Education policy agenda

PREPARE – Promoting reflective practice in the training of teachers using e-portfolios

December 2018

Table of Content

Preface

With the PREPARE project, an educational policy impulse was initiated to provide binding guidance and to promote reflection and self-regulated knowledge acquisition as components of robust self-competency and a lifelong professionalisation process. Aimed at interested teachers and institutions, this online publication contains a presentation of the project from a conceptual and result-orientated point of view, combined with two intentions: a) to further promote the dissemination of the project results and b) to intensify both the debate within education policy and the scientific research on the role and function of reflective practice in higher education and in an international context. This wiki contains predominantly descriptive presentation of the subject and its correlations. Due to the complexity of the matter, the authors refrained from using prescriptive formulations in the sense of specific instructions: All reflective practice and e-portfolios mirror individual organisational cultures and procedures and must therefore be adapted for their further use at local level.

The document can be used for a number of interests:

- for first insights into the project, conceptual references, disambiguation of project-specific terminology (chapter one)
- as an overview of the necessary framework conditions for the establishment and further development of e-portfolios (chapter two: Education policy agenda)
- for a differentiated discussion of individual framework conditions (chapter two: comments on the education policy agenda)
- for impact research (chapter three: Case studies)
- for insights into the institutional practice of individual project locations (chapter three)

If you prefer to work offline, simply download the PREPARE PDF manual.

Based on social video learning, e-portfolio work and learning analytics, the international project cooperation PREPARE aimed to identify innovative solutions for a problem detected in teacher training throughout German-speaking countries: a low level of reflective skills on the one hand and a lack of information on how to ascertain and remedy the need for instruction, guidance and support on the other hand. To this end, a teaching and learning model for a blended-learning setting was established. Chapter one of the online publication contains an outline of the concept using the PrepareCampus learning platform, which was developed for the project.

For a long-term, sustainable implementation of the teaching and learning model established in the project, an education policy agenda (chapter two) was drafted, followed by an explanation of the fundamental paradigm shift required to replace the one-sided, canonised notion of knowledge as something to be imparted exclusively through curricula with a more individualised approach that relies on training, guidance and coaching on the basis of complex information about learners in specific situations. The main challenges of this approach are illustrated in this online publication by means of scientific background information, explanations and comments (chapter two) on the different aspects of the proposed education policy agenda: on the teacher side, developing the willingness and ability to reflect, design tasks and handle feedback as the central action fields in teaching; on the student side, the strengthening of motivation to advance towards robust self-competency by means of self-

observation and by communicating with the teaching practice community as a prerequisite for the willingness to embark on a course of lifelong professionalisation; in terms of the educational institution, to place their organisational development at the service of the aforementioned stakeholders and their needs. Chapter three describes and evaluates the practical implementation potential of PrepareCampus by means of case studies at the project locations. On this basis, the closing remarks propose possibilities for the joint use and further development of PrepareCampus. The wiki used for this publication will serve to continue documenting the international cooperation efforts: As of now, it is no longer reserved for the project partners – it is now a communication platform open to anyone interested in cooperating. All readers are therefore warmly invited to join in!

Bolzano/Freiburg/Hamburg/Walferdange/Vienna, December 2018

Chapter 1: About PREPARE

Introductory remarks

The purpose of this chapter is to present the PREPARE project to the readers from a conceptual and result-orientated point of view using the PrepareCampus learning platform. It contains a definition of the terms and concepts used in the following chapters on the education policy agenda (chapter two), on the scientific contextualisation of individual aspects within the agenda (comments in chapter two) and in the context of case studies at the project locations (chapter three).

In a number of European countries, education is still orientated towards a canon of knowledge shaped by educational policy and culture and implemented through curricula. Much too often, the individual promotion of learners within the context of competency-orientated education propagated in recent years remains little more than an aspiration. One reason for this is that higher education institutions and teachers still do not have a sufficient notion of what students are capable of achieving individually in a particular training phase, what the competencies required in a specific action field (both in the occupational field and while studying) are or how those entering this action field deal with the requirements in a situational setting.

This is the point from which PREPARE departs. Based on video analysis, e-portfolio work and learning analytics – the collection and evaluation of information and data on the actions of learners to strategically optimise learning, teaching and the learning environment – , it aims to find a solution to the problem described above: the absence of information required to recognise the need for instruction, guidance and support in training and in the transition phases between training periods. In the process, it is irrelevant whether these individual needs must be identified among learners, as is the case in this project, in teacher training or in general and professional training. The solution approach developed by the PREPARE project is therefore marked by a high transfer potential aimed at enabling prospective teachers to adapt their professional actions to the ever-changing requirements of heterogeneous groups of learners.

However, the increasingly intensive discussion on learning analytics has shown that teaching-learning models simply cannot be implemented without the support of education policy-makers, since there is a need for a systemic shift – one that must be prepared intensively and with a long-term perspective by means of a cooperative effort between teachers, researchers and education administrators. The aforementioned paradigm change is still pending: The shift must lead away from the one-sided, canonised notion of knowledge as something to be imparted exclusively through curricula and run towards a more individualised approach that relies strongly on training, guidance and coaching on the basis of complex information about individual learners including information on the learners' biographies, typical learning actions, learning processes currently under way and anticipations as well as motivation with regard to future learning.

The PREPARE project links two concept design processes: the development of a digital learning environment based on video analysis, e-portfolio work and learning analytics and the formulation of an education policy agenda to be creative in facing the many challenges connected with both implementing a digital learning environment at institutional level and its individual, sustainable use. The main challenges concern the protection of privacy, data security, reservations about using digital media, a lack of information and knowledge management skills and the still wide-spread inadequacy of the technical conditions required

for efficient digital work. These issues are equally relevant for all target groups involved in the project: students/trainee teachers and teachers in the early stages of their career, teaching staff in seminars accompanying teaching practice, mentors at institutions providing teaching practice and, not least, representatives of local, regional and national school authorities, educational publishing companies and any other institution with an impact on education policy.

PREPARE initiates an impulse for education policy to provide binding guidance and promote reflection as well as self-regulated knowledge acquisition as components of a robust self-competency and a lifelong professionalisation process. The introductory practical training (start of studies), the specialisation practice (half-way through the studies), the professionalisation practice (final study phase) and the traineeship (*Referendariat*) in this particular occupational field are used to observe and illustrate the systemic shift necessary in the cooperation of students (peers), teachers and accompanying persons from the respective occupational field in a teacher training setting throughout all of the countries involved in the project, and to effectively set these mandatory systemic changes in motion. Moreover, the project offers a transferable solution for this need for reform not only in teacher training, but also in other training settings across the countries of the European Union.

Based on a comprehensive assessment of the role of reflective practice in the partner institutions involved in the project, a higher education didactic concept and a corresponding task design were devised. To implement it, a video- and e-portfolio-based teaching-learning system (PrepareCampus) was developed to promote reflection competency, teaching competency and the exchange of knowledge and practical experience on the basis of video analysis, e-portfolio work and learning analytics. The introduction and testing of PrepareCampus at the aforementioned project locations served to identify the need for action in education policy and to translate it into an education policy agenda to strengthen the reflective practice by means of e-portfolios.

It would exceed the scope of this introduction to the conclusive publication to deliver a scientific-theoretical classification of the PREPARE project within the discourse on the role of reflective practice in the form of (e-)portfolio work in teacher training, which has become increasingly prominent since the 2000s. This classification at scientific-theoretical level can be found in chapter two. At this point it would seem remiss not to mention the Anglo-Saxon discourse that since the late 1980s has dealt with the phenomena of transition and transfer in the stress field between schools, universities, vocational education and work, including continuing vocational training (i.a. Schön, 1987; Belanoff and Dickson, 1991; Graves and Sunstein, 1992; Blake, Yancey and Weiser, 1997; Cambridge and Williams, 1998, Cambridge et al., 2009). Yet another noteworthy development is the post-millennial emergence of a number of international organisations dedicated to the promotion of reflective practice and e-portfolios in North America, Australia and England: Electronic Portfolio Action and Communication Community of Practice (EPAC), Association for Authentic, Experiential and Evidence-Based Learning (AAEEBL), ePortfolio Australia and Centre for Recording Achievement (CRA). The magazine International Journal of ePortfolio (IJeP) has supported the establishment of this discourse for almost ten years. Following on from this – but also departing from a debate that has taken place in German-speaking countries since the 1990s on (paper-based) portfolio work in schools as an alternative to grades under the term *direkte Leistungsvorlage* or direct presentation of achievements (Vierlinger, 1999) –, since the early 2000s a special focus on portfolio work has been registered in teacher education: first paper-based and later with an increasingly electronic nature. This focus is expressed in the works of Koch-Priewe (et al., 2013), Miller and Volk (2013), Ziegelbauer and Gläser-Zikuda (2016) as well as Boos (et al., 2016).

Determining the status quo of the role of reflective practice

To determine the importance of reflective practice at the project partner sites, the context in which reflective practice is instructed, accompanied, implemented and evaluated was examined by means of the following research questions: What is expected of students in terms of reflection during their practical training in schools? Which course do these reflective tasks, their completion and assessment take within the university and in the individual actions of all those involved in practical trainings in schools? To answer these questions, a number of essential documents and procedures for the institutional direction of reflective practice in teacher training were identified, analysed (Literacy Management Analysis, cf. Bräuer, 2016: 74 f.) and evaluated with a differentiated approach (SWOT Analysis, cf. Kaplan and Norton, 2001). With the help of an online questionnaire, trainee teachers, teachers at universities and mentors at schools were asked about their experiences and findings in dealing with reflection as part of practical trainings in schools and different accompanying events. The survey results were then evaluated and interpreted in interviews with selected representatives of the three reference groups. These studies produced the following observations:

1) Literacy management for reflective practice, i.e. the way in which, for instance, training portfolios are created as a performance record, predominantly follows the traditional method of summative performance evaluation: The study or examination regulations require the student to create a portfolio. Portfolios are compiled individually and mostly without peer exchange or teacher feedback. The evaluation takes place in a formal manner and the completed portfolio does not proffer an occasion for further communication or action.

2) The training institutions have not provided a uniform task design for the existing reflection tasks, not least due to diffusely formulated or in fact a lack of standards for reflective practice, competency descriptions, success indicators and evaluation criteria.

3) The practical value of the reflective tasks that students can individually experience is limited to achieving the formal measurement of achievements based on selected points as mentioned in a). Therefore, the reflective practice is neither used to bridge the gap between (training) theory and (teaching) practice, nor is it seen as a potential link for ongoing training, entering into the occupational field and the continuing vocational training associated with it.

4) In terms of reflective practice formats, the dominant form continues to be evaluation interviews conducted directly at the practice location and paper-based portfolios as performance records for the university. Therefore those involved in reflective practice in teacher training – trainee teachers, university lecturers in the respective subject, local support staff and school mentors – are only able to coordinate their activities to a limited extent, create few synergy effects and rarely use them as long-term and strategic added value.

5) In light of the aforementioned circumstances, the trainee teachers' documents are characterised by a rather low reflective quality, which is predominantly limited to documenting activities and assessing their quality from an overall point of view rather than analysing professional actions in the context of occupation-related applied scientific theory and subject didactics, evaluating them in a criteria-guided approach and optimising them with the help of scientific findings.

The concept from a higher education didactics perspective

To counter the frictional losses in reflective practice identified in the location analyses, and in order to use portfolio work as a basis for formative, sustainable evaluation, PrepareCampus was developed: an electronic learning environment with the help of which reflective practice in the sense of a complex linguistic action is broken down into intermediate steps (cf. Levels of reflection) and instructed by means of feasible subtasks. The task design used follows a three-phase model (cf. The three-phase model) with the aim of initiating a special quality of learning and action between those involved in the PREPARE action system (cf. Social video learning initiated by task design). Because the interaction is digitally fixed, it is possible to capture the interaction data and the quality of action outlined in the portfolios. This can be used to shed a critical light on the effectiveness of the university-level didactic model and its technical design and, where necessary, to revise it (cf. Learning analytics – making social video learning visible and controllable). The following section will present the four aspects of the overall concept in greater detail. But to begin with, departing from a higher education didactics perspective, the model can be visualised as follows:
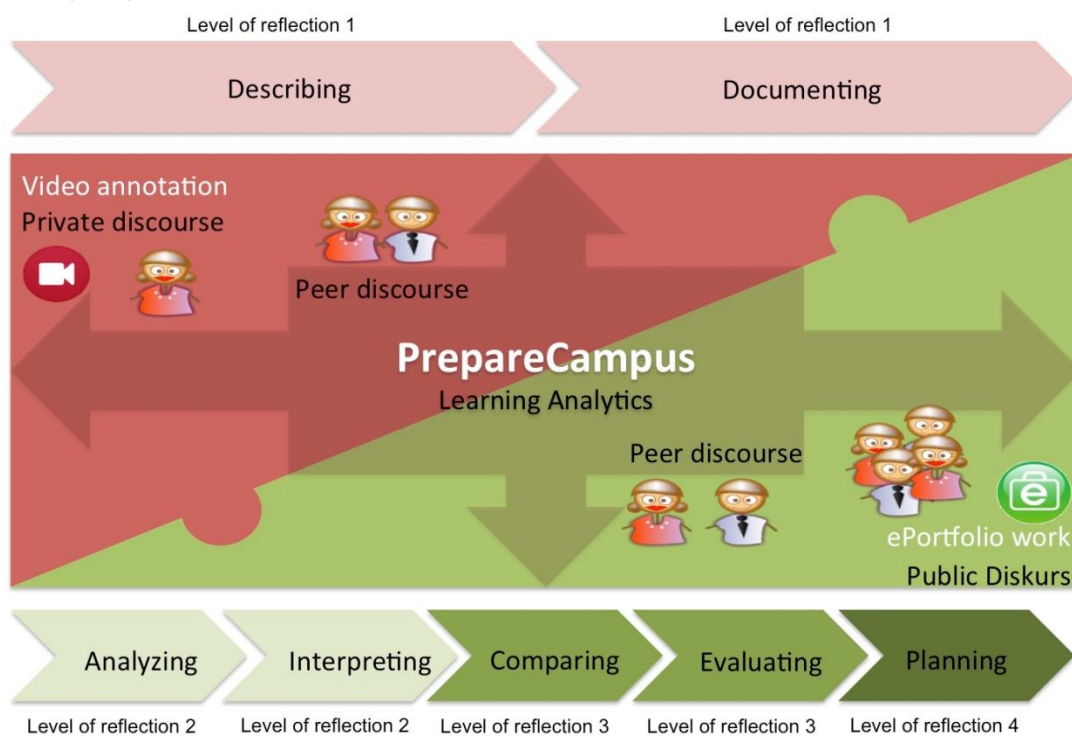
Fig. 1.1: PREPARE in the context of higher education didactics

