational practices. Interaction analysis was employed to shed light on how the podcast was shaped as a dialogic space that affords student teacher agency. By sharing experiences and engaging in podcasting, the student teachers create a dialogical space for connections between past, present and future and positioning themselves as future teachers when taking on professional challenges. The study can offer teacher education insights into how creating and maintaining a podcast can provide opportunities for agentic learning.

### 1. Introduction

Over the last 10–15 years, digital competence in teacher education has attracted increasing research interest, resulting in frameworks and models that connect digitalisation and pedagogy (Koehler & Mishra, 2009; Lund et al., 2014; Redecker, 2017). Recently, connections between digitalisation, student empowerment and transformative agency have also received attention (Brevik et al., 2019; Lucas, 2016; Aagaard & Lund, 2020). But, can such agency and digitalisation allow student teachers to influence the educational programmes they are enrolled in and, thus, become co-designers of their education? The present study pursues this question by examining how student teachers, encouraged by their teacher education programme (TEP), used a series of podcasts to criticise traditional educational practices and point to possible alternatives. Such *agentic* learning has often been understated in conceptualisations and empirical studies of *active* learning (Drake, 2012). Agentic learning is particularly important in an age where teachers continuously face complex educational challenges, need to recognise and define what constitutes valid and relevant professional knowledge and practices, and connect their epistemic work to increasingly digitalised societal and educational contexts (Collins & Halverson, 2010; Aagaard & Lund, 2020). The present study aims to examine the students' agency and the agentic processes that go into their podcasts to glean insight into how to promote not merely student-active but student-agentic professional development.

An increasing number of studies also examine and promote agentic learning in teacher education (Brevik et al., 2019; Mäkitalo, 2016). However, interventions are often initiated by the teacher education institution or faculty or sometimes by a partner school. Few studies report initiatives originating from students themselves and even fewer where digital resources are conducive to introducing

\* Corresponding author.

E-mail addresses: [lisabeth.carson@usn.no](mailto:lisabeth.carson@usn.no) (L. Carson), [manh@usn.no](mailto:manh@usn.no) (M. Hontvedt), [andreas.lund@ils.uio.no](mailto:andreas.lund@ils.uio.no) (A. Lund).

<https://doi.org/10.1016/j.lcsi.2021.100514>

Received 20 July 2020; Received in revised form 6 January 2021; Accepted 19 February 2021

Available online 7 April 2021

2210-6561/© 2021 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license

(<http://creativecommons.org/licenses/by/4.0/>).

and sustaining their agency. Thus, we see a need to focus on student agency in teacher education when preparing future teachers for professional practices. Agency needs to be fostered since student teachers will be designers and enactors of practices valid for a digitalised world. They will have to assist their pupils when information is infinite and instantly accessible but often fragmented and even contradictory or falsified, and they will need to align assessment practices with diversified and developing epistemic work.

The podcasts we examined involve a series of episodes created by two student teachers acting as hosts and inviting a variety of guests. It was broadcast to fellow student teachers, teacher educators and the general public with an interest pertaining to teacher education issues. The students in the present study addressed vital educational concerns (e.g. the role of exams and grades), connected with a broad audience through their podcasts and also aimed to constructively develop the programme they are enrolled in. Thus, their agency does not merely mean “being active”; it is also transformative in the sense that it means expanding and breaking out of persistent problem situations (Aagaard & Lund, 2020; Lund & Vestøl, 2020; Sannino, 2015a; Virkkunen, 2006).

We drew on sociocultural perspectives since they have demonstrated explanatory power when conceptualising the interplay between agents and contexts, mind and cultural resources and phenomena that are in the process of emerging instead of having stabilised. Methodologically, we analysed student teachers’ interactions when discussing issues they found problematic in the teaching profession. We also analysed how their interactions relate to the socio-technical podcast space they construct. Here, we drew on Wegerif’s (2013) notion of *dialogic space* as well as a practical concept of how dialogues can be conceived and facilitated. In particular, we focussed on the podcast as an arena for the enactment of student agency in teacher education to understand more about how agency is enacted in this context.

From the backdrop outlined above, this paper posed two research questions:

- How do the student teachers discursively construct the podcast as a dialogic space?
- How can enactments of student agency be recognised in the students’ podcast dialogues?

To respond to these questions, we first reviewed how agency has been conceptually perceived and empirically operationalised in some relevant studies. We also connected agency with the podcast as a dialogical and communicative space. This is followed by a brief review of the podcast: its features, affordances and potential as an agentic space. Next, we provided contextual information on the TEP in which the podcast emerges, essential for placing the study in its cultural-institutional setting. After a note on the research design, the ensuing sections analysed excerpts from one podcast episode and discussed the results and implications for more student agentic, currently valid and future-oriented teacher education.

## 2. Agency, dialogic space and podcasting/podcast-mediated student agency

In this section, we reviewed studies from three fields. First, we investigated studies that focus on agency and transformative agency to position our study of agentic student teachers in this field. Second, we examined the notion of dialogic space and how this concept has been employed empirically. Third, we focussed on studies in which podcasts were conducive to pursuing educational issues. To the best of our knowledge, these fields have not been integrated or juxtaposed to function as a research backdrop for an analysis of the present phenomenon: podcast-mediated student agency. Thus, this review section is not intended to present a comprehensive overview of agentic learning, but of a purposive cluster of studies selected to shed light on the phenomenon under examination.

### 2.1. Conceptualisations of agency

Emirbayer and Miche’s seminal article titled *What is Agency?* (1998) is often referred to when unpacking the notion of agency. In our context, their future-oriented and transformative perspectives are of particular relevance. Rejecting individualism and subjectivism, they operate in the interface of structural context and human agency when they ask, “How is it possible for actors to ever mediate or transform their own relationship to these contexts?” (p. 964), and focus on “the capacity of human beings to shape circumstances in which they live” (p. 965). There is a dialectic and dynamic relationship between agent and context, and the authors emphasised the projective (future) dimension: “The locus of agency here lies in the hypothesizing of experience” (p. 984): Human intelligence is based on the capacity to “read future results in present on-goings” (Dewey, 1981, p. 69); this projective capacity permits the kind of projective choice and inventive manipulation of the physical and social worlds that is so essential to democratic participation (p. 988).

These principles of agency, how agency affects situations as well as agents and how agency is both transformative and future-oriented, point directly to how we analytically go about examining the student teachers’ podcasts in the present study. However, Emirbayer and Miche did not examine the cultural resources that may be activated to mediate such agency. Thus, to fully understand how the student teachers enact their transformative intentions, we also need to examine how they construct a communicative and discursive space where such enactment unfolds.

