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Citation for the published paper:

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European Journal of Teacher Education, 2010, Vol. 33, Issue: 3, 309-322

DOI: 10.1080/02619761003767882

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Routledge, Taylor & Francis Group

E-portfolios in Teacher Education 2002–2009: The social construction of discourse, design and dissemination

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Abstract

This paper reports on a study of the experiences of teacher educators in the introduction and development of e-portfolios over an eight-year period from 2002 to 2009 at a Swedish university. The study was conducted with 67 teacher educators in order to investigate how e-portfolios have been discussed, designed, used and disseminated during this period. Research methods involved 25 narrative interviews and a questionnaire that was completed by 42 participants. The theoretical framework of Basil Bernstein, particularly his concepts of classification, framing, educational codes and pedagogical devices, was used to analyse the data. The paper presents a discussion of the contextual circumstances in relation to classification, framing and codes that affect the social construction of e-portfolios. The results point to parallel processes resulting in a variety of discourses and designs of e-portfolios and highlighting the importance of the social construction of e-portfolio across the Teacher Education faculty, rather than merely its implementation.

Keywords: e-portfolio, teacher education, social construction, discourse, design

Introduction

The use of e-portfolios in teacher education programmes has increased in recent years in many European and other countries around the world. In addition to pedagogical aims, the driving forces behind this development are often described in terms of the need to meet national standards, address issues of accreditation, or improve quality (Butler, 2006; Dysthe & Engelsen, 2008; Strudler & Wetzel, 2005; Woodward & Nanlohy, 2004)

Despite the Bologna process, the international trend of introducing e-portfolios into teacher education programs, and the EU recommendation on using ICT for lifelong learning (European Parliament, 2006), the Swedish national agency for higher education has not taken any steps to encourage teacher education institutions to develop the use of these tools. By tradition, Swedish teacher educators are free to choose methods for teaching and assessment; as such the use of e-portfolios depends on initiatives by local advocates and enthusiasts. As a result of one of these local initiatives dating back to 2002, this particular Swedish university has introduced the use of e-portfolios to all student teachers (about 3,000 student teachers in total) throughout their general education courses. During the same period of time, different initiatives have been taken by individual teacher educators and teacher teams to use e-portfolios in a variety of courses, particularly in distance education courses. In addition to the use of e-portfolios in general education courses, this paper focuses on a selection of pre-service and in-service courses in mathematics, creative studies, literacy and didactics. The study looks into how e-portfolios have been discussed, understood and designed during this period of time.

Aim and research questions

The aim of the study was to investigate how e-portfolios have been communicated, designed, and disseminated within teacher education courses at this particular university from 2002 to 2009.

The questions arising from this study are as follows:

- How can the design of e-portfolios be described and understood in relation to teacher educators understanding and communication of e-portfolios?
- How can the dissemination of e-portfolios in the context of teacher education be described and understood?

Background

The following section first discusses the relationship between the general purposes and genres of e-portfolios. It then focuses on the context of teacher education, examining e-portfolios as a means of supporting learning and assessment. The section concludes by examining the implementation of e-portfolios.

E-portfolio purposes and genres

Portfolios can be categorised into different genres depending on their purpose: as *process*, *reflective* or *learning portfolios* for encouraging student teachers to reflect on their learning process supported by teacher educators' formative assessment; as *credential* or *accountability portfolios* for assessing student teachers summatively; and finally, as *marketing portfolios* or *showcases* for showing student teachers' accomplishments to future employers (Barrett & Carney, 2005; Butler, 2006; Zeichner & Wray, 2001). Furthermore, there is no general agreement on these genres. Portfolios can be seen as chameleons that shift their colours depending on their purpose and pedagogical design (Dysthe, 2003). For example, Dysthe & Engelson (2008) stated that the Norwegian e-portfolio initiative in teacher education does not correspond to any of these e-portfolio genres, and have described this as a "learning and assessment portfolio".