Levels of reflection

In order to support the students in the mental process of reflection and in verbalising the reflected content, subtasks are formulated on the basis of the reflection model developed by Bräuer (2016). These subtasks refer to the respective context of action (e.g. describing the teaching situation documented in the video) on the one hand, and on the other hand they build a bridge to the next desired action (e.g. didactic or scientific analysis of a teaching competency observed in the video). Even if not all four levels of perception are captured by subtasks in every reflection, each reflection task represents potential material for the design of the e-portfolio – regardless of whether it is evaluated (presentation portfolio) or not (learning portfolio).
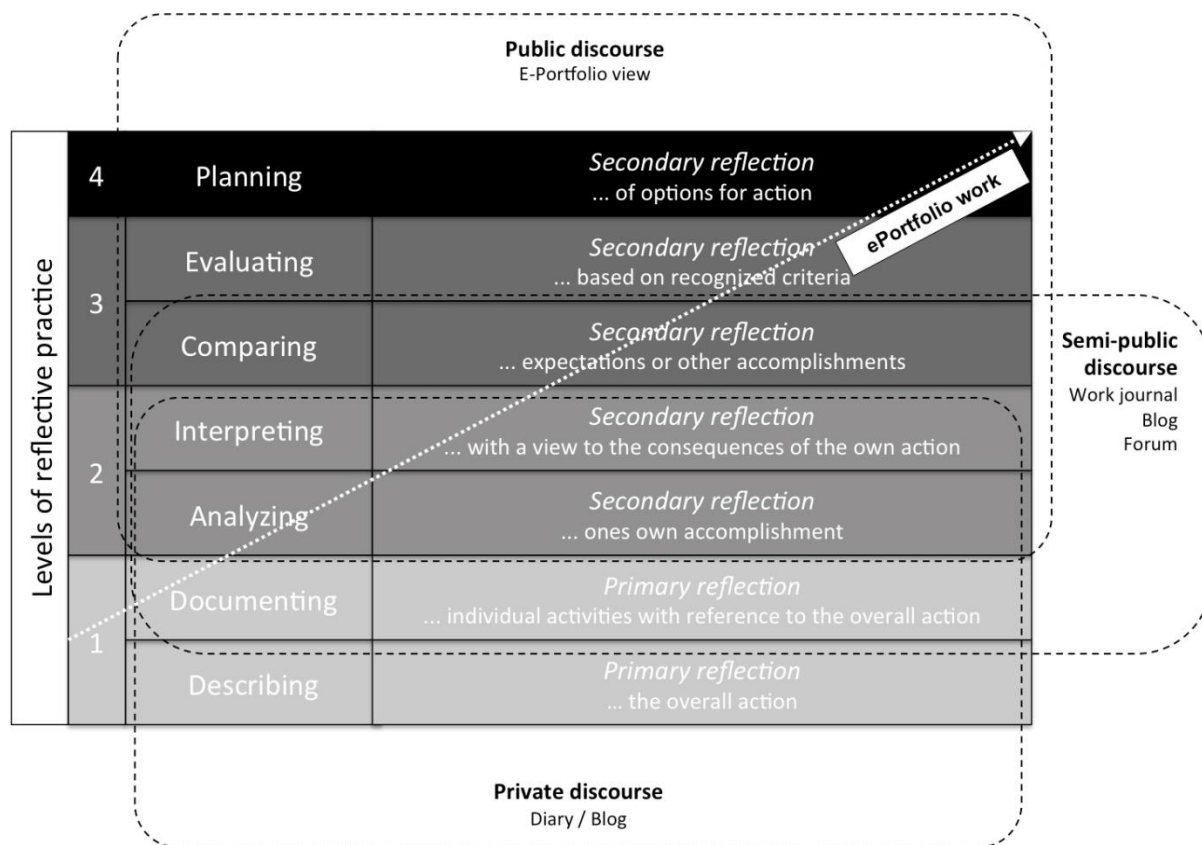
Fig. 1.2: Levels, discourses and media of reflective practice (Bräuer, 2016: 37)

The three-phase model

In the primary reflection phase (the area highlighted in red on the left-hand side of figure 1.1), the trainee teachers are given the tasks they are required to perform. Together with their teachers and/or mentors, they define the areas of observation (e.g. body language, assigning work etc.) that they plan to address in the observation and further reflection. The (short) units they teach are then recorded on video. Table 1.1 shows the three-phase model that refers to the video work on edubreak® as part of PrepareCampus:

Table 1.1: Primary reflection: video work on edubreak®

Meta-pattern	Process	Task design
Context	Observation task	Writing task (blog)
Problem, challenge	Identification and verbalisation of expectations in terms of observation	Writing task (blog)
Solution	Videography of the teaching actions	Recording of a video sequence (or use of a teaching video)

Stress field	Identification and verbalisation of strengths and weaknesses (personal SWOT analysis, comments by peers, SVL)	Video annotation
Consequences	Planning of future teaching activities	Presentation portfolio (on Mahara)

In the secondary reflection phase (the green part on the right-hand side of figure 1.1), the trainee teachers select parts of their videos that they consider to be particularly important with regard to the predetermined focal points of observation. In a second step, they assemble these fragmented parts to form an aggregated whole (e-portfolio view on Mahara as part of PrepareCampus) that they then focus on more closely with regard to the quality of action achieved and that which they envisage for the future. Table 1.2 explains the three-phase model for e-portfolio work on Mahara.

Table 1.2: Secondary reflection: e-portfolio work on Mahara

Meta-pattern	Process	Task design
Context	Selection of artefacts (edubreak®)	Writing task (e-portfolio on Mahara)
Problem, challenge	Analysis and interpretation of the selected artefacts	Writing task (e-portfolio on Mahara)
Solution	Evaluation and assessment of artefacts	Blog on Mahara
Stress field	Identification and verbalisation of strengths and weaknesses (personal SWOT analysis, peer feedback)	Self- and peer feedback (on Mahara)
Consequences	Planning of future teaching activities	Presentation portfolio (on Mahara)

Social video learning initiated by task design

Based on a practical example from the project site PH Wien (University College of Teacher Education in Vienna), the following is a presentation detailing how social video learning, a special interaction quality, is initiated through a distinctive task design. For the purposes of the example, social video learning is the situation-specific commenting and re-commenting of video-based action documentation, i.e. any written interaction on a video annotation platform between those who act within a joint action framework (in this case PrepareCampus) dealing with video recordings for the purpose of the (further) development of insights and findings (cf. Vohle and Reinmann, 2014). The learning analytics data obtained in the course of the

students' work on PrepareCampus will be used to make the quality of social video learning visible. This data will later be presented later in greater detail (cf. also figures 1.5 and 1.6). First, however, the task design will be explained briefly.

Figure 1.3 (below) shows a screenshot of edubreak®, the video annotation platform integrated into PrepareCampus. The still shows a video sequence annotated by peers and teachers using text comments and coloured dots on the timeline. The dots allow the participants to quickly locate the relevant video sequences. Based on the colour selected by the person commenting (green, yellow and red), the addressee can identify the inclination of the comment (green: praise, yellow: neutral, red: need for action). This creates the basis for prioritisation in the evaluation or further reflection.
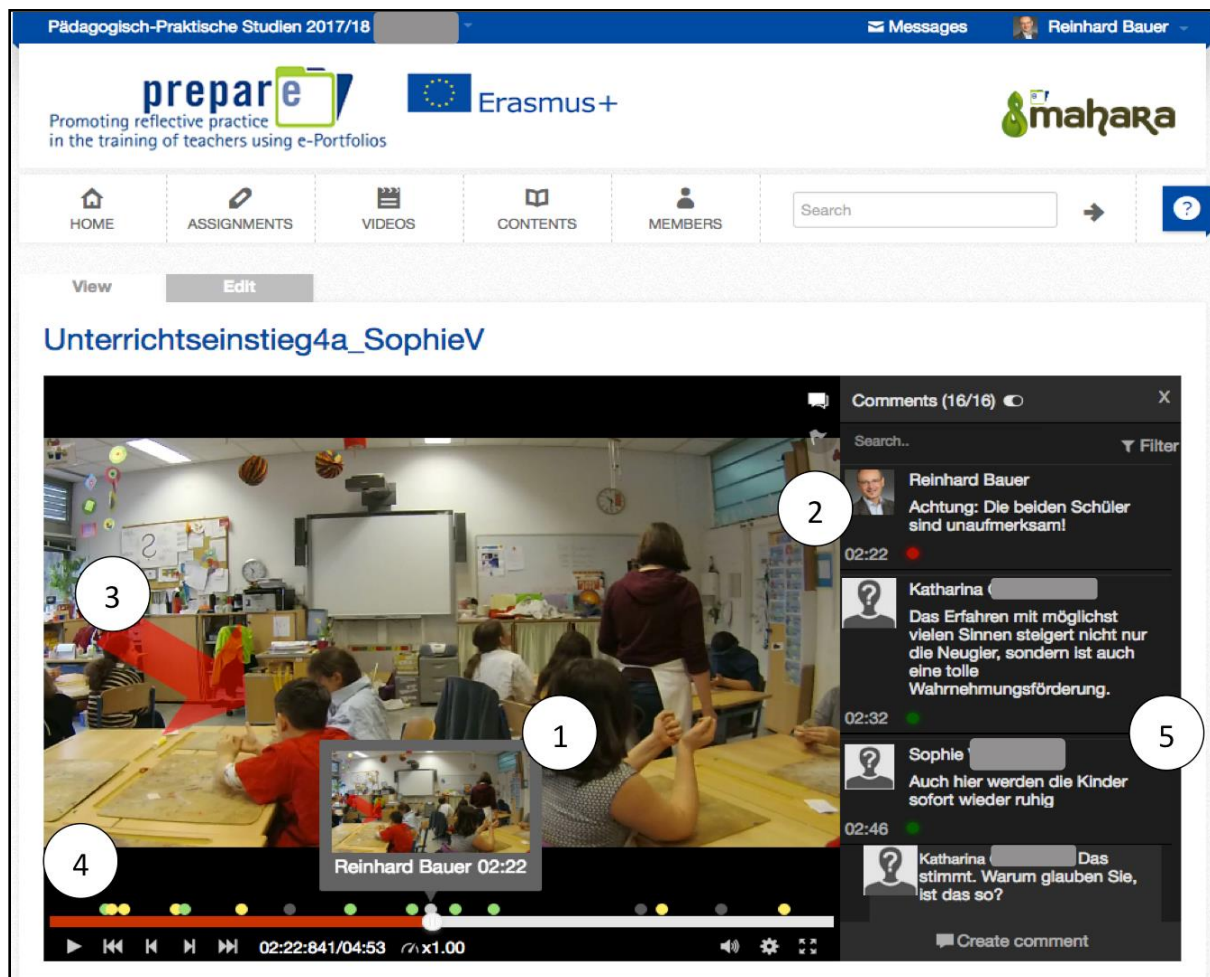
Fig. 1.3: Screenshot of an interaction on edubreak®. Students can use the edubreak®player to enhance their videos with time-stamp-based (1) written texts or annotations (2), drawings (3) and/or symbols (4) and share as well as discuss the video comments with others (5).

Social video learning was initiated by gradually increasing the requirement levels in order to ensure a gentle introduction to video work:

1) **Self-reflection and reflection on others:** The students progress from the reflection of "extrinsical" teaching work (analysis of videographed lesson starters by the mentors involved) to self-reflection (analysis of their own videographed lesson starters).

2) **Social Video Learning:** The short video sequences are first analysed alone (private discourse), then in dialogue with only the teacher at the teacher training college and

later in small groups in the shape of peer learning and with the mentor (semi-public discourse).

3) **E-portfolio work:** Once the video work is completed, personally relevant video sequences are selected in a third step for follow-up and in-depth reflection and transferred to the e-portfolio created for the purposes of achievement documentation (Grubesic et al., 2018: 229).

A central principle of social video learning is to "link contents" (Vohle, 2016: 179), i.e. deal with the prerequisites produced in a previous working phase in greater depth throughout the subsequent phase. This spiral approach promotes the quality of the teaching and learning processes on the one hand, but on the other it also generates dependencies. Vohle therefore recommends "examining, in each learning setting, how the relationship between the demand for quality and flexibility should be structured in relation to the objectives" (Vohle, 2016: 179).