To examine the roles of transformation and cultural tools in agency, we turn to the (neo) Vygotskian tradition where the interplay between agents and artefacts is crucial for development (Sannino, 2015b; Sannino & Engeström, 2017; Vygotsky, 1978). The agent-artefact relation is dialectic (the two components are mutually constitutive of agency) and holds the power to transform an initial

problematic situation as well as the agents that engage in such activity. At the heart of such transformative work is the principle of *double stimulation*. Briefly, this principle involves a problem situation (S1), which is characterised by, for example, a conflict of motives, a double bind or an impasse. S1 requires a volitional action of breaking away, expanding the status quo and transforming the problem situation. However, this requires the agent(s) to invoke and use or develop cultural artefacts (S2). These may be discursive (concepts, metaphors), social (collaboration, the distribution of tasks) or material (analogue, digital). Such artefacts usually appear in combination; thus, a *series* of S2 is usually required for agents to volitionally transform S1.

The above simplified outline of agency and the principle of double stimulation can be identified in an increasing body of research with relevance for the present study. In their review of the field, [Etelepälto et al. \(2013\)](#) analysed how agency has emerged in diverse traditions, such as social science, post-structural and feminist perspectives and sociocultural perspectives. They emphasised agency as a relational and collective endeavour, which "...requires a focus on the dynamic interplay between (i) past influences and experiences, (ii) engagement with the present, and (iii) orientation towards the future" (p. 58).

Other contributions focus on the transformative aspects of agency. For example, [Kerosuo \(2017\)](#), from a cultural-historical activity theoretical (CHAT) perspective, stated that "*transformative agency* is considered a quality of expansive learning in activity-theoretical studies" (p. 336, emphasis in the original). Using 'transitional episodes' (p. 339) as the unit of analysis, she analysed how transformative agency was initiated, both by individuals and groups, in the form of 'knotworking' in the construction industry. Also, from a CHAT perspective, [Haapasaari et al. \(2014\)](#) further unpacked the processes involved in transformative agency and identified (for analytical purposes) six types ranging from resisting change and criticising current practices to explicating and envisioning new possibilities and models and, finally, committing to and taking action to transform the current situation or activity. This categorisation was put to work by [Brevik et al. \(2019\)](#), which examined how student teachers dealt with situations in their programme that required transformative agency, specifically how to develop their professional digital competence. Similarly, [Lund et al. \(2019\)](#) used the notion of transformative agency and the principle of double stimulation to present a case for digital literacy as agentic and with epistemological implications as digital resources were put to work to resolve a conundrum in the subject of genetics. The link between transformative agency and the teaching profession is concisely summarised by [Mäkitalo \(2016\)](#): "... the capacity of teachers to critically shape their own responsiveness to problematic situations" (p. 67).

The studies referred to above demonstrate that transformative agency is examined in working life as well as in educational contexts. However, the boundaries between general agency and transformative agency are not always clear. Blurred boundaries and grey areas are common, as we are not dealing with discrete phenomena. [Haapasaari et al. \(2014\)](#) sought to make a clear distinction:

"Transformative agency differs from conventional notions of agency in that it stems from encounters with and examination of disturbances, conflicts and contradictions in the collective activity. Transformative agency develops the participants' joint activity by explicating and envisioning new possibilities. Transformative agency goes beyond the individual as it seeks possibilities for collective change efforts" (p. 233).

Transformative agency does not stop at general decision-making, making a choice or opting for an alternative. These are all agentic efforts, but they may or may not hold transformative qualities. In addition, the problem situation requiring transformative agency is also perceived as deeply conflicting by the subject(s) that experience it. Thus, it involves personal investment, elements of risk and an uncertain future outcome. Finally, [Virkkunen \(2006\)](#) found that transformative agency also involves emotional commitment and a distanced, intellectual stance. 'The basic dilemma', according to [Virkkunen \(2006\)](#), emerges when "interventions have to be based on collaboration with the local actors – whose way of understanding the process and the practices is being questioned" (p. 47). In many ways, this sums up the student teachers' podcast activities when they questioned established exam criteria and assessment practices.

## 2.2. Dialogic space

In the following, we turn to a concept that enables us to grasp the situational contingencies that surround and potentially enables agency; [Wegerif's \(2013\)](#) idea of dialogic space. All education depends on creating spheres in which individuals interact with openness to change their current stance; therefore, the concept of dialogic space is especially relevant for education studies ([Wegerif, 2013](#), p. 150). A dialogic space can be recognised by overlapping perspectives and individuals wanting to share and persuade. It is sometimes impossible to separate perspectives within the space from the space itself, as it is constituted through dialogical activity ([Wegerif, 2013](#)).

Prior studies on dialogic space include [Ludvigsen et al. \(2019\)](#) who showed how students engaged in dialogue around a collaborative whiteboard and studied how students and lecturers interacted with each other's ideas. The study argued that dialogical spaces provide students with opportunities to reflect on concepts, develop arguments and receive feedback on their own understanding of course content. [Pifarré and Kleine Staarman \(2011\)](#) examined how wikis may be used to provide primary education students with a dialogic space to co-construct new understanding. Collaborative processes in the wiki environment create a dialogic space in which these students are open to one another's ideas and where they use these ideas to solve the task together.

A finding across these studies is that technology can contribute to constructing such social spheres in which differing perspectives create productive tensions that open them up to novel ideas. As such, the notion of dialogic space is relevant for conceiving student podcasts, because it provides a concept for seeing how participants in a dialogue transcend their immediate situation and become part of longer trajectories of development – in a physically co-located or digitally distributed environment.

### 2.3. Podcasts in education

The development of the podcast genre is partly driven by technological innovations (media players, streaming, client application software) but also by the development of cultural practices, conflated production, consumption and distribution and minimal “gatekeeping”; thus, the podcast emerges as a “horizontal medium” with minimal hierarchical structure. As such, podcasting represents a cultural practice that *shapes* communication rather than merely transmitting it. Several characteristics define the podcast as a context for communication, as it is a *converged* medium (Berry, 2015) that blends audio/video, the Internet and mobile technologies. Research also indicates that podcasting is currently being established as a more informal genre than traditional media, characterised by a strong relationship between host and listener (McHugh, 2016).

Podcasting has been adopted as a potentially powerful strategy for teachers. The majority of podcasts originating from academic institutions provide ‘substitutional’ or ‘supplemental’ input for students, but a third category is the ‘integrated approach’, which is characterised by student-centred activities, such as instructor-student and roundtable discussions (Abdous et al., 2012). Furthermore, Drew (2017) pointed out that many academic podcasts are constrained to a knowledge transmission pedagogy but also demonstrated how others stand out as multi-author and dialogic. An interesting point from Drew (2017) was that some academic podcasts invite listeners into subject-specific practices, such as the extensive use of storytelling in many history podcasts and panel discussions on science-related content (p. 60).