E-portfolio, designed for learning and assessment in teacher education

E-portfolios are often related to a constructivist approach to knowledge and learning (Butler, 2006). The use of such e-portfolios focuses on the student teachers' learning process and knowledge production (rather than reproduction). Student teachers' progress can be documented, described and reflected on through an e-portfolio process. Furthermore, a socio-cultural perspective is often adopted in relation to e-portfolio initiatives. Knowledge as well as learning is viewed as situated, social, distributed and mediated, and as a result dependent on participation in communities of practice (Dysthe, 2003). The socio-cultural perspective implies communication and feedback from others, student teachers as well as teacher educators and e-portfolios afford open environments in which it is easy to publish texts, pictures or multimedia in order to invite teacher educators to provide formative assessments. Studies have shown that the development of e-portfolios can enhance student teachers'

professional learning process and their ability to reflect on their work (Beck & Bear, 2009; Hauge, 2006; Mansvelder-Longayroux, Beijaard & Verloop, 2007; Pelliccione & Raisen, 2009). The same studies point out that in order to succeed, student teachers need training and support in their reflective work. The importance of teacher presence and supportive feedback during the learning process is highlighted. Hattie and Timperley (2007) conclude that feedback has the most critical influence on students' learning. On the other hand, student teachers' achievements must be assessed summatively in relation to local or national standards. In addition to focusing the learning process, e-portfolios may serve the assessment of student teachers, and different designs to carry out summative assessments of e-portfolios are presented in the literature (Dysthe & Engelsen, 2008; Strudler & Wetzel, 2005). E-portfolios are not ideologically independent, and have different purposes when it comes to assessment. Barrett (2007) addressed the conflicting forms of assessments that e-portfolios are meant to serve, such as summative assessing in relation to national or institutional goals on the one hand, and supporting learning through formative assessment on the other. E-portfolios have been caught between the idea of documenting and supporting student teachers' learning processes and the demands in terms of assessing their reproduction of knowledge.

Initiating the use of e-portfolios in teacher education

Developments involving the implementation of portfolios or e-portfolios are described in the international literature, and there are several examples of initiatives at the national level that demand or encourage teacher education institutions to use portfolios to ensure quality standards and/or support student teachers in lifelong learning (Butler, 2006; Dysthe & Engelsen, 2008; McAllister, Hallam & Harper, 2008; Strudler & Wetzel, 2005; Wray, 2007)

The implementation of e-portfolios in teacher education is described as a complex process that involves, for example, technical, pedagogical and ideological issues, and generates questions related to assessment, ownership and purpose. Barrett & Carney (2005) pointed out that since portfolios can have such different purposes and characteristics there is a need to define what kind of portfolio should be used before the implementation process is initiated. There is reason to regard the genre of e-portfolios as "under construction", Goodson (2007) pointed out that we are, as we speak, shaping an emerging genre of e-portfolios. Furthermore, Butler (2006) describes success criteria for introducing e-portfolios as a process of planning during which answers to several "what, why and how" questions need to be answered. A common understanding of the purpose and design of e-portfolio needs to be established. This points to the importance of a process of construction rather than implementation.

Methodology

Pedagogical concepts such as e-portfolios cannot be considered objectively; rather, they are interpreted and socially constructed by teacher teams. In turn, individual understandings of these constructs influence the teacher educators' experiences and actions. Taking constructivism as an epistemological starting point and aiming to understand the process of development and dissemination of e-portfolios from the teacher educators' perspectives, a hermeneutical approach focusing on interpretation and understanding was chosen (Ricoeur, 1976).

Both quantitative and qualitative methods were used in order to investigate teacher educators' understanding of e-portfolios and the circumstances that influenced their way of discussing, creating and engaging them. Narrative interviews, questionnaires, course plans and study guides constitute the data of the study. Thematic content analysis was used to structure the data, after which theory was used to analyse the defined themes through the helix of hermeneutics. A more detailed account of these theories is given in the following section.

Methods

Ever since the introduction of e-portfolios at this teacher education institution in 2002, they have been organised as a part of the existing Learning Management System (LMS) FirstClass, and through this system the courses and teacher educators using e-portfolios could be identified. During 2008 and 2009, thirty teacher educators, working in these courses and using e-portfolio, were invited to take part in semi-structured interviews. Twenty-five teachers from five departments in the faculty of teacher education volunteered to take part. During these interviews the teachers were asked to describe their understanding of e-portfolios, their experiences in working with them and how the concept had been discussed in the context of teacher education. The interviews were recorded and transcribed. Among the teacher educators who were not invited to the interviews, sixty randomly chosen teacher educators working at the five departments were asked to complete a digital questionnaire seeking similar information; 42 responded. Accordingly, a total of 67 teacher educators are represented in this study.