The information on the individual support needs of those involved shown in the aforementioned electronic learning system is used as a basis for the design of further work assignments within the context of longer-term task arrangements. This makes it possible to promote individual learning that departs from the learners' authentic needs, is orientated on their strengths and therefore envisages a realistic goal in the sense of the individual learners' zone of proximal development (Wygotski, 1964). From the sum of the information available through video annotation and electronic portfolios (Mahara) over a longer period of time, the participant's strengths and weaknesses can be generated with regard to individual sub-competencies of their occupational skills (learning analytics), on the basis of which measures for short, medium and longer-term learning promotion can be developed by the teacher and proposed to the students concerned. The illustration below contains a summary of the task design used in PREPARE:
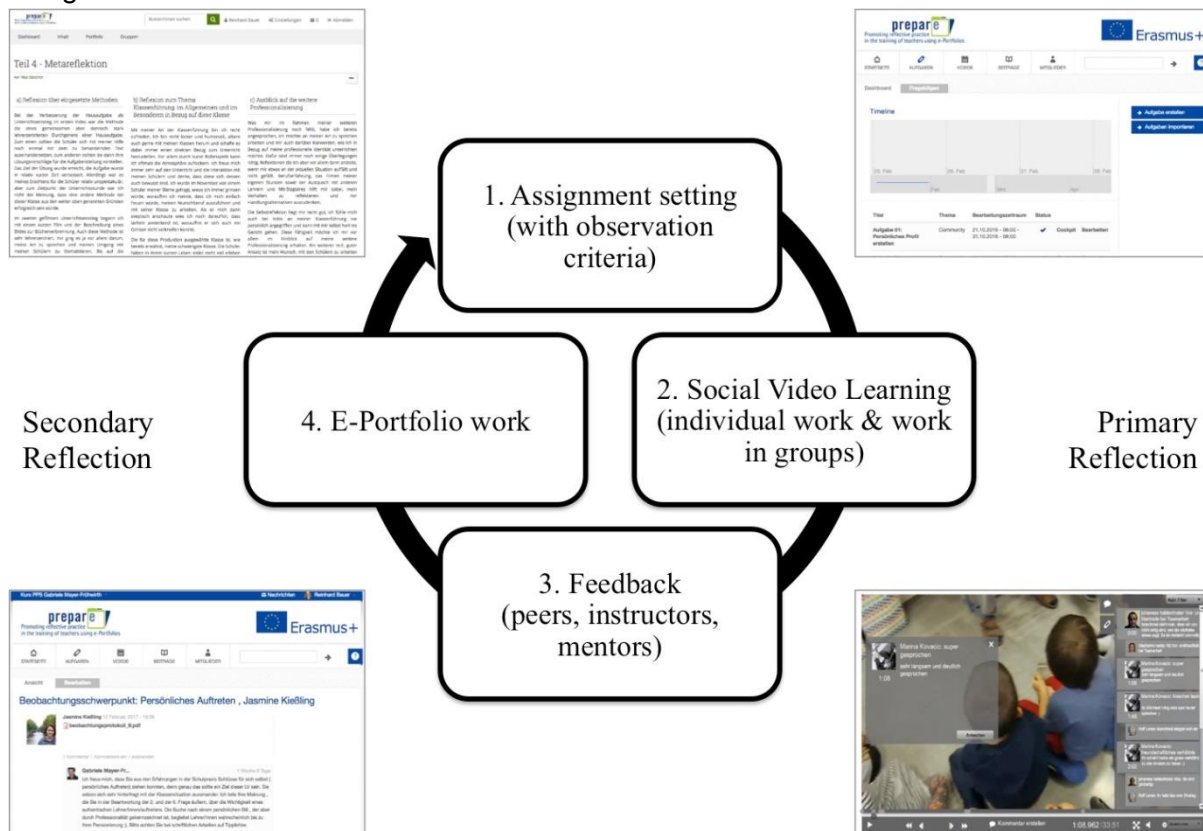
Fig. 1.4: PREPARE learning cycle (Bauer, 2017: 639)

Learning analytics – making social video learning visible and controllable

The answer to the question of how social video learning can open up new ways of reflected learning, knowledge generation and knowledge exchange is based on yet another case study at the project site PH Wien, for which data was collected in the 2017/18 winter semester. It is based on a course entitled pedagogical-practical studies (*Pädagogisch-praktische Studien*, PPS), which is part of the Bachelor's degree in primary teacher training (*Lehramt Primarstufe*) at the University College of Teacher Education in Vienna (n=11). What follows is an overview of how the case study was carried out and a summary and discussion of the outcome.

The aim of the case study was to examine student perception with regard to the use of video annotation in pedagogical-practical studies in order to find out whether social video learning improves student learning and collaboration in the context of PPS and promotes critical engagement with topics such as classroom management etc. Based on quantitative data (collected using learning analytics tools that track the students' engagement with the video material uploaded to PrepareCampus and their digital interaction with each other) and qualitative data from learning logs and e-portfolio views, some observations can be made regarding the impact potential of social video learning. Overall, social video learning has proven to be a helpful method that students should engage in, but (1) it must be part of a comprehensive blended learning approach, and (2) it is necessary to develop tasks suitable to encourage learners to reflect interactively on their own actions or those of their peers.

The focus of the data collected with the learning analytics tools was on recording and evaluating the students' engagement with the uploaded video material and their interaction with each other. Figure 5 shows the number of video comments including any re-comments, while figure 6 is a count of the traffic-light feedback comments given and received on edubreak®. All interpretation of this data must factor in that it does not measure the quality of the learners' (re-)comments. Figures 5 and 6 show only the total number of (re-)comments and the traffic light points given and received. However, the graph shows the points of interest – in terms of both the number of re-comments and the number of green, yellow and red traffic light points. This suggests that the points of interest are the result of an intensive discussion of specific challenges or issues. In other words, this is where the students leave behind the reconstruction of knowledge as an expression of canonised teaching (surface learning) and enter into a process of interactive knowledge construction (deep learning). What the students discuss in these video comments is what they experience as personally significant and what is therefore potentially sustainable with regard to professional action at a later stage.
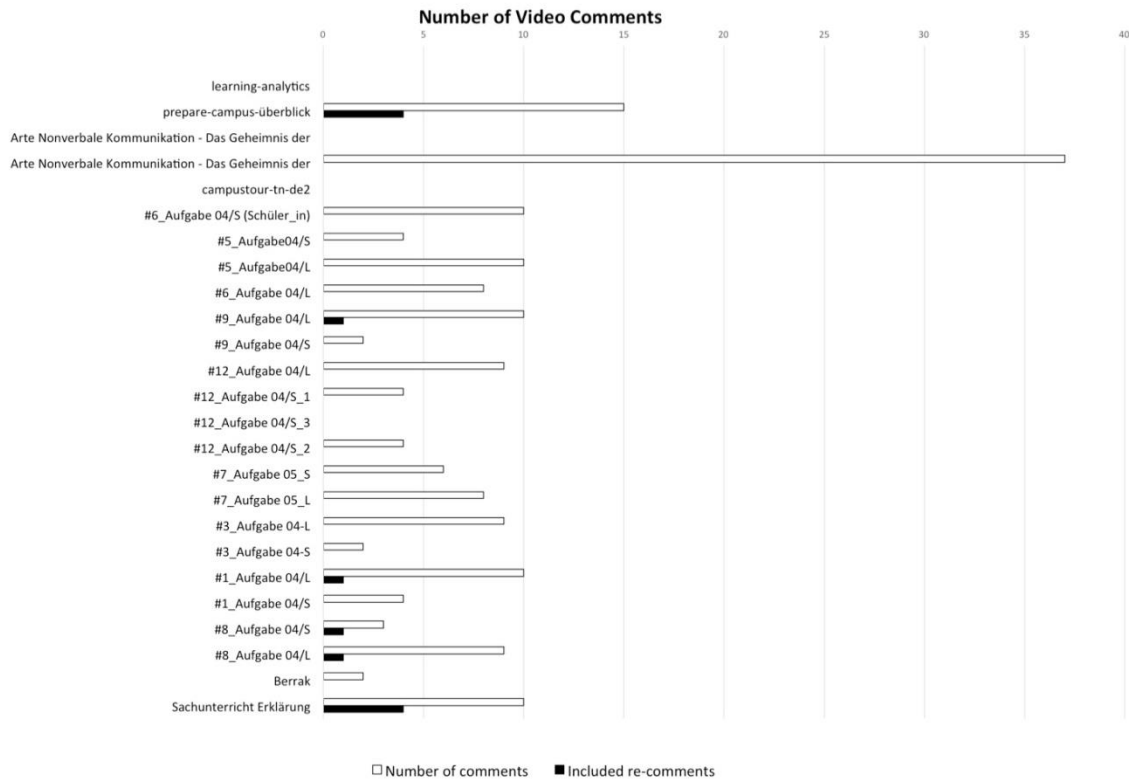
Fig. 1.5: Number of video comments on edubreak®
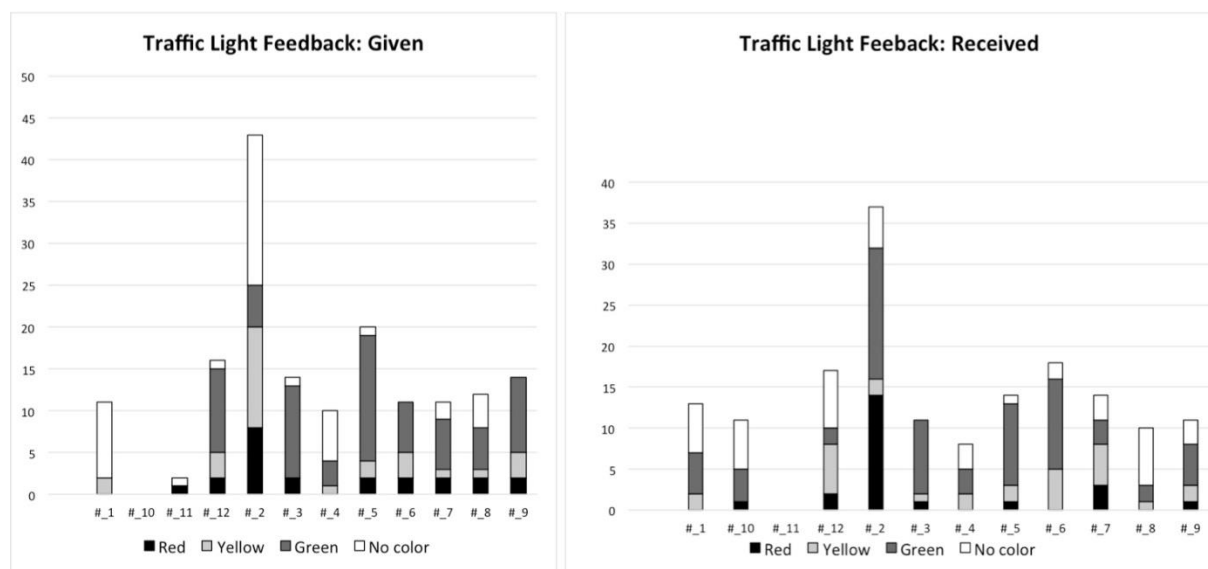
Fig. 1.6: Given and received traffic light feedback on edubreak® (green = I like that/good content/good idea; yellow = person commenting has another idea; red = critical/questionable/needs to be discussed)

The aforementioned aspect of the personal significance of one's own actions on PrepareCampus can also be observed in the e-portfolio views of some teacher training students. In her reflection diary about her observations in the video, student #9 writes:

"The fact that you suddenly see yourself in a video makes you much more aware of your strengths and weaknesses. When you're busy teaching, you perceive things entirely differently. It was also very interesting to see how other people perceive you as a teacher and which suggestions they have for you. Of course I'm very happy about the positive comments, and I also think that I use my hands well to explain things to the children. In addition, I am very responsive to the children; I am patient and give them time to think. [...] That becomes quite evident from the video. Looking back, I think that it would have been better to call small groups to my side during the work phase. Using the play money on the carpet, I would have worked on more complex calculation examples with the children. My weaknesses are that my voice is very high and fast. I will definitely work on varying my voice. Although I never lose sight of my aim of being more relaxed and confident and less nervous before class, I still find it very difficult and still have problems with that. I know exactly that I put so much pressure on myself because I want the lesson to be perfect. But in fact there's no need for pressure, because I know that I prepare as well as I can and always do my very best. Things can't always be perfect and they don't have to. You learn from your mistakes. I have to continue working on myself and I think that things will get better and better over time. It is also important to take the lesson a little bit as it comes. I have to refrain from wanting to do everything according to the exact plan. Not everything always goes according to plan. As a teacher, you have to be flexible and can't let little things throw you off course." (Student #9)

Both the learning analytics results and the above excerpt from an e-portfolio confirm what Vohle and Reinmann (2014: 8) have already established for sport with regard to the use of social video learning as a didactic tool for higher education: (1) At micro level, social video learning should be combined with an exchange of views among students. One specific task should invite them to engage in a discussion with the others by re-commenting. In this context, asking questions is particularly helpful. To verify personal learning successes, it should be mandatory to create an e-portfolio display that selects and displays personally meaningful video comments. This type of e-portfolio view will help students develop their reflective skills and become critical thinkers and reflective practitioners. (2) If social video learning (in combination with e-portfolio work) is to be used in the paradigm shift from summative to formative assessment, the artefacts (comments and re-comments) created on PrepareCampus can be competency indicators for a new assessment situation – a certain number of re-comments indicates points of interest – in which the learners further explain their work on the basis of their e-portfolio views. (3) All those participating in reflective practice in teacher training should be involved in the implementation of social video learning, especially with regard to the utilisation of blended learning scenarios: They can provide feedback on the task design (e.g. regarding the workload required to successfully complete a particular task) and all technical-didactic measures.

Need for action in education policy – first considerations for an agenda

The learning analytics process conducted to date has provided a few first indicators of a need for action in education policy. In this way, the above list of insights obtained from the location analyses at the beginning of PREPARE was expanded and substantiated. Throughout the PREPARE partner countries, reflective practice plays a key role in the ministerial directives on teacher training. The ministerial provisions call for the use of portfolios, especially during practical trainings in schools, to document and reflect on the training progress. This postulation is linked to the goal of ensuring a differentiated and skill-orientated training approach.