There are numerous studies on how students are positioned as recipients of podcast content, but few that focus on student-generated podcasts. An exception is Bolden (2013), who described uses for podcasts in music education, elaborating on learner-created podcasts as an opportunity for secondary and post-secondary students to construct and represent topics – such as the meaning music holds for them and the role it has played in their lives. Forbes and Khoo (2015) explored the potential of student-generated podcasts, following a course for student teachers in which the students created podcasts with topics such as their teaching philosophy and the kinds of teachers they would like to be in the future. The study showed that the students valued the experience and argued that podcasting created an opportunity to reposition student teachers in a more future-oriented and transformative role. While these studies provided important background, we have not found additional or earlier studies on student-initiated and multi-author podcasts.

### 3. The podcast as a dialogic space in teacher education

The Scandinavian TEP we reported on encourages and expects its student teachers to investigate, experiment with and critically relate to how information and communication technology (ICT) provide opportunities for designing learning environments. The programme had an experimental profile, encouraging student teachers to adopt and cultivate digitalised practices. Thus, the teacher educators expressed the positioning of student teachers as *co-creators* as an explicit aim in this TEP. Such a student role can be conceptualised as that of reflective *stakeholders* (Lipponen & Kumpulainen, 2011). This stance is observable when teacher educators give tasks and feedback so that students are encouraged to “think outside the box” and when teacher educators observe ‘the golden rule’ to speak for no more than 20 min before turning to student-led activities.

Thus, the student teachers’ idea of starting a podcast originated in fertile institutional ground. The institution’s role was in the form of encouragement and some physical facilitation with location and equipment. The podcast focussed on the education the students were part of as well as the profession they were about to enter. Teacher educators were included in some episodes as guests, and they reported listening to the podcast frequently.

#### 3.1. Methodology

The current study focusses on the social realisation of the student podcast. By this, we mean that we aim to explore how the podcast was employed as a space in which students could interact and discuss matters of importance to their education and future profession. This choice of focusing on the social construction of the podcast had theoretical underpinnings: from a sociocultural perspective, learning and development in technology-rich environments were seen as products of participants’ tool-mediated interactions rather than as static properties inscribed in the technological environment (Hontvedt & Arnseth, 2013; Petraglia, 1998). In line with this standpoint as well as the research questions, the focus of the analysis was the podcast participants’ in situ construction of joint understanding, technological affordances and experiences from the TEP.

To examine the participants’ agentic endeavours, we drew on interaction analysis. Interaction analysis is an empirical method for studying social interaction as it evolves through talk, non-verbal interactions and the use of artefacts and technologies among interlocutors (Jordan & Henderson, 1995). We employed this methodological framework for studying the podcast in three phases: the initial period of participatory observation at the institution where the podcast originated; the phase in which we gained an overview and mapped podcast episodes; and the phase containing a close analysis of podcast dialogues. Even though these phases were not clear cut, they were useful for elaborating on the key parts of the research process.

##### 3.1.1. The first phase: Participatory observation

The initial mode for approaching teacher education from which the podcast originated was participatory observation. After

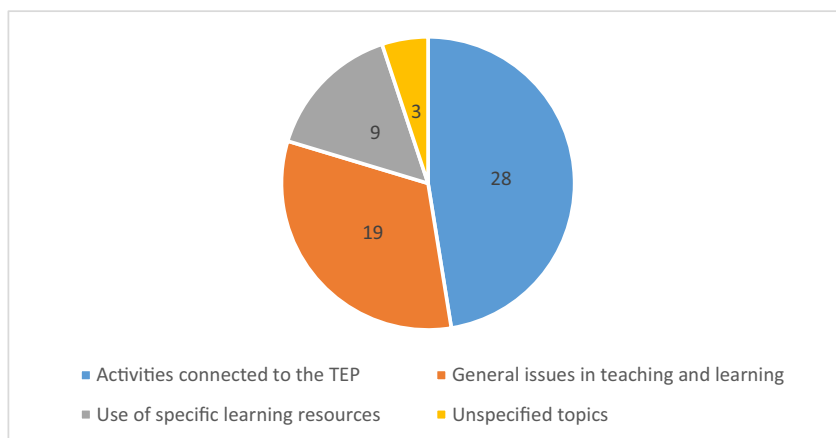


Fig. 1. Topics Identified in the 60 Podcast Episodes.

Table 1

List of Guests.

Role	Intern (52)	Extern (32)	Sum
Student	40	12	52
Expert	7	16	23
Teacher	7	0	7
Pupil	0	4	4
Sum	54	32	86

choosing this particular TEP as a potentially rich case, the initial observational work consisted of six fieldwork visits totalling 25 days of participatory observation with the aim of gaining an understanding of the educational practices emerging from this particular TEP. Drawing on [Jordan and Henderson \(1995, p. 43\)](#), we identified relevant interactional “hotspots” in which more focussed data collection would be productive.

The podcast series was student driven but interacted frequently with teacher education, for example, by the topics raised, by having people associated with teacher education as guests and by being physically located on campus. In the podcast studio, the participants sat in a closed room (in most of the episodes), around a table and with one microphone each. The two hosts, although usually acting as moderators, engaged in discussion and share their opinions. Some episodes or parts of an episode were interview-like, where one or two hosts asked more or less predefined questions while the guest did most of the talking. Sometimes experts or authority figures, whom they did not know personally, were included in the podcast. The guests either joined the host in the studio at the time of recording the episode or the host(s) conducted and recorded an interview with an expert at an event, etc. In other episodes, the role of host and guest was blurred, and everyone engaged in discussion, at times even finishing each other’s sentences.

Our motives for focusing on the podcast were numerous: First, we became interested in the podcast because it originated from student agency and a student perspective, and therefore provided a potentially interesting case of agentic learning. Second, we found the podcast dialogues interesting because they revealed what the students found to be important aspects of their own educational practices and how these relate to professional practices. Third, from a researcher’s perspective, the podcast provided a unique corpus of naturally occurring, student-driven conversations about open-ended topics in teacher education. Hence, analysis of the interactional construction of the podcast was expected to yield insights into technology-mediated, student agentic and transformative endeavours.

### 3.1.2. The second phase: Mapping the podcast episodes

The next step in our analysis was to map the podcast episodes. The podcast consisted of over 100 episodes and was created by two student teachers on their own initiative. Each episode of the podcast was published online with an introductory text, which is a short description of topics and participants in the episode. For an overview of the topics and guests, about two semesters of frequent and regular podcasting were mapped (60 episodes).

Fig. 1 displays an overview of topics addressed in the podcast episodes, based on how the hosts themselves described what each episode was about. Each piece of the pie chart indicates the number of occurrences. Activities in the TEP were one of the most frequent topics. These were events such as conferences they have attended and reflections on or expectations for class activities or topics. Other

episodes frequently touched upon issues related to the teaching profession in general, such as the role of ICT in schools, game-based learning or teaching practices. The use of specific learning recourses, e.g. applications and games, was sometimes listed as topics. A few episodes could not be categorised.