As thematic content analysis was used, the first reading aimed to form themes and to find theoretical concepts suitable for analysing the data. From this reading, the following themes were formulated: the *context* of teacher education, the *discourse* of e-portfolios, defined as the teacher educators' ways of discussing and understanding e-portfolios (Winther-Jørgensen & Phillips, 2000) and the *design* of e-portfolios in this particular context. In the next step, key sentences and concepts describing the interviewees' experiences and understandings of the three themes were selected and analysed. In their narratives, the teacher educators very much related their understanding and designing of e-portfolios to contextual and social aspects. Accordingly, the following theoretical concepts were chosen as the framework. To illuminate the construction of e-portfolios in relation to teacher educators' understanding of the concept and teacher education as an educational context, data were analysed in light of Bernstein's theories on educational code, classification and framing (1977, 2000). Furthermore, the theory of social construction (Berger & Luckmann, 1966) was used to develop understanding in the process of the construction of e-portfolios in teacher education. A more detailed account of these theories is provided in the following section.

Ethical Issues

All necessary ethical requirements set by the University and as outlined by the Swedish Research Council (2001) were followed in this study. Accordingly, the aspects of beneficence, non-maleficence, informed consent and anonymity have been taken into account in planning and carrying out the study, and approval for the research design was achieved at the appropriate level of the organisation. The author is employed as an information and

communication technology (ICT) teacher educator at the University, but has not taken any active part in the courses concerned.

Theoretical framework

For the purposes of this study a selection of concepts from the comprehensive theoretical framework of Basil Bernstein has been applied to the analysis. In particular, Bernstein's (1977) concepts of classification, framing and codes are used to analyse the first theme - the context of teacher education. Classification concerns the relationship between categories of, for example, agencies, school subjects, teachers, discourse and practises. Depending on the degree of insulation between categories, classification is considered to be strong or weak. Strong classification between school subjects implies that they should be kept apart (e.g., mathematics, chemistry, and history). Weak classification may, for example, initiate the integration of subjects and teachers. Attempts to change the degree of insulation reveal the power relationship on which the classification is based (Bernstein 2000). The concept of framing is about "who controls what". For example, weak framing in school contexts gives teachers more freedom to choose content, methods, pace, etc. If the framing is strong, national and/or local regulations leave limited autonomy for teachers to be innovative in their classrooms.

Bernstein (1977) also introduced the idea of educational codes. He considered the European way of organising education as strongly classified regarding subjects, teachers and classes, and strongly framed concerning the power of national control of content and methods. Consequently, the educational code could be described as a collection code, where everything should be kept apart. Bernstein identified the opposite—an educational code with weak classification and framing, as an integrated code.

Additionally, Bernstein (2000) introduced the concept of "pedagogical device" in order to bring some understanding to the process by which knowledge and competencies from outside the school context become school subjects (e.g., how "carpentry" becomes "woodworking"). Bernstein described this process as a re-contextualisation during which a pedagogical discourse of "woodworking" is created to constitute the basis of the practice of woodworking; in other words, when, what and how the pupils learn. E-portfolio in teacher education is to be considered as a tool or a method, rather than a subject. However, the history of e-portfolios started outside of the context of teacher education (especially in the professional field of schools); and teacher educators and policymakers have brought the concept into teacher education. This process can, according to Bernstein, be understood as a re-contextualisation, during which a pedagogical discourse and design of e-portfolios is socially constructed, affected by the ideology of the new context.

The study also draws on the work of Berger and Luckmann (1966), who introduced the idea of social construction, arguing that institutions such as those within the educational system are socially constructed rather than being anything natural and predetermined. In order to describe the process of social construction, Berger and Luckmann (ibid) used concepts such as *externalisation*, *objectification*, *internalisation*, *legitimation* and *socialisation*. The institutions or educational system manifested in, for example, Bernstein's educational code, are constructed by a social process through which our thinking, understanding and behaviour *externalises* and *objectifies* into an object which we take for granted. As humans, we

internalise the institution by adapting to appropriate roles, and the educational system becomes *legitimised* (i.e., explained and justified). The educational system will thus become socially constructed and re-constructed as more people are *socialised* into the educational context.