And yet, training practice at all project locations during the 2016-18 project period has shown that both in teaching and during practical trainings in schools, reflection still only occupies a marginal position and that little can be concluded from portfolios for the individual instruction, guidance and support of students due to their insufficient reflective quality. This eliminates a pivotal control parameter for direct quality assurance in teacher training. PREPARE was unable to bring about any significant change with regard to this critical situation concerning quality assurance among future teacher generations. True change requires long-term cooperation efforts by education experts and education policy-makers across a number of action fields, which are presented in chapter two and placed in a scientific context in chapter three.

Chapter 2: Education policy agenda and further comments

Introductory remarks

This education policy agenda is devoted to the issue of strengthening reflective practice in teacher training through the use of electronic portfolios. Throughout the PREPARE partner countries (Austria, Germany, Italy and Luxembourg), reflective practice plays a key role in the ministerial directives on teacher training. The ministerial provisions call for the use of portfolios, especially during practical trainings in schools, to document and reflect on the training progress. This postulation is linked to the goal of ensuring a differentiated and skill-orientated training approach.

And yet, training practice has shown that both in teaching and during practical trainings in schools, reflection still only occupies a marginal position and that little can be concluded from portfolios for the individual instruction, guidance and support of students due to their insufficient reflective quality. This eliminates a pivotal control parameter for direct quality assurance in teacher training. From a long-term perspective, this puts the quality of future teacher generations at a grave risk.

In order to change this situation, education experts from Austria, Germany, Italy and Luxembourg have created a digital space for reflection and interaction – PrepareCampus – and scientifically tested its effectiveness with regard to improving reflective quality in training processes for the respective occupational field by means of video annotation and electronic portfolios. In the medium and long term, however, the project protagonists will not be able to implement the PREPARE model at teacher training institutions of their own accord, as this requires the joint effort of all those involved in teacher training and a special amount of support at ministerial level. The PREPARE team considers this cooperative effort to be urgently required in the following action fields:

Action fields

1. The pending digitalisation of education includes electronic portfolios

To increase the marginal focus on reflection in the daily training routine of future teachers requires not just committed teachers, an efficient task design and a high utility value for reflection, but also easy-to-handle, digital tools whose use ties in with the digital habits of students and teachers. Therefore, the transition from paper-based portfolios to electronic

> *portfolios (hereinafter referred to as e-portfolios) must be accelerated and pushed to form a central part of the education policy that is currently already committed to digitalisation. This requires a whole set of measures, which will be identified in detail below.*

Comment: Reflective practice, i.e. looking back on completed actions, examining current actions or anticipating action plans has for quite some time played a crucial role in the training of teachers. Since the 1990s, there has been an increasing interest in portfolio work in German-speaking countries, with the term portfolio referring to a folder for the collection, selection and targeted design of information and materials (artefacts), combined with three main objectives: 1) mapping long-term work and learning processes, 2) managing them and 3) providing a record of skills and knowledge to the training institution. In the project, portfolios were also treated in the sense of an alternative to traditional, formatively orientated assessment models (cf. Winter, 2007) by looking at achievements and performance potential from a summative perspective (cf. Brunner, Häcker and Winter, 2006). In the early 2000s, the decision as to whether portfolios should ultimately also be graded sparked some controversy (cf. Winter, 2007; Bräuer 2006).

With the advances in technology and the development of digital potential in education, the first concepts for working with electronic portfolios emerged (Barrett, 2009; Cambridge, Cambridge and Yancey, 2009), initially with a view to the long term (cross-phases) and the sustainability of learning processes (Zubizaretta, 2004) and later also with regard to an increasingly rapid digitalisation in society and education (Barrett, 2011, Cambridge, 2012). E-portfolio initiatives and extended fields of practice are no longer restricted to North America, Australia, New Zealand and other English-speaking regions of the world, but can also be found in many European, Asian and African countries (Cambridge, 2012). It has become clear that the mass ownership of mobile devices has triggered a fundamental change in how information is handled and in the learning processes associated with it among students in their role as future teachers, and that it continues to push this trend. The current education policy approach attempts to respond to this by creating material incentives for the use of mobile devices and by simplifying institutional conditions, especially for reflective practice through mobile devices. This seems to have paved the way for the increased use of e-portfolios. However, there is already a certain risk that the interest of institutions in electronic portfolios will primarily consist in student administration (recording participation and performance) rather than in qualifying training through individualisation in teaching and process orientation in accompanying learners.

At the PREPARE project sites, this education policy mobilisation towards a transition from paper-based to electronic portfolios has so far only been successful to a limited extent: Prior to the project, there was considerable institutional and individual resistance. At the University College of Teacher Education in Vienna (PH Wien), for example, the open source software Mahara for working with electronic portfolios has been available to teachers since 2011 (cf. Strasser and Knecht, 2013). An online survey conducted in the 2015 summer semester, however, showed that only 24 out of 91 practice consultants used it for the portfolio work required in the curricula as a basis for performance assessment. Far more than half continued to ask their students for paper-based practice folders (cf. fig. 2.1.1). They had quite apparently not yet recognised the added value of e-portfolios.

Please indicate which tool you use for portfolio work within the internship framework.
(Single answer; n=91)

Moodle	13
Mahara	24
Paper Based Portfolio	54
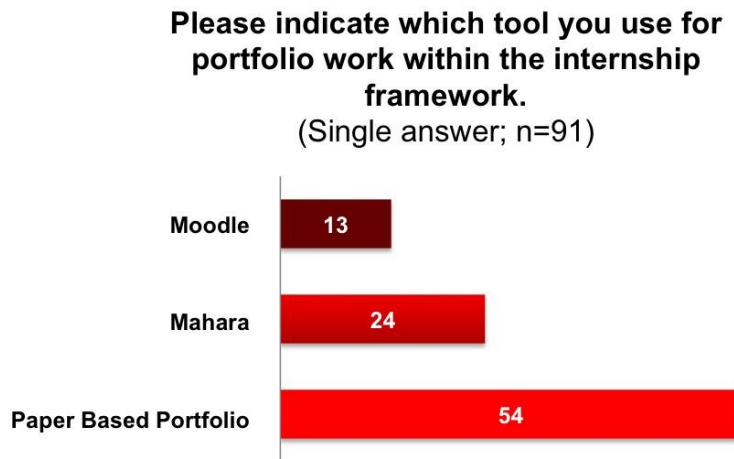
Fig. 2.1.1: Outcome of the online survey on the tool used for portfolio work in the context of school practice at PH Wien (Reinhard Bauer, 2015 summer semester)

These difficulties also became evident during the project, i.e. in the interaction between project staff and representatives of the institutions. Fig. 2.1.2 illustrates the result of another survey among practice consultants at PH Wien in the 2016 winter semester. Only just under a third used Mahara in school practice or in their pedagogical-practical studies (PPS).

**Please indicate which type of portfolio
you use with your students.**
(Multiple answers possible; n=70)

Type	Value
Cloud Based Systems	8
Email	16
Moodle	12
Mahara	20
Paper Based Portfolio	34
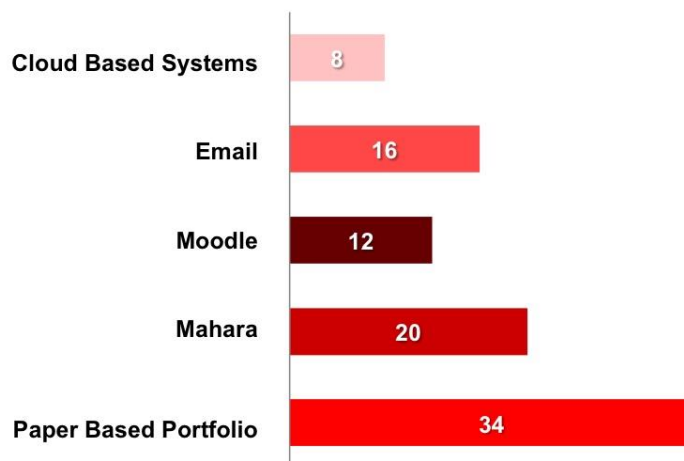
Fig. 2.1.2: Outcome of the online survey on the submission of portfolios within the context of PPS at PH Wien (Reinhard Bauer, 2016 winter semester)

The reason for this was investigated with the help of a SWOT analysis carried out in the context of PREPARE (cf. **action field** 2). The analysis of an interview – an adapted form of the problem-centred interview method to be precise – with the head of the institute responsible for reflective practice and with a focus group of practice supervisors for the primary level (n=7) produced the following results:

- The ratio of the potentially increased workload with regard to the estimated ECTS points due to the use of e-portfolios among students has not yet been clarified.
- The increased workload is also a possible disincentive for teachers, but the heterogeneous age structure among the teachers in particular still represents a barrier for the use of new technologies.
- The technical equipment at the different places of action is not yet sufficient to facilitate and guarantee the constant interconnectedness of all participants.
- Some stakeholders have raised doubts about involving the practice teachers at the school locations in an open discussion on student teaching via e-portfolios. Making the reflections visible to all participants is not in line with the current approach. The age structure, the technical requirements in situ and the increased workload for the practice teachers, too, are unsolved problems in this context.
- Among the teachers, there is still a great degree of uncertainty with regard to the security or privacy of the uploaded documents.
- Both the students and, to some extent, the teachers lack the skills required for a didactically purposeful design and structuring of e-portfolio views. This can also lead to teachers demanding skills of their students that they do not have themselves.

- There is consensus among the interviewed practice supervisors that the use of e-portfolios cannot improve the quality of reflection: It cannot substitute verbal, personal feedback.
- Practice supervisors occasionally make video and/or audio recordings of teaching sessions. Students, too, often film each other during their teaching sessions without a work assignment to this effect. The use of video is generally viewed as extremely positive and, according to the interviewees, leads almost automatically to deeper reflection.

Despite a generally positive attitude of all participants towards a broad use of e-portfolios and videos with the aim of improving the reflection of practice work, a cautious and gradual implementation was preferred to an immediate and prescribed use. This mirrors the findings of Christen and Hofmann (2013), who recommend that all those affected exercise great care when working with the e-portfolios. In addition to Bisovsky and Schaffert (2009) as well as Jahn, Trager and Wilbers (2010), they describe the acceptance of new media in the teaching and learning process by the institution, teachers and learners as a fundamental prerequisite for the successful implementation of electronic portfolios, which can only be achieved by means of a clear strategy on the part of the institution management to set up the required structures.

To facilitate the transition, several different measures were taken at PH Wien: In addition to non-compulsory in-house training, e.g. regarding the technical aspects of Mahara and PrepareCampus or the theory of the e-portfolios, a writing workshop for students was also set up. The aim of this non-mandatory course is to improve the writing aspect in reflection. In addition to the course "Didactic reflection" (*Didaktische Reflexion*) that already exists, a coaching course was provided that aims at supporting personality development with a view to professionalisation. A competency catalogue describing the skills to be acquired in the school practice serves as a basis for individual tasks and assessment. The university provides all practice supervisors with a set of pre-formulated tasks and guidelines for practical reflection. In the revision of the curriculum for the Bachelor's degree in primary school teaching (*Lehramt Primarstufe*), the competency catalogue was also revised. To truly anchor the intended use of e-portfolios and videos both in school practice and in pedagogical-practical study programmes, the institute opted for a "multiplier principle". To continue building on a best practice approach, it is expected that e-portfolios be implemented gradually.

As far as working with e-portfolios and videos in the context of pedagogical-practical studies is concerned, the stance of both the practice supervisors and the students at PH Wien changed fundamentally during the course of the project – a fact that transpires in a series of video interviews with fourth-semester students of the Bachelor's degree in primary school teaching (*Lehramt Primarstufe*; cf. *PrepareCampus*: Interview#1 with Sabine Wernath, *PrepareCampus*: Interview#2 with Nele Postmeyer and *PrepareCampus*: Interview#3 with Markus Niedl).

2. Analysing the need and potential for action of institutions and their members

Instead of the rather sweeping approach based on impulsive actions that has in the past seen many education institutions purchase great amounts of hardware, it is now imperative to devise a strategy for digitalisation in education, the core of which must consist of the creation of digital, temporal and didactic spaces for reflection. This should allow anyone involved in education to become aware of the rapidly changing processes in the transition from analogue to digital actions. Furthermore, moments to pause, take stock and ask critical

> *questions should be initiated on a regular basis. To assign purposeful spaces for reflection – especially in the form of e-portfolios –, the local analogue and digital teaching and learning culture must first be analysed: Which traditions exist in the reflective practice of the respective institution as a whole, but also at the level of individual educational disciplines? What was the chosen approach so far to guide, monitor and evaluate the use of paper-based or electronic portfolios? Which of the individual stakeholders' attitudes, values and motivations are associated with digital work and blended learning? Financial resources and research staff with free access to the objects of investigation are needed in order to answer such questions of institutional and individual literacy management on a sound scientific basis.*

Comment: Research into the potential for change among stakeholders (cf. Wahl, 2001) has found that changes in actions occur primarily when the stakeholder's experience-based, routine actions come under pressure, i.e. upon exposing them to changes that objectively cause a crisis in a previously stable system of actions, or at least appear to cause such a crisis in the stakeholder's perception. Thus both the introduction of portfolios per se and the transition from paper-based portfolio work to electronic portfolio work tend not to take place on a voluntary basis but mainly as a reaction to a concrete need for change that has been experienced or perceived as such.

This need for change seems to exist in particular because of the mass-scale, individual use of mobile, digital devices and their ever-increasing simplicity in terms of usability: Why should students prefer to write a description of their actions by hand on a paper pad instead of using a digital recording on a tablet, where they can integrate graphics, photos, videos (etc.)?

Every need for action must, however, be differentiated with regard to its perception and the consequences resulting for the individual stakeholders, and a detailed prior analysis must be made (cf. Wahl, 2001). This has shown that not every need for action is perceived as such by the stakeholder, nor put into practice through alternative actions. In the case of e-portfolios, whether and how this implementation takes place is determined not least by the action potential that exists in an institution and which the individual stakeholder perceives. This refers to concrete possibilities and competencies, e.g. the availability of e-portfolio software on the university server or the availability of technical and didactic training courses regarding the use of any such software by teachers in their interaction with students.