Table 1 shows the 86 guests participating in the podcast, divided between internal (from the same educational institution) or external (affiliated with another institution or part of the profession). Some external experts were also school teachers usually invited because of their knowledge of a specific subject. Hence, these were categorised as experts and not external teachers. Out of the 32 externals, 17 took part in a pre-recorded interview (see 3.1.1) which was played back in the episode.

In the episodes mapped, both hosts participated in most of them. In some episodes, only the hosts participated; in others, there were several guests, with 11 participating in one episode.

This demonstrated how the student teachers took ownership of the podcast, decided on relevant topics, and included the voices of fellow student teachers, teachers and experts in their conversations to enrich the dialogue.

### 3.1.3. The third phase: Close analysis of podcast dialogue

So far, we outlined some important connections between the TEP, the teaching profession and the podcast. A key premise in interaction analysis is that even if other methods are used for collecting data, such as participatory observation, findings should be connected to concrete instances in video or audio (Jordan & Henderson, 1995). Accordingly, in this third phase of the research process, we zoomed in on the students' social construction of the podcast. We highlighted how the podcast was student initiated and sustained for several years as an arena for students to discuss and grapple with key issues in their education, the teaching profession and their future working life. However, it was not obvious to us how this agentic learning and enactment of agency was managed, developed and enacted interactionally. This motivated closer analysis. Even though student agency was significant throughout the podcast episodes, we found the students' agentic approach especially visible when they talked about assessment. This is in line with prior studies showing that assessment systems raise engagement and emotions but have historically resisted change and remain traditional and institutionally stabilising (Deneen & Boud, 2013). Thus, assessment issues constituted what we have referred to as a "hotspot". Hotspots are indicative of an environment's affordances that are conducive to negotiations and meaning-making (Jordan & Henderson, 1995, p. 43). In this study, such hotspots also function as our unit of analysis for capturing agency (Lund & Vestøl, 2020).

From the outset of this study, we strived for a "bottom-up" approach in which the topic and key concepts were chosen through an iterative process that involved observations, conversations, research literature and mapping of the podcast. However, when students' agentic learning and development emerged as a key interest, we needed to develop analytical concepts that allowed us to examine such processes in podcast dialogues. Gresalfi et al. (2009) had a similar objective and showed how a person's agency can be observed in interaction by looking at instances such as the initiation of ideas, elaborations, agreements or disagreements.

To pursue agency and agentic learning in this setting, we focussed on three analytical resources: First, the participants' *positioning*. In this context, positioning refers to the student teachers' commuting between roles, such as their positions as former students, current student teachers and future teachers (Akkerman & Bakker, 2011). As such, positioning served to conceptualise how the students use the podcast as a space for confronting or questioning educational dilemmas as well as promoting and discussing their own teaching philosophies. Second, a key analytic focus was the participants' *sharing of experiences*. When experiences were shared, they changed status – for audience as well as the participants – from individual experiences into what Silseth and Arnseth (2011) termed *narratives* and *stories*. Within interaction analysis, narratives and stories are analytical resources that enable people to connect prior experiences to possible future action (Emirbayer & Mische, 1998) and create shared resources that can be mobilised and used for achieving specific interactional goals. Third, we looked at the participants' *categorisation* of the different phenomena they discussed. Categories are particularly interesting because they are sociohistorical constructs that connect situated talk to different contexts and practices (Linell, 1998; Silseth & Arnseth, 2011). In this study, these analytical concepts were resources for illuminating how the notions of agency and dialogic space materialise in situ.

## 3.2. Ethics

The studied podcast was published and made public online by its owners. However, because we use the podcast as data for a research study, we obtained written consent for this project from the participants. The project and procedures for data management were in line with and approved by the Norwegian Centre for Research Data (NSD).

## 3.3. Research quality and limitations

*Reliability* often describes whether a study will provide the same result if it is reproduced under the same conditions. However, within qualitative research, reliability relates to the degree of transparency and rigour of the inferences that are drawn (Silvermann, 2011). Hence, within interaction analysis, one of the most important strategies for achieving reliable findings is the practice of displaying excerpts and explicitly connecting claims to concrete instances of interaction.

*Validity* refers to whether a study measures what it is supposed to measure. Validity in this context involved establishing an



appropriate connection and relevance between the studied phenomenon, analysis and conclusions (Silverman, 2011). Accordingly, the data for this study were the actual podcasts created by students, different from interview data or surveys.

This study provides a close analysis of one purposely selected student-created podcast. We focussed on its contextual contingencies and use it as a case for illuminating how a dialogical space may be constructed and how agency in such a space can be identified and analysed. Thus, the motivation for studying this particular podcast was that it represents a somewhat novel and emerging phenomenon. Although not *generalisable* in a traditional sense, the phenomenon indicates what *may* be (Schofield, 1993), given certain contextual affordances and agency. As such, the podcast excerpts were highly context-sensitive, while they also carried cognitive, emotional and professional dimensions arguably valid across wider contexts. Therefore, despite the singular empirical manifestation, the study of the podcast qualified as an analytical generalisation (Yin, 2010). We also focussed on parts of the podcast (“hotspots”), rather than searching for patterns and regularities across episodes to pursue contested issues regarding assessment in depth. Analysing additional challenging topics is necessary to substantiate and enrich conclusions.

#### 4. Results

In this study, four excerpts from one podcast episode that was recorded just after an end-of-semester exam was examined. One part of this exam was an event where the student teachers presented their work on an assignment to a wider audience of invited guest. The first excerpt was from the very beginning of the episode; the following three were from the last part of the episode, where the students engage in a discussion on assessment and grades. Assessment was a recurring issue in the podcast where the student teachers promoted a view of learning as an iterative process and emphasised the value of formative assessment. Consequently, the selected excerpts constituted discursive manifestations of students’ concerns with exams and assessment and how to transform them.

##### 4.1. Including the listener in the conversation by retelling experiences

The first issue we illuminated is how participants framed discussions and included the listeners in the dialogue. The positioning of podcast hosts and guests varied and lines between hosts and guests were sometimes blurred. In the podcast, parts of the students’ dialogues seemed equal to an informal conversation, and we found few signs of students following a defined script for the conversation. However, the podcast differed from an ordinary talk situation in which the students describe an exam and event they have just experienced in their TEP. An introduction by the hosts or a guest was a way of starting and framing conversations in many of the episodes. Excerpt a show the beginning and the end of such an introduction that one of the student teachers, Noah, made as he recounted the event they all attended. Here, he did most of the talking, getting help with some details from his fellow students, thus discursively bridging the move from a personal but shared account to joint reflections on the exam.