Results

The results are presented thematically: the *context* of teacher education, the *discourse* defined as the teacher educators' common understanding of e-portfolios, and the *design* of e-portfolios. The names are fictitious and the quotes are gleaned from interviews as well as questionnaires, and are chosen to be representative of all or an identified group of informants.

The context

During the main part of this study the teacher education programme at this particular university was organised as a faculty of five departments responsible for their specific fields. The teacher education programmes consist of subject courses, didactic courses suited for different programs, general education courses that concern all student teachers, and teaching practise. These general education courses are organised as joint courses in which at least two of the five departments collaborate.

All informants, that is, interviewees as well as questionnaire respondents, described a situation of strong classification between departments, teacher teams and courses; as Tony expressed: *"We never meet, and we need to meet"*. Lisa added: *"It is only when you share courses with other departments you get an insight into their ideas, besides that you know nothing"*. Even within departments, a majority of the informants describe the context as "somewhat classified". Gwen pointed out that *"Different teacher educator categories at our department are rather isolated islands. I am not sure about how they teach or assess"*. With a few exceptions, the informants expressed a lack of formal pedagogic discussions. Ben explained: *"It is mainly when we plan our courses that we can be involved in pedagogical discussions"*.

There are no national or faculty instructions about how to teach or assess. The formal framing is weak and the teacher educators are free to construct their own ways of teaching. However, a majority of the interviewees pointed out there is an informal framing manifested in the present educational code. Diana said: *"There is a strong tradition of summative assessment, to focus on final products"*. Linda added: *"The ideology of higher education does not pay any attention to processes of creation and learning"*. Besides focusing on and assessing final products the code could be described as solving assignments in the "right way". This educational code, a collection code, is socially constructed and re-constructed by teacher educators as well as student teachers. Peter explained: *"Student teachers are generally very much focused on concluding the products and then leave them behind. But why shouldn't they, that has been their situation in school for many years"*. Some student teachers react when the collection code is challenged, as Susan expressed: *"Some student teachers get frustrated when I give them challenging feedback. They just want to know if they have passed or failed"*.

The history of e-portfolios in the context of teacher education at this university can be traced back to at least 2002, before which point there had been no tradition of using

portfolios, paper or digital. At this time, teacher educators from three departments were assigned to organise an ICT-supported supplementary distance teacher education programme. Each of the teacher educators in this small group had experience working with portfolios, and e-portfolios were chosen as their method for learning and assessment. These teacher educators have continued to develop their use of e-portfolios and their experiences have been useful for developing e-portfolios in shared courses at other departments.

At about the same time in 2002, and as an initiative from ICT teacher educators and management, all student teachers at campus were introduced to digital portfolios in their first general educational course. The idea was that these e-portfolios would be used to document the learning process throughout their education. By 2009, in addition to the ordinary campus teacher training program, one can find the use of e-portfolios in pre-service, in-service, distance and campus courses in, for example, creative work, didactics, English, literacy, mathematics, ICT, and Master's studies.

The discourse

In analysing the data one can conclude that there is no common understanding of the concept of e-portfolio. Descriptions vary from a digital archive to a complex method for learning and assessment. However, all informants, that is, interviewees as well as questionnaire respondents, used concepts such as: “areas”, “spaces”, “folders”, and “rooms” that are “available”, “reachable”, “accessible”, and “readable” to describe e-portfolio. Therefore, the “lowest common dominator” of an e-portfolio discourse describes e-portfolio as a tool, a digital area available to student teachers and their teachers. Among the informants, there was a small group of six teacher educators who did not consider e-portfolios to be anything more than a virtual area. As Mike described: “*E-portfolio is a digital space, not a pedagogical issue*” (Figure 1, A).