In the PREPARE project, the need and potential for action with regard to reflective practice in electronic portfolios in teacher training was determined using the SWOT method, a strategic planning tool that includes analyses of strengths vs. weaknesses and of opportunities vs. threats (Buchholz, 2013). The aim of a SWOT analysis is to harmonise the internal strengths of an institution and its members with the external opportunities present in their environment in order to deduce any future potential for success. The outcome of the analysis can then be presented in a so-called SWOT profile.

Fig. 2.2.1: Matrix for a SWOT analysis according to Buchholz (2013: 60)

A precise goal, i.e. a desired status, must be defined for a SWOT analysis to be successful. While the analysis itself is not a replacement for a strategy, from its results, a strategy can be derived for the institution. The conclusion of the project *E-Portfolio an Hochschulen* (e-portfolios at universities: cf. Baumgartner and Himpsl, 2011; Baumgartner, Himpsl and Zauchner, 2009; Himpsl, 2009) offers a suitable starting point upon which to develop possible questions and criteria for carrying out a SWOT analysis with regard to electronic portfolio work.

3. **Using electronic portfolios at university level in a purposeful way requires coherent didactic models and a stringent task design**

With the help of a carefully conducted needs analysis, the teachers must look into their own potential for action in the stress field of their own teaching biography and the requirements of the respective training discipline. On this basis, it is necessary for expert committees to develop digitally orientated concepts for university didactics and a reflectively localised task design. This work on task design and curriculum-related added value for reflective practice and e-portfolios requires a close cooperation between teaching staff (including any mentors for the practical training in schools) and subject-specific or interdisciplinary experts from higher education didactics (including e-learning), who were involved – ideally – in the aforementioned needs analysis. All teachers who contribute to the aforementioned expert committees must be appropriately compensated.

Comment: Much like any other innovation process in tertiary education, the implementation and purposeful use of e-portfolios should not be viewed as a sudden discovery. In fact, developing e-portfolio work involves a variety of different and sometimes contradictory processes that "overlap, repeat or imitate each other, rely on each other, prevail in different fields, converge with each other – until the outlines of a general method gradually emerge" (cf. Foucault, 1994: 177). Very often, changes in the complex social environment of any institution of further education and training are therefore difficult to grasp and often do not appear to be goal-orientated (Olsson et al., 2012). As for the examination of a person's individual teaching competency in the form of portfolios, Al-Kabbani, Trautwein and Schaper (2012) highlight the importance of competency models: Although such models are rudimentary at best, they form an important basis for the institutional conception and the content-related and methodological design of a set of portfolio tools, the individual compilation, the elaboration, the reflection, the

assessment and the design of consulting processes in the context of portfolio work. Upon selecting, adapting and/or re-designing suitable competency models for teaching/learning portfolios, the above authors recommend ensuring that any such models fulfil the following functions: (a) identify and focus on the relevant aspects in development and further training, (b) ascertain any personal learning and development needs, (c) plan and reflect on the learning process and learning strategies, and (d) take into consideration any beneficial and obstructive development conditions while planning development and learning activities (2012: 30).

Miller and Volk (2013: 27) reduce education and competency development processes to a common denominator: Both concepts focus on process- and subject-orientation, i.e. "both education and competencies are acquired in long-term processes, during which the acquisition cannot be separated from personal characteristics, mind-sets, experiences, etc. With this in mind, e-portfolios can be used to document and represent educational and competency acquisition processes and can complement existing performance assessment models by extending the existing assessment criteria and their measuring values (marks, credit points etc.)" (ibid.).

If e-portfolios are to be used to diagnose competencies, defining expectations and criteria for their evaluation during the development of the didactic concept for portfolio work is a fundamental prerequisite. It must be taken into account that when grading their e-portfolios, students adapt considerably to the teachers' specifications, i.e. they take care not to discuss and reflect on their weaknesses and difficulties (Reinmann and Sippel, 2011). For Häcker (2011: 177), one way to avoid this is by returning to the core of portfolio work – self-reflection: "[...] revert one's deliberations back to one's own learning, achievements, development, to oneself". According to Reinmann and Hartung (2013: 54 et seqq.), the use of e-portfolios as a method of managing personal knowledge would strengthen the self-reflection component: "Students could be tasked with documenting their studies in an e-portfolio by means of collecting all artefacts relevant to them, thereby reflecting and planning their own learning path. It is precisely during the transition from university studies to starting a career that this procedure could prove to be particularly purposeful: On the one hand, students could make more informed career choices on the basis of their documented competencies and experiences. On the other hand, they would be more likely to continue using their e-portfolio beyond their studies for the purposes of personal knowledge management in order to systematically document and plan their own path of knowledge – e.g. occupational changes and further education" (ibid). Suitable tasks and framework conditions are necessary to allow for the creation of appropriate evidence (= artefacts) in such an e-portfolio. Winter provides a list of generally significant aspects for successful portfolio work (cf. 2017: 37).

For Reinmann and Hartung (2013: 57), reflection and self-reflection within e-portfolio work bear a risk of failure. To offer the students an opportunity to become familiar with the principles, requirements and possible advantages of e-portfolio work, they recommend that the actual work be preceded by a playful trial phase during which the students first deal with e-portfolios independently of themselves as individuals. One example is working with third-party videos on PrepareCampus, where – in addition to familiarising students with the technical functionalities of video-based e-portfolio environments – one crucial focus was on observing the mentors while teaching (cf. Grubesic et al., 2018).

Two examples of university-level didactic concepts can be found at Teach4PHW (digital teaching portfolios, cf. Wagner et al., 2016; Zagler et al., 2016) and in *Persönliche Entwicklung und Kompetenzen der Studierenden sichtbar machen – Schreibarrangement für*

die Schulpraktischen Studien (making the personal development and competencies of students visible – writing arrangement for school practice studies, cf. Bauer and Sorger, 2016).

An important prerequisite for recognising and realising the potential for action is the institutional framework; in the case of PREPARE, it is the concrete conditions for reflective practice as at least partially digital action in the creation of electronic portfolios, which in university didactics often take the shape of blended learning. These conditions include:

- authentic occasions for reflection, i.e. occasions that are constructed or understood by the teachers and the students as necessary for all further courses of action (e.g. in a seminar or even in the course of studies as a whole);
- a concrete practical value for this reflection, which, for the participants, does not automatically arise from an authentic occasion for reflection but is only defined as such to a greater or lesser extent through the undertaking itself and its consequences.

Two best-practice examples from the project that illustrate the achieved change can be found here.

4. Didactic and technical training of staff members

In addition to the special conceptual activities of the aforementioned expert committees, all teachers and any mentors for the practical training in schools need to receive medium-term training in university didactics and technical questions related to digitally designed teaching-learning cultures in the context of blended-learning arrangements. The implementation of the PREPARE concept specifically involves not only an introduction to the use of video recordings and video annotation, but also the transfer from the resulting primary reflection into a secondary reflection, which is documented in the e-portfolio. In addition to the use of PrepareCampus, the process requires an introduction to possible additional (alternative) digital tools for social video learning, reflective practice and e-portfolio work – not least in order to enable a variety of methods and individual working approaches.

Comment:

Didactic and technical training of course instructors in Luxembourg: In preparation for the introduction of a blended learning course model, in June 2017 all future course instructors of the module "classroom management" (*Klassenführung*) were invited to a meeting at which information on the following topics was presented and discussed:

- further training (edubreak® Academy)
- module 7 course schedule
- work assignment and evaluation

To encourage the course instructors' participation, they were interviewed on their experiences with the topics presented and their answers were visualised with the help of the Metaplan technique. The suggestions were later incorporated into the course model, and the following procedure was agreed for the formative feedback on any written work (Guidelines for feedback-giving on PrepareCampus; i.a. Bräuer, 2017; Buhren, 2015):

- I shall provide timely feedback as part of my appreciation towards the person who, with their text, has sent me a communicative message.
- The way I give feedback shall reflect my attitude as a genuinely interested reader who wishes to (better) understand the text in question.

- ○ My comments shall be strength-orientated, i.e. based on what I already understand in the text, I may ask for information and contexts or links that are not yet clear to me. In doing so, I strive to explore the self-help potential of the person writing rather than reproach them or dictate instructions based on my ideas of a sound text.

In conclusion, it was agreed that the guidelines would be sent out promptly to prepare the course instructors for the start of the module. The *Institut de formation de l'Éducation nationale* (IFEN) credited the course instructors a total of seven hours for giving feedback on PrepareCampus.

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For 12 course instructors, a schedule of asynchronous training over a period of four weeks was set up on PrepareCampus. What follows is an explanation of the training structure using three didactic design categories (Reinmann, 2013):

- ○ Content design: In addition to a general introduction to PrepareCampus, the training included the following topics: blended learning, learning tools, assignment of tasks, learning success monitoring and feedback. The contents were presented with the help of screen videos. In this approach, explanations on a specific topic are provided through auditory means and substantiated by text, images and graphics (verbalised PowerPoint presentations).
- ○ Activation design: Special tasks were provided for each topic to activate thought processes among the participants and to encourage them to deal with the contents in depth. It is technically possible to integrate these thought processes, i.e. questions or comments, into the video, entering into a direct dialogue with the instructors. The participants were free to complete the tasks at any time and from any location (asynchronously).
- ○ Support design: In addition to direct feedback given by the instructors to answer the participants' questions, a synchronous meeting (video conference) was scheduled halfway through the event. The meeting was used to discuss the positive aspects of the learning process so far and any potential for improvement, the outcome of which was immediately integrated into the follow-up process where possible.

Goal: In the style of "learning by doing", the course instructors were encouraged to actively work in the social video learning environment, get to know its technical functions and apply didactic concepts with the aim of detecting any issues or questions that could be discussed online in an interactive manner.

5. E-portfolios require a sound digital infrastructure

Much of the digital infrastructure currently in place at schools and universities in the project sites throughout Austria, Germany, Italy and Luxembourg does not meet the requirements of a developed, 21st-century information and knowledge society. E-portfolios and complementary electronic tools for reflective practice require a high-performance digital infrastructure with adequate data transmission speeds, stable software and powerful hardware. Only on this basis is it possible to work with videos and other recording media, to communicate digitally across both the learning and the practice community free from any restrictions in terms of time and place, and to ensure an individual, creative and at the same

> *time effective design of the competencies achieved in the e-portfolio. To this end, the IT infrastructure of schools and universities must be expanded systematically, removing all technical, organisational and administrative obstacles and integrating the newly developed applications such as the PrepareCampus teaching and learning environment.*

Comment: The particular challenge in the practical phases of teacher training lies in the fact that the practical training in schools is governed by an organisational interface: While the university or teacher training college is responsible for the content of the practical training in schools as part of the curriculum, the responsibility for the actual teaching lies with the school management or supervisory authority. This poses at least two challenges: (a) the issue of personality rights in video recordings of i.a. minors and (b) the concepts relating to media technology and organisational aspects.

a. Personality rights

This becomes particularly relevant whenever photos and videos from the practical training in schools are used in the e-portfolio for documentation purposes in the pedagogical-practical studies and whenever video excerpts are uploaded and annotated on PrepareCampus. The issue concerns fundamental questions of data collection (cf. point 13) as well as legal details such as the right to one's own image in the case of the pupils depicted in the video clips. Since the responsibility for the content used in e-portfolios (and, as a general rule, also for access to it) ultimately lies with the portfolio owners – i.e. the students –, even with increased administrative efforts, the university cannot rule out breaches or violations committed by individual students.

At one teaching practice school, to provide a real-life example, the parents of two children did not consent to the use of video recordings of their children at school. In cases such as this, the following options are available:

- the children are placed outside of the camera's field of view;
- any passages showing the children are removed at a later stage;
- the persons are pixelated to render them unrecognisable.

The e-portfolio created in the learning group of this practice school, to which the practice teachers have access, can be used to verify whether the material is utilised correctly. If a student uses a video from this class for an e-portfolio in a different context or with a different target group, the regulations for this class are no longer known and the correct use of the materials can therefore neither be verified nor guaranteed by the university. The right to one's own image is certainly an extreme example in which it is particularly difficult to gauge and take into consideration the interests of all persons involved in the teaching situations.

b. Media concepts

Aside from these rather individual issues, the use of e-portfolios in school practice during training phases has highlighted that it would be desirable to:
- improve the dovetailing and collaboration between the stakeholders and target groups involved at the interfaces between teacher training, further education and school development (cf. Kerres, Heinen and Stratmann, 2013) and to

- introduce models for a regional education cloud (see pages such as https://hpi.de/open-campus/hpi-initiativen/bildungscloud.html, https://www.niedersachsen.cloud/ or https://edu-sharing.com/).

The latter would ensure that already during their training, students would become familiar with a learning environment, which they would then re-encounter in schools and which they could resort back to in the context of further training and school development projects. At this point, however, it also becomes evident that any future-orientated solution should above all not stop at the boundaries of training phases or institutions. This is where data ownership comes into play (Lee, 2018).

6. To achieve a high level of reflective quality, individual guidance and support must be provided by teaching staff both online and face-to-face

The aim of the PREPARE concept is <u>not</u> to take leave of all direct interaction between the people involved, but rather to optimise it on the basis of blended learning and blended teaching. Reflective action is complex and requires a particularly intensive level of guidance and support of a multi-modal and multimedia nature, not least in order to meet the teachers' and the students' individual needs in dealing with information (production, reception, distribution). Only on this basis will the shift from curriculum-based training to learner-centred education that is due in the 21st century become possible. Blended learning and teaching, however, form a dual challenge that must be met with a series of answers at institutional level (see below). The system to measure working time and compensation currently in use does not yet capture the constantly growing labour input and expenditure of digital work, nor does it take into consideration the purposeful integration of digital work results into non-digital educational processes. It must therefore undergo fundamental reforms.