Excerpt a

- 1 Emily But, eh how do you think it went? The event. Does anyone want to describe the
- 2 event?
- 3 Noah Well, I can describe the event. We met at 10 o’clock to just run through it all a
- 4 couple of times
- (150 seconds extracted where Noah described the event in detail. Kim and Emily commented briefly with details, such as names of participants)
- 5 Kim Yes, that was, that was very well described
- 6 Noah Ehm, that’s what happened (in a funny voice)
- 7 Kim Yeah (laughingly) What do you think? How was it?
- 8 Emily Well, I think that, now, this was actually an exam, and I think it was, eh, a cool
- 9 way of having an exam
- 10 Kim Yes
- 11 Emily Well, I think it was, eh, I think it was incredibly rewarding that so many different
- 12 people came, and that there were so many different representatives from the
- 13 school communities (...)

In this excerpt, Emily first asked her fellow students what they *thought* of the event. As they all participated in the event, she asked if someone could *describe* the event. Noah responded that he could take on this task and gave a thorough account that lasted about two and a half minutes. Compared to everyday conversations, this account seemed unnecessarily long and detailed since the co-present participants already knew most of this. Nonetheless, after Noah finished, Kim credited him for a good description of the event in line 5. The manner in which they together organised such depictions of necessary background information for the current topic enabled the listener to be included in the dialogue. However, even though the podcast conversations often had these subtle strategies for giving information to listeners, the excerpt also showed how this is as a situated accomplishment – and not a scripted pre-arranged bulk of information. This is also evident in Noah’s reply, in which he compensated for the overload of information by saying “this is what happened” in a funny voice in line 6. Emily’s response in lines 8–13 returned to the key question from line 1: what she *thinks* about what the event.

The excerpt demonstrates how descriptive introductions to new topics create a common frame for the conversations for both the student teachers *and the listener*. Without this narrative, which might seem redundant outside of the podcast, a listener would have problems contextualising and following the discussions to come. Thus, such retelling of experiences becomes as a tool to set the scene before moving to discussing and reflecting upon it.

#### 4.2. Past experiences as tools in joint meaning-making

We now turn to the way students' experiences became tools for positioning and how they took a joint stance. Prior to the excerpt below, the student teachers discussed the lack of coherence between *their own evaluation* of their performance and the grade they got. For instance, Noah talked about a previous exam where he got the highest grade, but he was "*really NOT impressed*" with his performance. In the following excerpt, Kim shared two different experiences he had with oral exams, emphasising the kind of *feedback* he got from the examinations. Excerpt b shows how the student teachers positioned the two experiences as representations of two opposing views on learning and assessment.

##### Excerpt b

- 1 Kim: But then, I also think, I got a D for that exam, and I don't feel I received much  
 2 feedback. One thing is, why I got this grade – maybe I got some feedback about  
 3 that – but I don't feel I got much information about how I can get better at the  
 4 subject. How can I do things? However, I haven't used much energy on it either  
 5 so . . .  
 6 Noah: But it's very summative  
 7 Kim: Precisely  
 8 Emily: Mmm  
 9 Kim: Whereas for this exam, where I got an A, I actually got a lot of feedback, things I  
 10 could work with, things I could take into account, things I myself can use  
 11 Emily: Mmm  
 12 Kim: Such as teacher professionalism, written assignments, speaking in front of people.  
 13 All possible things. And we ended up having a discussion, and I asked questions,  
 14 and Anna asked questions. And we also had a conversation during the actual exam  
 15 on how such an examination takes place and all sorts of things. I found it to be  
 16 extremely interesting  
 17 Noah: We actually had that kind of conversation too  
 18 Kim: And in principle, I got a good grade – one cannot get a higher grade – and still, I  
 19 got so much out of it. I just think it is so  
 20 Noah: It is also mega-cool that there is one who gives you a grade, then they, like, say, *yes*  
 21 *okay*, just because this scale cannot accommodate you  
 23 Kim: Precisely  
 24 Noah: So, you can always get better (...)

In this excerpt, Kim compared two of his past experiences of being assessed as a student. As a response to Kim's first experience, in which he was given a low grade and no input on how to progress (L 1–5), Noah used an essential concept from their education to label this as "very summative" assessment (L 6). Kim and Emily supported Noah's interpretation before Kim moved on to his second assessment experience. Here, he got the top grade, but still received a lot of feedback on how to further improve. This time Noah responds that it is "mega-cool" in line 20, which indicated that Kim's second experience represented a preferred assessment practice.

This excerpt demonstrates how the retelling of a past event can become a tool for positioning. Such positioning involved agency, partly latent as when Kim, in lines 12–16, dwelt on the usefulness of feedback and how it might materialise as teacher professionalism, i.e. the situated experience is, thus, categorised as "teacher professionalism" (L 12). The excerpt ended on an optimistic note and with a future perspective.

#### 4.3. Moving from their student experiences to future teaching

After the excerpt above, the students continued discussing, elaborating on Noah's utterance about learning as an ongoing process and discussing the vital professional terms *formative* and *summative* assessments and grades. We re-enter the episode after Noah and Emily engaged in a dialogue about the difference between learning cultures focusing on *performance* (the grade) and learning cultures focused on *learning*. As such, they expanded the discussion of their own experiences into a discussion on how to manage their own teaching philosophies in their future work.



## Excerpt c

- 1 Emily: No, exactly, but it (a culture focusing on learning) is also something that  
 2 we should all create out there in our classrooms. Like, what we should focus  
 3 on, and it is precisely that, eh, when students go from sixth to seventh  
 4 grade, should we then talk about, eh, ninth grade exams and graduation exams or  
 5 what? From the start? Or could we keep our focus on learning something, and  
 6 we need to find our own way in that?
- 7 Kim: Yes, and there's just that, what happens to people if, that if you do not get. If it's  
 8 all about grades and you don't get that grade. Before the exam, you are nervous,  
 9 and if you don't get the grade you feel . . . Then, it can be wildly destructive to  
 10 one's self-esteem. There's a lot of things
- 11 Emily: Mmm
- 12 Kim: That just . . . In many ways, I think that can be destructive for learning –  
 13 and also for how you feel as a human being, and it's a pity that children in  
 14 primary school should feel bad about some of those single letters (grades)
- 15 Noah: I think. . .
- 16 Kim: Instead of feeling good and learning.
- 17 Emily: Mmm
- 18 Noah: I think it's crazy when a grade becomes an identity
- 19 Kim: Exactly!
- 20 Emily: Yes.
- 21 Noah: And then there's that guy. . .
- 22 Kim: Then, one thinks one is worth less. . .
- 23 Noah: It's a horrible word, isn't it? The A-student.

The excerpt started with Emily turning the dialogue towards their future role as teachers, asking how they can uphold a focus on learning as opposed to focusing on the exam when grades become a part of school practices (L 1–6). Kim emphasised how grades affect students' self-esteem (“wildly destructive”, L 9) and argued that what is important is “feeling good and learning” (L 16). His fellow students expressed support, and Noah elaborated, saying it “is crazy when a grade becomes identity” (L 18). In line 23, he continues the exchange on grades and identity by invoking a prototype known from movies and informal discourse: “The A-student”. This dialogue continued to further substantiate their joint position on grades and identity by evolving into a critique of past and present school practices.