With few exceptions, all interviewees were aware of e-portfolios as a method used in the school context, and two-thirds of the interviewees had former experiences working with portfolios outside teacher education. These experiences merely concern portfolios as showcases in schools, by which pupils showed their parents their achievements, or in professional contexts supporting creative work. Bernstein (2000) pointed out that re-contextualisation is never ideologically free. In this case, when these teacher educators transformed their understanding and experiences of portfolios into higher education the issue of assessment became important since grading students is a significant part of the higher education system. Except for a group of teachers that described e-portfolios solely as a digital space, all interviewees referred to concepts such as “summative assessment”, “control”, “checking”, “grading”, “pass or fail” in their understanding of e-portfolios. This widened discourse sees e-portfolios as tools and methods for assessment (Figure 1, B). This way of understanding e-portfolios is in line with the collected educational code, as it is focused on final products that are summatively assessed.

Almost half of the interviewees distinguished strongly between e-portfolio as a tool merely for assessment and e-portfolio as a pedagogical method for learning and assessment. When this group of teacher educators explained their idea of e-portfolios they referred to concepts such as “lifelong learning”, “process-based learning”, “process of knowledge

construction” gained by “integrating assignments”, “reflecting upon the whole”, “combining course content”, “linking or weaving everything together”.

These teacher educators serve as representative examples. Betsy explained: *“Portfolios are about weaving together your pre-understanding with new ideas, tasks, reflections, group work etc. to something new, your new understanding”*. Mary continued: *“I do not want them to reflect over just a single task, they need to hover like a helicopter and reflect over the whole field, all assignments.”* Meg added: *“Nothing in the portfolio should ever lie fallow, all artefacts should be used and re-used. It is like the idea of recycling.”*

These teacher educators’ contributions to an e-portfolio discourse widen the discourse to correspond to a more integrated educational code that keeps artefacts, processes and knowledge together (Figure 1, C).

Figure 1. Three identified borders between e-portfolio discourses: as an archive (A), for summative assessment (B) and as a portfolio for learning (C).

These three discourses are embedded in one another. Teacher educators who described their understanding of portfolios as a method for learning (Figure 1, C) include portfolios as a way of assessing the student teachers (Figure 1, B) and all teacher educators discussed e-portfolio as an accessible area for artefacts (Figure1, A).

The discourse of e-portfolios for learning (Figure 1, C) is socially created within small groups of teacher educators. Their understanding and use of e-portfolios challenges the collection educational code represented by the discourse of understanding e-portfolio as a tool for assessment. This clash reveals the power relationship between these discourses. At some departments the use of e-portfolios for learning and assessment had low status compared to other methods such as final written exams and seminars. As Mary described: *“When I started to use portfolios in 2002 some colleagues criticised me for being fooled, pointing at portfolios as merely fad and fashion”*. The construction of e-portfolios began in parallel with the creation of ICT-supported distance courses. The distance education discourse, which employed ICT as a tool for bridging physical distance, overcame some of the resistance towards e-portfolios. Some interviewees described the use of e-portfolios as having spread to the campus courses over time. As Lucy explained: *“When we introduced the distance courses,*

e-portfolio became necessary” Susan added: “After a while we decided to use e-portfolios in the same way in campus courses, these student teachers have the same need for support.”

The design

This section presents different designs of e-portfolios in courses and/or programs in teacher education. In-service, pre-service, distance as well as campus courses are represented as examples that are chosen to give a picture of how the different discourses on e-portfolios have been manifested in the different designs. In order to increase the internal validity, the interviewees’ narratives describing their e-portfolio designs have been triangulated using course plans, course guides and observations of e-portfolio design in the virtual environments.

(A). E-portfolios as an archive: An add-on tool

The campus teacher education programs could serve as one example of a situation in which e-portfolios are considered as an add-on tool, rather than strongly classified within the framing of the course itself (although sometimes being an integrated part). Student teachers who start their training with the first general education course are introduced to working with e-portfolios by ICT teacher educators. The assignments (a_1 , a_2 in Figure 2) have in recent years become all that participating teacher educators have tasked to assess. However, the course itself is not designed to suit e-portfolio as a method for learning. The general educational course includes all students, and the teacher team working with the course consists of many teacher educators from several departments. According to the interviewees, e-portfolios are not discussed as a pedagogical method and the least common understanding of e-portfolios corresponds to a rather “narrow” discourse that defines e-portfolios as archives. Depending on the student teachers’ own choices, the courses could be given by different departments. Since the classification between departments, teacher teams and courses is strong, there is neither a common agreement on the use of e-portfolios nor a discourse regulating how to use them. James, who taught a group of second-year-student teachers, said: *“I did not know that my student teachers had e-portfolios. They [the students] told me when the course started, however I had not prepared any assignments that could suit the use of e-portfolio.”* Since the framing is weak when it comes to methods it depends very much on the teacher educator if the e-portfolios are used at all in the course and if they are used merely as archives, for assessment or learning.