Comment: As pointed out in the comments on action fields 3 and 4, to achieve an adequate level of reflective quality in e-portfolios, the mentally complex action of reflecting and laying the process down in writing must be "broken down" or "pre-processed" within the scope of university didactics. In video annotation and e-portfolios, this "scaffolding" (Wood, Bruner and Ross, 1976) of the target reflective practice must not be defined as an exclusively digital action field, but should rather be viewed as a requirement for blended learning. By combining face-to-face interaction and online work, an additional dimension of scaffolding is created – one that is based on the individual needs of students dealing with information. Ultimately, the objective is to design competency-orientated and learner-centred teaching as an alternative to exclusively curriculum-based training. Research into multi-modality in teaching and learning processes (cf. Archer, A., 2006) has highlighted a need to reach students through a multiplicity of modes and get them to partake in those different modalities in order to achieve mentally complex aims such as reflection. In PREPARE, blended learning/teaching takes place as follows: A series of videos explain how to use PrepareCampus. Initially, everything appears to be clear for the viewers, but the handling typically sparks a number of questions. A list of FAQs could be helpful to address this issue, and in fact, in some cases it is. Action research, however, has shown that individual motivation for action is subject to strong fluctuations – not only within a group of learners, but also with regard to individual participants. In the context of a weakened motivation to act, the impact potential of self-learning material such as explanatory videos and FAQs drastically diminishes and individual guidance is required, either

in the form of video conferences or through personal contact with peers, teachers or specially appointed assistants.

This process of probing any digital or non-digital individual need for action that can become necessary in complex learning environments such as PrepareCampus should not be restricted from the very beginning by scarce teaching staff resources. With such a narrow measurement (e.g. of working time), teachers are at risk of persisting in their routine patterns of action, which still tend to be learner-centred and multi-modal only to a minor degree. The following examples from Freiburg (negative) and Luxembourg (positive) should serve to illustrate the urgent need for additional resources to design alternative teaching models: In Freiburg, the plan was to install PREPARE within the first year as part of the professionalisation traineeship (*Professionalisierungspraktikum*, PP). During a series of orientation events for the PP, the electronic learning environment was presented and its use explained to the students. It was then up to the students to decide whether they wanted to use PrepareCampus for their PP. Only few wished to use the system; most students preferred the original format to provide performance records for their PP, i.e. paper-based portfolios. When individual students where later interviewed, their motivations became apparent: the complexity of the learning environment, the additional effort it requires without yielding ECTS credits (cf. comment on action field 7) and the fact that the prospect of support was limited to self-study materials, which was feared to be a problem especially in the case of technical issues in using PrepareCampus.

When in the second project year, PREPARE was suggested for the supervision of another traineeship format, the so-called integrated school traineeship (*Integriertes Schulpraktikum*, ISP), there was an even greater resistance among the teachers and mentors working in the ISP at the institutions providing teaching practice. Over the course of individual discussions with this group of people to determine the motivation for participating in a project, a dual challenge was repeatedly pointed out: proficiency in using PrepareCampus and being able to answer any questions of a technical nature raised by the students. Not even the project team's offer to be available to both teachers and students for any inquiries of this kind could persuade those in charge to alter the guidance and support provided during the ISP with the help of PrepareCampus.

In contrast, integrating PREPARE at institutional level in Luxembourg turned out to be much more successful (cf. the casestudy in chapter 3 by *Institut de formation de l'Éducation nationale* (P3, Luxembourg).

7. **Reflective quality requires additional time and opportunities for the students and must be rewarded with ECTS points**

> *The recording, technical editing and reflective processing of video recordings capturing teaching situations (or other recording media) and their argumentative integration into an e-portfolio requires a variety of additional work steps and interactions with peers and assistants. This work load is not adequately covered by the current calculation of self-study time that was originally computed to be mainly non-digital. The allocation of ECTS points for self-directed, increasingly digital study programmes must therefore be revisited and defined anew. This may require additional administrative and advisory resources.*

Comment: The results of the empirical ZEITLast study, conducted between April 2009 and March 2012 by Rolf Schulmeister and Christiane Metzger of the *Zentrum für Hochschul- und Weiterbildung* at the University of Hamburg (cf. Schulmeister and Metzger, 2011), can serve

as a basis for considerations on the additional time required for students and teachers to process instructional videos/video recordings of teaching situations and to integrate any argumentations arising from them into their e-portfolios. The background to this study on time budgets and study behaviour is the introduction of Bachelor's and Master's degree programmes during the Bologna reform process and the orientation towards the European Credit Transfer System (ECTS), which is aimed at increasing comparability and achievement equity. The pivotal point of the ECTS is the workload, whose objective is to make the input of labour required of students measurable by objective time units. Schulmeister and Metzger (2011: 20), however, criticise the fact that ECTS credit points become a mere time-measuring tool "without anyone taking the trouble to actually measure this time-based principle and all the components depending on it, which are then also defined in terms of time: course, module examination, reading lists, self-study". The study reveals very clearly that the time invested by students varies considerably – and not only in accordance with semester phases (e.g. at the beginning, during examination periods etc.), but also between degree programmes, courses and students. Another significant difference is down to the nature of tasks carried out in the context of self-study: For humanities, they mainly consist in preparing presentations, while in sciences they involve task-solving. The students differ in terms of their activities, which makes it impossible to award corresponding ECTS credit points: "A fair comparison between different study programmes is not possible as they may have different requirements; but even within a study programme, the requirements vary due to the fact that the students attend different courses and have different lecturers. It is therefore difficult to interpret what it means if one student practically never reads but writes a great deal, while another reads a considerable amount but hardly ever writes and a third student appears to only give presentations for which neither reading nor a lot of writing is required" (Schulmeister and Metzger, 2011: 89).

In light of this study, it becomes clear that the time-based appraisal of academic achievements (1 ECTS credit corresponds to 25-30 hours of learning) is not correct (cf. Schulmeister, 2014). Students who invest more time in their studies do not automatically have a better chance of obtaining good grades. Schulmeister and Metzger (2011: 122) consider the concept of module blocks a way to increase the learning outcome: "Continuous self-study is only feasible with the help of precise tasks and if feedback is made part of classroom teaching. However, this can only be achieved if the modules are taught in close temporal relation, if self-study phases are scheduled between the attendance phases and if the teachers assign tasks from session to session and actually refer back to the tasks given, providing qualified feedback in the attendance phase that follows." In contrast to typical teaching organisation approaches, in which the individual modules of a semester take the shape of weekly two-hour courses throughout the lecture term, module blocks provide for topic-based, by-the-week condensed teaching depending on their ECTS credits, thus preventing individual modules from competing with others. Schulmeister and Metzger (ibid.) list a number of positive effects for this approach: "[1] Teaching organised in the form of module blocks promotes the perception of self-study. [2] Supervised self-study is an essential component of feedback culture and has a distinctly positive effect on the workload. [3] Project seminars and work placements motivate students to learn." Bauer et al. (2018, in print) reference this very work structure and organisation on PrepareCampus.

8. Turning school traineeship portfolios into a long-term teaching asset

Due to the complexity of reflective practice, developing an intrinsic motivation among those involved in e-portfolio work is essential for achieving the quality of reflection required for

> *(self-) managing processes. Constructing follow-up and transfer tasks for a productive further use of electronic traineeship portfolios generates not only a practical value that is tangible in the medium and long term but also additional profiling opportunities for the students' reflection skills. In order to guide and organise this interdisciplinary and cross-semester e-portfolio work (carried out during the course programme), staff who have been trained in higher education didactics are needed, as described several times in the above action fields.*

Comment: So far, school traineeship portfolios have mostly served as performance records. Even if in some cases they are designed or structured as process portfolios through tasks aimed at a continuous reflection of the respective traineeship, they are per se labelled as product or presentation portfolios through the descriptions of objectives along the following lines:

For <u>evaluation purposes ("pass"/"fail")</u>*, at the end of your school traineeship you will be required to submit a portfolio to your supervisor containing the following:*

- *an overview listing the dates of your school traineeship and a confirmation of attendance issued by the accompanying teacher at your school;*
- *a documentation of what you did on which traineeship day;*
- *a description of the competencies you have profiled during the traineeship;*
- *a self-evaluation assessing to which extent you have developed the competencies you have worked on;*
- *a summary of how, upon conclusion of the traineeship, you plan to further qualify the level of competency achieved.*
  (cf. PH Freiburg, 2016)

The actual functionality of a portfolio hinges on its integration into context actions:

a. *Learning or process portfolios* must be didactically integrated into concrete contextual action, i.e. by discussing, for instance, the different experiences, insights and realisations collected during the course of the school traineeship and, under certain circumstances, by evaluating them in discussions among peers and/or with teachers and assistants;
b. *Presentation or product portfolios*, on the other hand, are characterised by their direct affiliation with institutionalised evaluation procedures.

They can, however, also be translated into learning portfolios in the longer term, provided that a corresponding objective or learning context is created: For example, the aforementioned traineeship portfolio is reused after the evaluation, ideally to continue profiling a competency identified as one requiring development in the summary. In a traineeship portfolio, this may for instance be the case in later school traineeships or university courses that revisit the competency reflected in the portfolio and continue its development.

The case studies in Freiburg, Vienna and Luxembourg provide a contrastive illustration of the need for an institutional e-learning strategy and of the associated danger of trying to solve political challenges and issues concerning the need to digitalise education with didactic concepts.

9. **To further process the knowledge gained through reflection, best practice approaches must be recognised**

If an institution does not recognise and acknowledge special achievements, it is to be expected that it will see fewer special achievements in the future. To further process the scientific and didactic insights gained through reflective practice by the students and teachers, the findings must be harnessed effectively. Developing, cultivating and disseminating a best practice collection that is easily accessible and presented in a digitally effectively manner is essential to change the existing teaching and learning cultures in a long-term and sustainable way. This field of work, too, requires staff who have been trained in higher education didactics, as mentioned several times in the above action fields.

Comment: Continuous quality development of scenarios (as discussed here) is a challenge, especially if, as in our case, the locations of usage are distributed over many countries. This was envisioned by edubreakSHARE for the education of trainers in competitive sports. The solution has the following characteristics::

- Based on the idea of competency achievement, each location develops its own set of tasks.

- These tasks exists in the portals of the single countries, as well as in a shared portal (edubreakSHARE), where tasks and resources of all participants can be reviewed and edited.

- However, edubreakSHARE is more than just a collection of tasks: It also documents experience with those tasks. These can be discussed with other participants, e.g. via video conferencing.

- Finally, it is about a) transparency and b) quality of tasks

- The system continuously creates quality on the level of tasks as well as it develops the competency of trainers harmonize quality and task development.

10. Developing joint evaluation criteria and formats

Based on the aforementioned best practice, a set of evaluation criteria and formats must be (further) developed – on a long-term basis and in conjunction with a scientifically founded basis containing the subject-related and didactic requirements – and communicated among the teaching staff (including school mentors) and the students in an approach governed by transparency at all times. This information on evaluation is a crucial contribution to the shaping of a uniform understanding of reflective practice and e-portfolio work within the framework of their respective education institution. The coordination of this communication process, too, requires staff who have been trained in higher education didactics, as mentioned several times in the above action fields.

Comment: SmartEvidence offers an opportunity to evaluate competencies with the help of competency frameworks (SmartEvidence Frameworks) on PrepareCampus: *"SmartEvidence allows you to work with competency frameworks in Mahara and associate them automatically with an evidence map for a visualisation of the competencies already gained, in progress, and not yet started. 'Competencies' is used in a wide sense here. SmartEvidence can be used for multiple purposes including competency-based assessment, graduate attributes, skills*
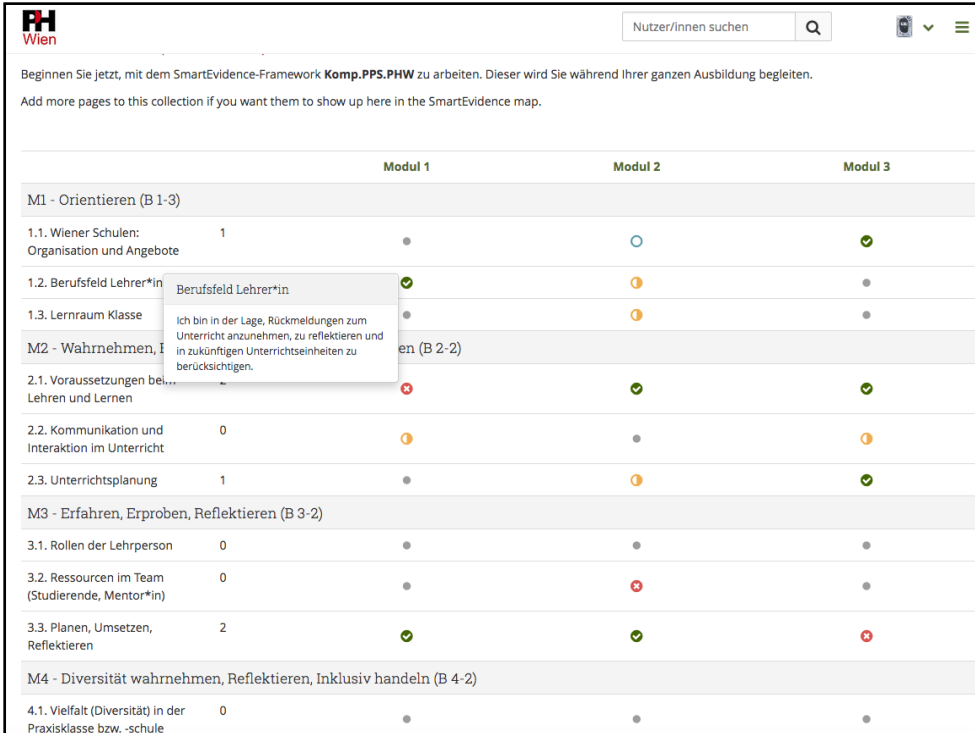
accomplishment and many more. It can also be used for self-assessment purposes" (Mahara 17.10 User Manual).