## Excerpt d

- 1 Noah: They feel they have to keep on getting them (grades); otherwise, they lose face in  
 2 the eyes of the others
- 3 Kim: Yes, because this is what I can do, I'm the one who gets an A, and that is what  
 4 gives me value as a person. That must be awful to feel like that; one feels that one's  
 5 worth, as a human being, is that I get a letter (grade)
- 6 Emily: Yes
- 7 Noah: Yes
- 8 I'm graded on this thing here, and this is me
- 9 Kim: Yes
- 10 Noah: And if I can't perform on this, I'm being a bad version of me, it's horrible
- 11 Emily: Yes
- 12 Noah: I hate grades
- 13 Emily: I really do, too
- 14 Noah: (sighing)
- 15 Emily: Eh, but especially if they stand alone
- 16 Noah: Mmm
- 17 Emily: Because, as we say, they can be constructive if one takes them together  
 18 with something else, so that you get some kind of, of, listen to me: You are very  
 19 good as this thing here, and this thing here is something you can get better at or  
 20 something like this. You know. Nevertheless, in general, I just think grades are a  
 21 bit destructive (...)

In lines 1–2, Noah further developed the students' severe criticism of grades by invoking the others' perspectives. Kim then reduces the importance of grades by referring to them as “letters” (L 5) that equal the worth of the “human being”.

The two excerpts (above) demonstrate through the choice of words (“hate”, “horrible”, “crazy”, “wildly destructive”) how the issue of grades triggered emotional intensity. For the student teachers, the topic aroused connections and conflicts between static grades and human development; the grade and the human being are conflated. In the words of Noah: “I'm graded on this thing here, and this is me” (L 8). The excerpt demonstrates how experiences are used as resources for stating and sharing what is problematic about grades in school. This problem created a conflict on a professional *and* emotional level (Virkkunen, 2006) for Noah and Emily, spurring a wish to

collectively break away from the problem situation, connect to possible future action, and establish a culture focusing on learning: “something that we should all create in our classes” (L 1–2 in the first of these two excerpts).

#### 4.4. Moving past status quo towards ideas for change

In excerpt e, we analyse how the student teachers’ experiences became tools for change and transformation. After the previous excerpt, the students continued talking about grades and “*becoming a grade*”, emphasising the identity aspects. They also elaborated on Emily’s statement about how grades can have useful functions, such as calculating a mean, and how grades can give good indications about students’ achievement of goals. The problem is not the grades per se, Noah states, but how we use them and that grades (alone) function as an entrance to higher education and/or a profession. We re-enter the podcast as Emily oriented the conversation towards an ongoing process of developing an entrance exam into teacher education.

##### Excerpt e

- 1 Emily: Nevertheless, it’s very special here in this programme, because they are  
 2 working very hard to integrate an interview into the admission process. That  
 3 means that everyone would have to go through that entrance exam or what are  
 4 they called, eh, those interviews you come to  
 5 Noah: Yes, yes  
 6 Emily: Right? Which really makes a lot of sense, ‘cause just try to imagine if you come  
 7 directly from high school with a really high average, and you just come flying  
 8 into teacher education despite the fact that you maybe haven’t invested much in  
 9 social relations at high school  
 10 Noah: Mmm  
 11 Emily: Because you wanted to have these high grades, and one should also have  
 12 over (a given average) to come in directly, it’s not because it’s sky  
 13 high, but . . .
- (Some irrelevant lines omitted)
- 14 Emily: Nonetheless, I just think that for all higher education, it should . . .  
 15 Noah: Yes  
 16 Kim: Yes  
 17 Emily: It would be fantastic because one has some kind of feeling about – are  
 18 you able to do this or not?  
 19 Kim: That’s also because I thought it was a really cool conversation and  
 20 discussion. Both for me, on what I can expect and have a talk to someone  
 21 about that, but also to hear someone say something about what one needs to  
 22 take into account – and where I’m at and so on  
 23 Emily: Yes  
 24 Kim: And then it wasn’t the grades, although you got something like, some different  
 25 numbers on some curves, but then got . . .  
 26 Noah: But it didn’t focus on the letter (grade)  
 27 Kim: No, it wasn’t like one letter, a grade you are a B, or . . .  
 28 Noah: No  
 29 Kim: What it was, now, it was. I really felt one got a lot out of it, and as you say,  
 30 Emily, I think it could be quite cool for all higher education  
 31 Emily: Yes  
 32 Noah: Yes

In this excerpt, Emily referred to an emerging practice at her TEP and efforts to make this entrance exam obligatory for everyone applying to the TEP (L 1–4). In lines 6–9, she elaborated on the problem with current practices where only a grade decides who can enter a TEP. Relational competence is important for the teaching profession, and as a grade does not reflect such competence, people who lack it can still enlist in teacher education. Then, in lines 17–18, she indicated that this kind of exam allows the TEP to assess whether candidates display the desired capacity for the profession. In lines 19–22, Kim responded to Emily’s initiative by sharing his experience with his entrance exam and how it gave him feedback on how he might be suited for this TEP. Then, Kim and Noah elaborated further on this form of exam and how, despite the fact that they were given a grade, it did not *focus* on the grade, not like in the reductionist practices they disapproved of. Thus, by emphasising the conversational features of this exam, the student teachers’ personal experiences became tools to position this kind of examination as a procedure where the institutional and societal requirements for certification and ranking can co-exist with the student teachers’ desire for a system where assessment is intimately linked to learning and development.

Taken together, the four excerpts reveal how the dialogic space of the podcast is framed, thematised and populated by multiple voices. We observe the ebb and flow of the discursive dynamics that unfold between problem situations and potential ways out, between professional concerns and emotional engagement, between hosts, guests and a wider audience. These dynamics were afforded and mediated by the podcast. However, affordances are not sufficient for transformative purposes; the excerpts also testify to the

student teachers' agentic efforts; "the capacity of human beings to shape circumstances in which they live" (Emirbayer & Miche, 1998, p. 965). By inviting guests into the discussions and by making the podcasts sessions accessible online, the students interact constructively with the TEP they are enrolled in and critically with the professional domain they are about to enter. Further, by hypothesizing solutions to what they perceive as vital problems in their profession, they moved beyond individual misery and criticism, envisioning new possibilities to be collectively enacted: "something that *we should all* create in our classrooms" (excerpt c lines 1–2, emphasis added).

## 5. Discussion

When we juxtapose student activity, dialogic space and the affordances of the podcast throughout the selected excerpts, we can respond to the research questions raised in the introduction.