Figure 2. Successive courses in the campus teacher education program. E-portfolios are introduced in the first general education course and thereafter used when teachers/teacher teams choose to do so. a_n = artefact, assignment

(B). E-portfolios as a tool for assessment

Among the in-service and pre-service, campus and distance program courses, there are examples of e-portfolios used merely for summative assessment. This design is built on a discourse that addresses e-portfolio as a tool for assessment. The assignments are adjusted to suit a digital environment involving text, digital pictures and multimedia. The design focuses on final products and the e-portfolios are used as channels for communication between student teachers and assessing teacher educators (Figure 3).

The use of assessment portfolios can be seen in single courses as well as in successive courses in programs. A common characteristic for the teacher teams using e-portfolios throughout a program is that the teams themselves are relatively small, consisting of, for example, two to six teacher educators who have planned the course/courses together and discussed how to use the e-portfolios. In the situation where there are successive courses within a programme, at least a small number of these teacher educators worked in all of them, bridging the strong classification between courses and teacher teams. As Pat explained: “*We decided to work like this, when new teacher educators have come to these courses they have had to adjust to this way of working.*” The classification between the assignments varies, however it may be considered as rather strong in relation to the situation that the assignments do not relate to one another to any greater extent. However, there are examples of courses in which the student teachers, for example, are assigned to evaluate their learning or integrate earlier assignments into a given task.

Figure 3. Successive courses within a teacher training program or single in-service/pre-service courses. E-portfolios are used for assessment and work as main thread throughout the course/program. a_n = artefact, assignment

(C). E-portfolio as a method for learning and assessment

Among the interviewees there are teacher educators and teacher teams who have used and discussed e-portfolios for a comparatively long time. A discourse on e-portfolios for learning and assessment has been socially created within these teams. These teacher educators have agreed on working towards a more open and integrated educational code. They have chosen to use e-portfolios as a method for learning and assessment, and have created and designed their courses in ways that fitted their portfolio discourse. As Nina explained: “*If you want the student teachers to focus on their learning process, you need to create assignments that suits the idea: [To look back, reflect and weave everything together]*”. The following two examples of e-portfolio design show how the method of e-portfolio becomes embedded in the assignments as well as in the tool itself.

Example 1. This design can be found among the teacher training program for creative studies and didactic courses. The design varies, although the common concepts are the greater part. Student teachers start the course by creating individual goals or study plans. During the

course the student teachers are asked to keep private diaries/notes/logbooks to document their work. These documents form the basis for the course assignments, which are designed to support the student teachers in describing and reflecting on their work and the learning process, along with their creative work. At the end of the course, all student teachers create a final reflection that covers all of their assignments, including the private diaries, group work, and so on, in relation to their own goals/study plan (Figure 4). The classification between the assignments is very weak, and could easily be described as “kept together”. As Kate explained: “*All assignments, literature reflections are integrated. The concept of portfolio is interwoven into the tasks*” During the course, teacher educators support their reflective learning process by giving formative feedback. At the end, the teacher educators sum up the student teachers’ achievements holistically and grade the student teachers’ work.

Figure 4. One example of successive courses within a teacher training program or in single in-service/pre-service courses. The e-portfolio is designed for learning and assessment throughout the course/program

Example 2: This design was found in some literacy and didactic courses. These teacher educators have chosen to abandon the LMS and use a digital tool for PDP (Personal Development Planning), in which a portfolio is integrated instead. This PDP tool is normally used at the school level. In these courses, the student teachers publish their assignments in their e-portfolios and their reflective and evaluating work in their PDP. Teacher educators’ formative as well as summative feedback is also put in the PDP. The structure of the PDP supports the student teachers’ engagement in the portfolio method. The student teachers begin by describing their prior knowledge and creating goals for their learning. This affects how they work with their assignments, which are published in the portfolio. During the course they reflect on and relate the assignments to one another. In the end they finish up by creating self-evaluations in relation to their previous knowledge, goals and achievements. This method can be considered as integrated into the assignments as well as into the tool itself. As Meg explained: “*It becomes very natural when their work grows to be embedded in the tool*”.