The implementation of SmartEvidence is still only in an experimental phase. While the majority of the functionalities works as planned, some areas still need to be optimised:

- The competency framework is chosen at the same time a collection is put together. It is automatically displayed and serves as a competency assessment tool for the collection. Either the students themselves or the lecturers can use it to assess certain competencies. *It is not possible to switch between competency frameworks at a later stage for as long as a display still depends on the framework selected (e.g. because of pending assessments).*
- The competency framework serves to determine whether students evaluate themselves or are evaluated by their lecturers. It is not possible to apply both options at the same time. Competency frameworks are always based on the matrix used. *Since it is currently only possible to specify one type of evaluation style in the matrix, the appropriate competency framework must be selected at the same time. At present, PrepareCampus only allows for an evaluation by lecturers.*
- All competencies are specified in a matrix file (.matrix), which must be incorporated into Mahara by its administrators. The file contains all the specifications: self-assessment/outside assessment, assessment levels and the competencies themselves (their denomination, description, levels etc.). *Because this matrix cannot be edited within Mahara, a new file must be created for each request for a modification.*

For two of the four project sites (Vienna and Luxembourg), a custom-made SmartEvidence Framework was developed and integrated into the PrepareCampus learning environment.

- SmartEvidence at the Vienna site (PH Wien): The learning and achievement documentation *PPS BachStud Lehramt Primarstufe* (*Lern- und Leistungsdokumentation PPS BachStud Lehramt Primarstufe*) was used as a basis for the SmartEvidence Framework (cf. figure 2.10.1) at PH Wien.

Fig. 2.10.1: Screenshot of the SmartEvidence Framework at PH Wien

The screenshot shows the e-portfolio views no. 1 to 3 displayed to students with regard to a total of eight competency fields and their assessment: "M1 – Orientation", "M2 – Perceiving, recognising, describing, interpreting", "M3 – Experiencing, testing, reflecting", "M4 – Perceiving diversity, reflecting, acting inclusively", "M5 – Developing and designing I", "M6 – Developing and designing II", "M7 – Deepening and linking the technical, didactic and methodological competencies in the selected focus point" and "M8 – Professionalising and enhancing the technical, didactic and methodological competencies in the selected focus point". Each one of the eight categories has its own competencies, e.g. "Schools in Vienna: organisation and proposals", "Teaching as an occupational field" and "Learning spaces in schools" in the first category: "M1 – Orientation". The learning and achievement documentation is subdivided from M1 to M8. The competency areas ("Schools in Vienna: organisation and proposals" etc.) are displayed on the left, while the scores (green, orange, red or an empty circle icon) are listed on the right-hand side. Placing the cursor on the titles reveals the descriptions (in the screenshot: "Teaching as an occupational field"). The figures to the right of the competency areas indicate the number of standards fulfilled: 0 means that in this area, no display meets the standard, 1 means that one display meets the standard, 2 means that two displays meet the standard and so on.

More information about feedback and evaluation processes using SmartEvidence is available in the "PrepareCampus Tutorials" on PrepareCampus.

- SmartEvidence at the Luxembourg site (*Institut de formation de l'Éducation nationale*) During the second year of the PREPARE project, Mahara was extended with the help of SmartEvidence, a competency framework, allowing trainee teachers to assess their competency in reference to the framework while working on a task.

  Prior to the introduction of SmartEvidence, the competencies focusing on classroom management were identified in the competency framework (*Référentiel de compétences*) and translated into German. Keywords were assigned to a total of 75 competencies and translated into French in order to comply with the requirements of multilingualism in Luxembourg, after which a file entitled "Keyword list Mahara" was made available on PrepareCampus.

  Subsequently, a 29-page PDF user manual was drawn up explaining, among other things, how to use SmartEvidence when creating a collection.

  What follow is a description of the framework conditions to outline why the implementation of SmartEvidence in Luxembourg was not and could not have been entirely successful.

  A wide range of competencies in the new teacher training approach: The competency framework (*Référentiel de compétences*) is written in French and lists 9 competency fields, 17 competencies and 106 sub-competencies. Each sub-competency is subdivided according to its focus of action: expertise, ability and attitude. Only 28 sub-competencies contain index terms or descriptors. The classroom management module (*organiser le fonctionnement du groupe-classe*), to which the PREPARE project belongs, consists of two competencies with eleven sub-competencies, for which a total of 36 indicators have been defined. The competencies contain all topics relevant in classroom management that can be ascribed to the structure underlying good teaching (Hattie 2009; Seidl and Shavelson 2007 et al.). In

addition, further thematic links exist with regard to the competency fields 4, 6, 8 and 9, so that trainee teachers are required to work on a total of 75 sub-competencies relating to classroom management.

Implementation of the competencies: Two years ago, teacher training in Luxembourg underwent a reform that introduced a new assessment tool, the "*Référentiel de compétences*". So far, the competencies have been included in the course contents and tasks only to a minor extent. However, the competencies achieved in relation to performance must be outlined and described in the written work at the end of a module and in all *Bilan du portfolio* interviews or portfolio debriefings (Max, 1999: 47).

A well-documented competency assessment is part of every written work; it is graded and therefore of particular importance for the trainee teachers. However, providing a well-documented, clear and accurate competency assessment often proves to be difficult (cf. Bloemke 2007, Hartig 2008, Hartig and Klieme 2006). In terms of the integration of competencies, a great many of the results of the written work are sobering. The competencies are often merely listed numerically at the end of the paper, referred to in very general terms and therefore often not documented sufficiently.

Working with SmartEvidence has shown that:

- the classroom management module contains too many competencies,
- the learning objectives of the courses are not consistently orientated towards the competency framework,
- the competencies are rarely actively integrated into the courses.

The concluding reflection on this issue contains a series of alternatives for the new school year, grouped into short and medium-term problem areas:

Short-term
- define the learning objectives of the courses in accordance with the competency framework,
- actively address the competencies in the course,
- provide time to reflect on the competencies during the course,
- define the missing descriptors and
- create an exchange on the competency framework between the course instructors and anyone else involved in the training.

The competency framework will be revised in the medium to long term.

In conclusion, it can be pointed out that the Luxembourg stakeholders have taken another critical look at their own competency framework, identifying any weaknesses that will have to be addressed in the future. The general conviction is that SmartEvidence is a good tool to make competencies visible and thus accessible for evaluation (e.g. Häcker 2005; cf. also Dürnberger and Sporer, 2009).

11. Reflective practice requires mental freedom and individual meeting spaces of a digital and physical nature

Reflective practice must, however, under no circumstances be motivated exclusively or predominantly by evaluation. The students must become aware of its benefits as a means and medium for self-directed, in-depth, critical learning. This can be done with the help of

> *teaching staff and using digital tools above and beyond the scope of e-portfolios. For this self-directed, highly individualised reflection work, students need digital and physical learning spaces for peer interaction and self-organised meetings with experts. But there is also a need for contact points providing individual guidance and support. Therefore, the establishment of (online) writing centres, learning centres and tutor positions must be supported.*

Comment: The centre for learning technologies and innovation (*Zentrum für Lerntechnologie und Innovation,* ZLI) manages a number of so-called learning rooms at PH Wien that serve as innovation points for research, education, training and school development. In addition, PH Wien has established a writing centre in which specially trained staff assist students in writing their e-portfolios and any texts related with it.

PH Freiburg, too, has a writing centre that supports reflective writing and the development of (electronic) portfolios:

- In a series of workshops, students are introduced to the particular requirements of reflective writing and become familiar with the special features of the (e-)portfolio text type.
- Text-based feedback on the rhetorical quality of the authors' reflections is provided in individual support sessions.
- Students can get together and form so-called free writing groups, using the centre as a meeting point for the purposes of joint text production and peer feedback.
- Didactic writing support is available to teachers designing portfolio work in general and reflective writing tasks in particular.
- The writing centre also offers self-learning materials and sample portfolios.

More information about this special learning room is available in this video.

12. Securing learning analytics as a central research and development tool

> *Learning analytics in the sense of a complex digital tool for recognising training needs, to establish teaching and learning processes and for optimising administrative procedures is of particular importance in strengthening reflective practice at institutional and individual level through e-portfolios. The individual and institutional resistance that is often caused by the mental, technical and didactic-organisational complexity of e-portfolio work can be overcome not least with the help of information generated with learning analytics on the high utility value of reflection based on e-portfolios for teaching and learning. This makes it possible to orientate the strategies and concepts of the higher education institution, to further develop individual courses and to optimise individual supervision and support systems. In other words, continuous learning analytics are required for a scientifically sound quality management within the aforementioned agenda items. This, too, requires staff who have been trained in higher education didactics, as mentioned several times in the above action fields.*

Comment: According to Ifenthaler and Yau (2017), learning analytics bear a recognisable added value for both learners and teachers: With the help of learning analytics, students can reflect on their individual learning behaviour in order to optimise the learning context and process. For teachers, on the other hand, data obtained through learning analytics contains the potential for supporting learning processes in a target-orientated approach based on

individual feedback; i.e. teachers are aware of the learner's learning performance and can provide support and assistance wherever required.

In their feedback study on teaching portfolios, Zagler et al. (2016) make reference to the meta-analyses conducted by Hattie since 1992, which revealed that feedback is one of the most important factors in learning success (cf. Hattie, 2009: 173). There is, however, considerable variability with regard to the effectiveness of feedback, i.e. learning-relevant feedback versus mere praise and criticism (cf. Hattie and Timperley, 2007: 84). The main purpose of feedback is to assist learners and teachers in bridging the gap between their current understanding and performance and their objective. Learning-relevant feedback is therefore orientated on the following questions (cf. ibid.: 86): What is the objective (feed up)? Is there any progress (feed back)? What comes next (feed forward)? The helpfulness of the answers to these questions depends on the feedback level at which they are asked. In their model, Hattie and Timperley (ibid.) distinguish four levels: task, process, self-regulation, self. According to Hattie, feedback is information regarding aspects of a learner's understanding or performance (cf. Hattie, 2009: 174). In relation to individual feedback processes applied on PrepareCampus, this would mean that (peer) feedback should above all point out ways to change one's own thinking and actions and thus improve one's own learning process and the learning product connected with it (in this case, digital portfolios).

According to Hattie, feedback for teachers is equally effective as feedback for students. This should help teachers to continuously evaluate, systematically reflect on and improve their own individual teaching process (cf. Hattie, 2011). Learning analytics help to answer relevant questions, such as whether the participants have understood the task correctly. This would translate into in the timely creation of correct artefacts. If this does not occur, it can be assumed that the teacher has not succeeded in conveying the task clearly enough, i.e. the task design must be revised. For PrepareCampus, a number of key indicators were developed and evaluated to help the teachers in their own reflection. In doing so, evaluating the comments left in response to video comments has proven to be particularly helpful, as they indicate which passages the students consider to be especially worth reflecting on.

13. **Determining the principles of data protection provisions and identifying the options to implement them at local level**

In order to handle personal, sensitive data in videos, e-portfolios and other digital media within the context of reflective practice and to collect background information regarding the interaction on PrepareCampus (or any other digital learning environment) for the purposes of learning analytics, the data privacy protection requirements at the respective site must first be addressed in an in-depth approach. To that end, the 2018 EU directives on the matter must be implemented at local level by legal experts. All educational institutions must receive the human and/or financial resources necessary to do so.

Comment: "The General Data Protection Regulation (GDPR; in German: Datenschutz-Grundverordnung/DSGVO; in French: Règlement général sur la protection des données, RGPD) is a regulation of the European Union that harmonises the rules for the processing of personal data by private companies and public authorities throughout the EU. The aim is to ensure the protection of personal data within the European Union as well as the free movement of data within the European Single Market." (https://de.wikipedia.org/wiki/Datenschutz-Grundverordnung bzw. https://de.wikipedia.org/w/index.php?title=Spezial:Zitierhilfe&page=Datenschutz-Grundverordnung&id=185263237)

With regard to the use of PrepareCampus (edubreak®), the GDPR generates two perspectives relevant to data protection with concrete recommendations for action:

a. For educational organisations

- What is personal data?
  - *Personal data is all information that can be associated with a person, for example the contents of a user profile.*
- Is all data in edubreak® automatically personal?
  - *No. All contributions that do not explicitly name a person or that have been anonymised and no longer contain references to specific persons are not personal.*
- Who is responsible for the course contents?
  - *In all edubreak® courses and groups, content is created exclusively by the users. The users themselves are therefore responsible for the contents; from a legal point of view, the responsibility lies with the organisation that has rented the campus/community.*
- Where can I find the legal notice (*Impressum*) and information on the data processing agreement?
  - *Campus managers will find a link to these pages in the course overview. This is where the organisations enter the contents required for a legal notice (Impressum) and then receive a download link to the data processing agreement.*
- What influence do I have on my data?
  - *All users are free to delete their profiles at any time. When a profile is deleted, all of its contents are anonymised with regard to authorship. Furthermore, none of the profile details entered are available any longer and therefore it is not possible to attribute them to an individual person. The only exceptions are names cited directly within a contribution, which are not automatically anonymised.*
- Who has access to the data of a profile?
  - *All course members, the campus managers within the organisation and all edubreak® administrators.*
- Which details have to be provided in the profile?
  - *Only first and last names are automatically displayed in a profile. All other fields are optional: You can decide for yourself how much you would like to become public within a course.*
- What happens when I delete an account?
  - *The profile and all contents created are anonymised (general data, image rights, organisation server) to ensure that it is no longer possible to attribute them to a specific person. What is important to bear in mind is that names cited directly within content cannot be automatically anonymised. An internal backup containing a non-anonymised version of the data remains stored for the duration of six months. Only administrators have access to it.*
- Can edubreak® users request for all existing data to be irrevocably deleted before the six months have passed?
  - *No. According to the General Data Protection Regulation, this data may be contained in backups for up to six months. This is to ensure the integrity of the system in the event of a technical problem.*