### 5.1. Opportunities materialising

Our first research question pertains to the opportunities for student agency afforded by the student-produced podcasts. The notion of agency oriented us towards situations in which students collaboratively found a stance to take when facing fundamental and problematic issues in their profession. Assessment and exams have proved resistant to change, even in future-oriented and digitally advanced institutions (Csapó & Funke, 2017; Quellmalz et al., 2012). However, one very important contextual factor in the current study is the TEP's orientation towards pioneering student agentic educational practices. The students are positioned as actors in their own learning environment by co-shaping their own educational process and future as teachers. The TEP's institution provides recognised support and potential sustainability for the students' transformative endeavours.

The analysis shows how the students take advantage of this situation by establishing the podcast and cultivating its socio-technical affordances for shaping their future roles as teachers: the interplay between student hosts and guests, the ensuing interplay between student hosts, and the potentially wide radius of the broadcast episodes, whether in real time or retrieved from archived material. The way students recount experiences to include listeners, as shown in excerpt a, reveals an interesting and perhaps unintended function of the podcast. Since a recount of human experiences should not be conceived as an objective replay of events – but rather as a reconstruction that is shaped by the storyteller's prior experiences (Middleton & Brown, 2005) – this strategy to include the listener works as a way of consolidating the podcast participants. That the talk situation involves elaborations that are usually left tacit or implied in everyday conversation seems to lead to increased opportunities for creating common narratives that can be used as tools for agentic development.

The analysis also shows how the students move back and forth between past, present and future, positioning themselves as students and future teachers. This temporal dimension connects the students' experienced *perceptions* of teaching with their *conceptualisation* of teaching as a profession and their future *enactment* of this profession. The podcast, with its loose, unscripted format, while simultaneously providing a timeframe, guests and an audience as structural components, would seem to be conducive to "joint activity by explicating and envisioning new possibilities", a characteristic of transformative agency (Haapasaari et al., 2014).

In sum, the podcast emerges as a socially, technologically and discursively constructed space. Student teachers share narratives and stories, which become tools for the participants to elaborate and think both emotionally and conceptually, collaboratively and critically about how they want their education to be and what kind of teachers they would like to become. By inviting guests and diverse perspectives and moving between timescales, this dialogic space is multi-dimensional in its construction.

### 5.2. Opportunities enacted

Examining the emerging opportunities makes it possible to respond to the second research question pertaining to how student agency materialised and could be recognised when the student teachers confronted problematic issues. As we argued above, the analysis showed how *social*, *technological* and *discursive* elements are intertwined. *Socially*, because the podcast was put to use as a fundamentally collective enterprise. As shown in the analysis, students build on each other's ideas and opinions, and it is often difficult to pinpoint what the participants' individual contributions are. Even though the podcast is student generated, it can be considered to represent an integrated function more than a supplementary function in the TEP (Abdous et al., 2012). *Technologically*, the way the podcast is structured and broadcast as an episode affects the students' discussion and an audience that may also exert transformative agency. As digitally archived and easily accessible material, the podcast takes on a persistent presence that may be invoked beyond the real-time broadcast. The student teachers exploit such socio-material affordance to connect with a wider audience far beyond what a co-located event could do. *Discursively*, the podcast episodes form a multi-voiced dialogic space. The students invite guests, conduct interviews and address potential listeners as strategies to contribute to what Wegerif (2013) names "widening", which describes the levels of possible voices and perspectives that are available in a dialogic space. Such widening not only includes conversation between co-present partners but extends to the long-term dialogue of the culture (Wegerif, 2013) that shapes our conception of teachers, students and schooling. Finally, the analysis of the dialogic space demonstrates how student teachers moved across temporal dimensions while also drawing on very personal and emotional experience as well as conceptual understanding of educational issues, resulting in a 'discursive cross-over'.

The podcast makes it possible for the student teachers to populate a space to continue and reflect upon their learning process, beyond the separate sessions, beyond classes and exams. This represents an extension of their developmental trajectory. The students not only participate in dialogue concerning issues in their present education, they use this dialogic space for challenging and

attempting to transform the logic on which their education is founded. This ambitious, even risky, approach of challenging and wanting to develop their profession represents a general tendency in the podcast series (cf. Table 1 and Fig. 1). This differs from Drew's (2017) observation that some academic podcasts invite listeners into subject-specific practices. For the student teachers operating the podcast, stakes appear much higher, in turn invoking the capacity for transformative agency.

By initiating, staging, recording, sharing and archiving the podcast sessions, these acts of agency become transformative in the sense that they exercise persistent influence on the programme they attend but also, with institutional endorsement, potentially change current and future educational practices. We see that the podcast format enables a dialogic space that connects agents and audience, combines openness and time restrictions and links personal experience to conceptual understanding. When these elements materialise along the temporal dimensions referred to above, a web of opportunities emerges. However, opportunities will remain dormant if not populated with agentic students and only momentary without institutional endorsement.

The analysis shows how the notion of dialogical space connects to opportunities for agency and how such agency is enacted when encountering challenging educational issues that call for transformative approaches. The podcast enables students not merely to interact in joint meaning-making with each other; their talk and actions are also influenced by actors beyond the students in the room and beyond the educational programme. Consequently, the students reach out to the wider profession as interactions are recorded, shared and archived online. It would seem that cultivating the use of dialogic spaces, such as podcasts, and linking such use to a principled view of transformative agency can advance teacher education practices. There is a potential to educate student teachers with a professionalism not restricted to merely executing current educational policies but also to influencing and transforming them.