All teacher educators from these teams had a time perspective on the social construction of an e-portfolio discourse. Influences and personal experiences from the 2002 teacher team, described earlier, can be traced in the interviewees’ narratives. As Judy explained: “*It has taken us several years because you have to change your way of understanding the learning process, the way you create assignments, the way you work together ...*”.

Figure 5. One example of an in-service/pre-service course. The e-portfolio and the PDP are integrated in the course and design for learning and assessment.

This way of blending formative and summative assessments is not seen as problematic by the interviewees advocating e-portfolios for learning and assessment. They do not find this situation unique for e-portfolios. As Amy explained: *“As a teacher you always have this two-faced role, to support your pupils [formative feedback] and assess them [summative feedback]. However in the classroom it is just the normal situation and you do not think about that as a problem”*.

As the results of this study show, the design of e-portfolios at this particular teacher education institution varies widely. One can also find course designs that are under construction to move from one of these categories to another. Furthermore, there are other perspectives on e-portfolios that are discussed. For example, along with the use of e-portfolios for assessment (B) and for learning (C), group portfolios are often used. A majority of the teacher educators who integrate e-portfolios in their courses pointed out the importance of supporting a socially constructed learning process. Ben expressed his wish: *“I would like them to create their artefacts in front of each other, that is the way we learn - together”*.

Discussion

This study has illuminated a weakly framed context regarding pedagogical methods that is strongly classified concerning teacher educators, teacher teams, courses, subjects and departments which does not facilitate the social construction of a common understanding of e-portfolios. On the contrary, a variety of “local” e-portfolio discourses are created and negotiated within small contexts such as teacher teams. Within these teams, teacher educators’ understanding and former experiences of portfolios contribute to the process of construction. During this re-contextualisation process, transforming portfolios from outside the context of higher education into teacher education, one creates different discourses pointing at e-portfolios as archives and as a method for assessment and/or learning. These discourses, representing different educational codes and pointing at different purposes, are manifested in their specific e-portfolio design. Within this context one can distinguish between e-portfolio genres such as “filing portfolio”, “assessment portfolio” and as Dysthe & Engelson (2008) defined, “learning and assessment portfolios”.

The discourse and design of learning and assessment portfolios represent an integrated educational code. This way of focusing on the learning process by weaving assignments and courses together interferes with the traditional way of organising higher education. Teacher educators and student teachers are generally socialised into a collection educational code that requires student teachers to produce, and teacher educators to assess, final products. This traditional collection educational code may be combined with e-portfolios merely for summative assessment, but not with e-portfolios for learning. Teacher educators advocating the use of portfolios for learning find themselves in a situation where they need to explain and justify their understanding and use of e-portfolios. It is evident that e-portfolios are not legitimised within the context of teacher education, although a practical need for e-portfolios to bridge physical distances has been shown to facilitate the construction process of e-portfolios. However, the dissemination is dependent on the engagement of individual teacher educators and teacher teams and their struggles with the traditional educational codes. As a result, the wider use of e-portfolios for supporting the learning process has been limited in this teacher education institution.

In conclusion it can be seen that e-portfolios *are* shifting colours like chameleons (Dysthe 2003), depending not only on purpose and design but also teacher educators' understanding of e-portfolios, the e-portfolio discourse that teacher teams can agree on, the context itself, the outcome of the struggle between educational codes, and the very course of time. The social construction of e-portfolio discourses and its design is an ongoing process. During this time, one can observe how e-portfolio discourses develop and e-portfolio designs move between e-portfolio genres. This is due in large part to teacher educators having gained experience and increased competencies with ICT. The process of shaping an emerging e-portfolio genre described by Goodson (2007) is truly present. However, the process will likely produce a variety of genres rather than one single e-portfolio genre. This is not a complete concept to be merely implemented but rather can be seen as a concept under construction and struggling for legitimacy.

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