## References

- Aagaard, T., & Lund, A. (2020). Digitalization of teacher education. *Nordic Journal of Comparative and International Education (NJCIE)*, 4(3), 56–71.
- Abdous, M., Facer, B. R., & Yen, C. (2012). Academic effectiveness of podcasting: A comparative study of integrated versus supplemental use of podcasting in second language classes. *Computers & Education*, 58(1), 43–52.
- Akkerman, S., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research*, 81(2), 132–169.
- Berry, R. (2015). Serial and ten years of podcasting: Has the medium grown up? Paper presented at the radio, sound and internet Braga, PT. <https://sure.sunderland.ac.uk/id/eprint/5759/>.
- Bolden, B. (2013). Learner-created podcasts: Students' stories with music. *Music Educators Journal*, 100(1), 75–80.
- Brevik, L. M., Gudmundsdottir, G., Lund, A., & Strømme, T. A. (2019). Transformative agency in teacher education: Fostering professional digital competence. *Teachers and Teacher Education*, 86, 1–15. <https://doi.org/10.1016/j.tate.2019.07.005>.
- Collins, A., & Halverson, R. (2010). The second educational revolution: Rethinking education in the age of technology. *Journal of Computer Assisted Learning*, 26(1), 18–27.
- Csapó, B., & Funke, J. (2017). *The development and assessment of problem solving in 21st-century schools*. OECD Publishing.
- Deneen, C., & Boud, D. (2013). Patterns of resistance in managing assessment change. *Assessment and Evaluation in Higher Education*, 39(5), 577–591. <https://doi.org/10.1080/02602938.2013.859654>.
- Drake, J. R. (2012). A critical analysis of active learning and an alternative pedagogical framework for introductory information systems courses. *Journal of Information Technology Education: Innovations in Practice*, 11, 39–52.
- Drew, C. (2017). Edutaining audio: An exploration of education podcast design possibilities. *Educational Media International*, 54(1), 48–62. <https://doi.org/10.1080/09523987.2017.1324360>.
- Emirbayer, M., & Mische, A. (1998). What is agency? *American Journal of Sociology*, 103(4), 962–1023.
- Etelepälto, A., Vähäsantanen, K., Hökkä, P., & Paloniemi, S. (2013). What is agency? Conceptualizing professional agency at work. *Educational Research Review*, 10, 45–65. <https://doi.org/10.1016/j.edurev.2013.05.001>.
- Forbes, D., & Khoo, E. (2015). Voice over distance: A case of podcasting for learning in online teacher education. *Distance Education*, 36(3), 335–350. <https://doi.org/10.1080/01587919.2015.1084074>.
- Gresalfi, M., Martin, T., Hand, V., & Greeno, J. (2009). Constructing competence: An analysis of student participation in the activity systems of mathematics classrooms. *Educational Studies in Mathematics*, 70(1), 49–70.
- Haapasaaari, A., Engeström, Y., & Kerosuo, H. (2014). The emergence of learners' transformative agency in a Change Laboratory intervention. *Journal of Education and Work*, 29(2). <https://doi.org/10.1080/13639080.2014.900168>.
- Hontvedt, M., & Arnseth, H. C. (2013). On the bridge to learn: Analysing the social organization of nautical instruction in a ship simulator. *International Journal of Computer-Supported Collaborative Learning*, 8(1), 89–112.
- Jordan, B., & Henderson, A. (1995). Interaction analysis: Foundations and practice. *The Journal of the Learning Sciences*, 4(1), 39–103.
- Kerosuo, H. (2017). Transformative agency and the development of knotworking in building design. In M. Goller, & S. Paloniemi (Eds.), *Vol. 20. Agency at work, an agentic perspective on professional learning and development* (pp. 331–349). Springer International Publishing.
- Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education*, 9(1), 60–70.
- Linell, P. (1998). *3. Approaching dialogue: Talk, interaction and contexts in dialogical perspectives*. John Benjamins Publishing.
- Lipponen, L., & Kumpulainen, K. (2011). Acting as accountable authors: Creating interactional spaces for agency work in teacher education. *Teaching and Teacher Education*, 27(5), 812–819.
- Lucas, H. C., Jr. (2016). *Technology and the disruption of higher education*. World Scientific.
- Ludvigsen, K., Ness, I. J., & Timmis, S. (2019). Writing on the wall: How the use of technology can open dialogical spaces in lectures. *Thinking Skills and Creativity*, 34, Article 100559.
- Lund, A., Furberg, A., Bakken, J., & Engelen, K. L. (2014). What does professional digital competence mean in teacher education? *Nordic Journal of Digital Literacy*, 9(4), 280–298.
- Lund, A., Furberg, A., & Gudmundsdottir, G. (2019). Expanding and embedding digital literacies: Transformative agency in education. *Media and Communication*, 7(2), 47–58. <https://doi.org/10.17645/mac.v7i2.1880>.
- Lund, A., & Vestøl, J. M. (2020). An analytical unit of transformative agency: Dynamics and dialectics. *Learning, Culture and Social Interaction*, 25, 1–9. <https://doi.org/10.1016/j.lcsi.2020.100390>.
- Mäkitalo, Å. (2016). On the notion of agency in studies of interaction and learning. *Learning, Culture, and Social Interaction*, 10, 64–67. <https://doi.org/10.1016/j.lcsi.2016.07003>.
- McHugh, S. (2016). How podcasting is changing the audio storytelling genre. *The Radio Journal – International Studies in Broadcast & Audio Media*, 14(1), 65–82.
- Middleton, D., & Brown, S. (2005). The social psychology of experience. In *The social psychology of experience*. SAGE Publications.
- Petraglia, J. (1998). *Reality by design: The rhetoric and technology of authenticity in education*. Lawrence Erlbaum.
- Pifarré, M., & Kleine Staarman, J. (2011). Wiki-supported collaborative learning in primary education: How a dialogic space is created for thinking together. *International Journal of Computer-Supported Collaborative Learning*, 6(2), 187–205.

- Quellmalz, E. S., Timms, M. J., Buckley, B. C., Davenport, J., Loveland, M., & Silbergliitt, M. D. (2012). 21st century dynamic assessment. In M. C. Mayrath, J. Clarke-Midura, & D. H. Robinson (Eds.), *Technology-based assessments for 21st century skills. Theoretical and practical implications from modern research* (pp. 55–89). Information Age publishing.
- Redecker, C. (2017). European framework for the digital competence of educators: DigCompEdu (No. JRC107466). <https://ideas.repec.org/p/ipt/iptwpa/jrc107466.html>.
- Sannino, A. (2015a). The emergence of transformative agency and double stimulation: Activity-based studies in the Vygotskian tradition. *Learning, Culture, and Social Interaction*, 4, 1–3. <https://doi.org/10.1016/j.lcsi.2014.07.001>.
- Sannino, A. (2015b). The principle of double stimulation: A path to volitional action. *Learning, Culture and Social Interaction*, 6, 1–15.
- Sannino, A., & Engeström, Y. (2017). Relational agency, double stimulation, and the object of activity: An intervention study in a primary school. In A. Edwards (Ed.), *Working relationally in and across practices. A cultural-historical approach to collaboration* (pp. 43–57). Cambridge University Press.
- Schofield, J. W. (1993). Increasing the generalizability of qualitative research. In M. Hammersley (Ed.), *Social research: Philosophy, politics and practice* (pp. 200–225). SAGE.
- Silseth, K., & Arnseth, H. C. (2011). Learning and identity construction across sites: A dialogical approach to analysing the construction of learning selves. *Culture & Psychology*, 17(1), 65–80.
- Silvermann, D. (2011). *Interpreting qualitative data: A guide to the principles of qualitative research*. Sage.
- Virkkunen, J. (2006). Dilemmas in building shared transformative agency. *@ctivités*, 3(1), 43–66.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Wegerif, R. (2013). *Dialogic: Education for the internet age*. Routledge.
- Yin, R. (2010). Analytic generalization. In A. J. Mills, G. Durepos, & E. Wiebe (Eds.), *Encyclopedia of Case Study Research* (pp. 21–23). SAGE Publications.