- Where is the data contained in edubreak® stored?
  - *The security of all personal data is very important to us. We therefore invest in a secure IT infrastructure and German servers provided by Hetzner Online GmbH and Limtec GmbH.*
- Can it be installed on the server of a single organisation?
  - *Yes, we offer tailor-made solutions, among which the integration into the infrastructure of a particular organisation.*
- Which image rights do I relinquish or retain when uploading my videos to edubreak®?
  - *The first set of rules to apply would be the terms of use, if any, between the organisation and the user. If there is no such agreement, the rights to the content created remain with the authors.*
- What do I have to consider if, for example, I plan to film children during training?
  - *We recommend that at the beginning of the course, all organisations provide their participating learners with a template containing a declaration of consent in order to promote the responsible treatment of personal data and recordings and to protect them from the very start.*
- Can other edubreak® users view uploaded videos?
  - *No, only members of your course and campus managers have access to the videos – other edubreak® users cannot access them.*

b. For individual users

- What is personal data?
  - *Personal data is all information that can be associated with a person, for example the contents of a user profile.*
- Is all data in edubreak® automatically personal?
  - *No. All contributions that do not explicitly name a person or that have been anonymised and no longer contain references to specific persons are not personal.*
- Which image rights do I relinquish or retain when uploading my videos to edubreak®?
  - *The first set of rules to apply would be the terms of use, if any, between the organisation and the user. If there is no such agreement, the rights to the content created remain with the authors.*
- What do I have to consider if, for example, I plan to film children during training?
  - *We recommend that at the beginning of the course, all organisations provide their participating learners with a template containing a declaration of consent in order to promote the responsible treatment of personal data and recordings and to protect them from the very start.*
- Can other edubreak® users view uploaded videos?
  - *No, only members of your course and campus managers have access to the videos – other edubreak® users cannot access them.*

Chapter 3: Case studies

This case study analysis pursues an explanatory objective: Based on the case studies carried out in Germany (PH Freiburg), Austria (PH Wien), Luxembourg (IFEN) and Italy (Department of Pedagogics of the Autonomous Province of Bolzano/Bozen – South Tyrol) within the context of PREPARE, the aim is to determine whether and how the empirical evidence gathered confirms or challenges the education policy agenda-related observations (see Chapter 2: Education policy agenda and further comments) on strengthening the reflective practice of teacher training students, trainee teachers and teachers in further education and training. The objective is to shift from surface learning to deep learning, since what is needed in teacher training institutions throughout colleges and universities is the "development of competencies in teaching that are orientated on the real needs of the occupational fields that they are aimed at, which makes them personally significant experiences, and have the potential to leave a lasting effect – including during the transition from studying to work" (cf. Bräuer, 2014: 21). To this end, the perception, evaluation and decision-making processes in use at the teacher-training and further education institutions involved in the project are examined against the background of the theoretical frame of reference developed in the project.

At this point, it must be stressed that the central focus is not on the individuality of the case examined, but rather on the interpretation of the data collected within the framework of categories representing the case and its underlying structures. The results of the investigations are therefore not to be taken as universally valid and applicable, but are merely to be understood as context-related explanations (cf. the explanatory objective mentioned at the beginning) of a limited validity and generalisability.

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Abstract

The present study provides an insight into the process of promoting reflection competency in teacher training at the project site Germany, represented by the Freiburg University of Education (*Pädagogische Hochschule*/PH Freiburg). The original plan was to establish the PREPARE project at the *Zentrum für schulpraktische Studien* (centre for practical school studies, ZfS) within PH Freiburg. The planned cohort consisted of students participating in the professionalisation traineeship: In this traineeship format, engaging in digital reflection with the help of an electronic portfolio appeared to be particularly purposeful, since in the past, temporal and spatial limitations had often complicated the cooperation between trainee teachers, school mentors and academic staff at the university. In the professionalisation traineeship, students are instructed to test selected aspects of professional conduct in the practical context of the school on a scientific basis at a school of their choice, i.e. also outside of Freiburg.

PREPARE could only be offered to the students as optional as it was not possible for PH Freiburg to amend the existing examination regulations to implement and evaluate the professionalisation traineeship. Up until the first half of the project period, this offer was used by only few students. When, in the second half of the project, the facultative offer was extended to the integrated school traineeship (*Integriertes Schulpraktikum*, ISP), student participation levels were low, too. Although this traineeship format was redesigned at the beginning of the project, the institution was not willing to switch to binding e-portfolios as a basis upon which to efficiently employ the digital teaching and learning environment of PrepareCampus.

In the final phase of the project, PrepareCampus was also used in courses for which a great deal of reflection is required. The following section contains an outline of the user experiences in the professionalisation traineeship, in German studies courses and in the *Schreibberater*innenausbildung* course (part-time training to become a writing consultant). This overview is presented with the help of individual user portraits followed by conclusions drawn on the basis of an in-depth discussion of these user portraits for the Freiburg site and in the context of the education policy agenda developed for PREPARE.

Starting point

What follows is a brief description of the circumstances under which PREPARE was originally to be introduced at the Freiburg site. These statements are derived from a SWOT analysis carried out in Freiburg at the start of the project. For this purpose, all documents of the ZfS that were relevant for traineeships in the respective occupational fields were analysed, and guided interviews were conducted with ZfS staff, the department of university didactics (*Abteilung Hochschuldidaktik*) and teachers. The results of two online surveys (survey on the role of RP and student survey) were used as reference points for the interviews with the three interest groups:

   a. one survey among 63 teachers who have in the past supervised professionalisation traineeships (6 responses);
   b. one survey among 123 students who have already completed their professionalisation traineeship (6 responses).

The focus was on gaining a better understanding of the specific characteristics of the current reflective task design for paper-based portfolios and of the administrative circumstances of measuring performance with these portfolios. In an exchange with the department of university didactics, the existing traditions in dealing with reflection as well as both paper-based and electronic portfolios in teaching and studying at the university were examined. During an interview with a teacher representative, a key focus was put on the current challenges of portfolio work for teachers and students, not least with a view to the transition from paper-based to electronic portfolios.

The above discussions led to the following insights for the Freiburg site at the start of the project:

1. Both students and teachers need a clear definition of the purpose of (electronic) portfolios, which is orientated on the objectives of the specific traineeship format (professionalisation traineeship). Without clear orientation, is difficult to convey the reflective practice, and an appropriate task design is impossible. The institutional basis for this definition of objectives relies on two pillars:

   a. the definition of work standards for traineeships (generally already specified by the applicable legislation);

   b. a definition of the term portfolio and a functional differentiation between paper-based and electronic portfolios, including all portfolio formats (process vs. product portfolio) that are available for different school traineeship objectives.

2. As a general rule, portfolios should be evaluated in a differentiated manner, even if they are not graded ("pass"/"fail"), since a differentiated evaluation rewards the complex effort required for reflective practice in the form of portfolios.

3. In order to make a differentiated evaluation possible, the legally prescribed general standards for traineeships must be substantiated with regard to the special requirements of professionalisation traineeships: Using detailed competency descriptions and competency grids, the standards prescribed by law can be shaped in terms of task didactics, and the way a task is performed can be assessed in practice.

4. There are two cardinal objectives for school traineeships, each of which is a set of priorities that does not completely exclude the other objective, but instead places it in a context function:

> a. Acquiring or profiling of skills and knowledge: Any process-orientated portfolio format (e.g. learning portfolios, project portfolios) is suitable for this purpose.

> b. Providing proof of acquired skills and the applicability of acquired knowledge: All product-orientated portfolio formats (e.g. portfolios on strengths and weaknesses, application portfolios) are suitable for this purpose.

5. When evaluating portfolios, a basic distinction should be made between technical accuracy, reflective quality, appropriate linguistic and visual presentation and linguistic correctness. The process quality of the portfolio work (e.g. continuity in the portfolio work, feedback activities and the willingness to revise the work) may under certain circumstances also be included in the evaluation. The way in which these different evaluation aspects are weighted illustrates the local training and evaluation culture.

6. The task design, but also the evaluation of the reflective quality of the portfolio requires a weighting system with regard to the different levels of reflection: The training criteria and the portfolio format derived from it are used to determine which level of reflection is at the centre and which additional levels may be beneficial for the central one. In the application portfolio, for instance, "evaluation" is the central level of reflection – which, however, only becomes possible and well-founded in the first place thanks to "documentation" and "analysis", and which can be linked with potential for action through "planning".

7. Since engaging in reflective practice in the context of portfolios is a complex action, it must be guided and accompanied by small-step task design that should address the varying needs of different types of learners and writers. However, it should also help to cover the fundamental need for (peer) feedback and revision by explicitly putting the responsibility for the realisation of peer feedback assignments and their potential use by means of revision in the hands of the respective portfolio owner.

First findings and modified objectives for the Freiburg site

Based on the aforementioned outcome of the SWOT analysis, the following steps were planned in order to develop the PREPARE prototype for the Freiburg site:

> 1. **Change the portfolio format** for the professionalisation traineeship: switch from the product format to learning portfolios, with which the insights gained during the school traineeship are mainly documented (reflection level 1) and analysed (reflection

level 2). On this basis, the insights obtained are evaluated as a contribution to the professionalisation of the person in question (reflection level 3), and consequences are drawn for future actions within the occupational field (reflection level 4).

2. **Create new reflection assignments** that provide guidance for reflection during the three stages of the professionalisation traineeship:

> a. preparation for the school traineeship (synopsis, presentation to the teacher and the mentor at the institution providing teaching practice, make changes where necessary);

> b. documentation and analysis of how the traineeship progresses;

> c. evaluation and contextualisation of the traineeship results, linking them to questions for further training, the thesis and/or the traineeship (*Referendariat*);

3. **Determine occasions and forms of communication** between the trainee teacher, school mentors, subject supervisors and peer trainee teachers (e.g. primary reflection in newly posted teaching videos);

4. **Differentiate** the competencies aimed for in the professionalisation traineeship and **define competency grids** to evaluate the portfolio work;

5. **Modify the study and examination regulations** with regard to the implementation and evaluation of professionalisation traineeships (including an adequate number of ECTS credits).

Implementation and first failure

The following section describes the potential and limitations of the attempt to implement the aforementioned steps with a view to developing a PREPARE prototype for the Freiburg site.

In spite of the SWOT analysis results summarised at the beginning and the findings subsequently gained in an exchange with the stakeholders from the ZfS, university didactics and teaching, the parties responsible for the professionalisation traineeship (PP) at the ZfS were unable to fundamentally change the specifications for this traineeship format on the basis of the existing study and examination regulations. This ultimately also affected an initially planned pilot group of students who were to be put in charge of drawing up new guidelines for reflection and e-portfolio design. In order to prevent any disadvantages with regard to the evaluation of the school traineeship or the completion of a degree course, the trainee teachers were offered the traineeship format planned for PREPARE as optional (for more information, please consult the general description of the professionalisation traineeship). In 2016 and 2017, a total of five students chose to make use of this opportunity and opted for the following tasks: professionalisation traineeship task sheet and task design flowchart, the design of which incorporated the above findings on the changes required with regard to reflecting on the professionalisation traineeship. No teachers willing to supervise the professionalisation traineeship within the context of PREPARE (PP workload supervision) could be found. All of the five trainee teachers were supervised by one PREPARE team member at the Freiburg site.

ISP as an alternative format and second failure

In order to increase the number of people with whom to test the PREPARE prototype in Freiburg, the ZfS established access to another target group – the attendants of the integrated school traineeship (*Integriertes Schulpraktikum*, ISP). In this traineeship format, too, there is a great need for reflection within the context of e-portfolios, since there is a gap to be bridged between the scientific and didactic training at PH Freiburg on the one hand and the actions of trainee teachers in school practice on the other hand. The main area requiring development – ideally through jointly planned and implemented portfolio work – is the coordination and cooperation between the school mentor and the teachers at the university. Because the ISP takes place early on in their studies, the trainee teachers strongly depend upon the guidance and support of the two aforementioned contact persons ([ISP test group task sheet](#)). Within an ISP, all portfolio work must therefore be directed by the teachers and school mentors. It is for this reason that this time, only teachers and mentors were asked whether they were willing to participate in PREPARE. To make matters worse, in the case of the ISP, too, the study and examination regulations could not be changed, which meant that PREPARE could once more only be offered as an optional feature. As a result, PREPARE was only used in the ISP of the Freiburg project team member and his six trainee teachers.

The circumstances that led to the failure of PREPARE in the context of school traineeships underline the necessity of **action field 1** of the education policy agenda proposed in chapter two: Electronic portfolios are part of the upcoming digitalisation of education, but it is to be expected that the introduction of e-portfolios will be met with enormous resistance at institutional and individual level.

Term papers as an alternative format and first successes

In the second half of the project, the attempt to extend the PREPARE user group no longer only aimed at developing the project approach and the digital learning environment: The focus was on systematically disseminating the project results and on pegging them down at the Freiburg project site with a long-term, sustainable effect. Even though – with e-portfolio work still only being optional – this could only be achieved in some instances of the different seminars within the subject German, some success with regard to a systemic change was achieved in the part-time training course to become a writing consultant (*Schreibberater*innenausbildung*): While keeping an electronic portfolio had previously been optional, it is now a requirement of the training guidelines and will be mandatory for all participants wishing to obtain the course certificate ("[Writing consultation certificate as of 2019](#)") starting from 2019.

Which circumstances made this partial success possible?

- Support was provided to "early adopters": additional guidance and supervision by the course instructor.
- The results obtained by the "early adopters" were publicised as best practice examples for the remaining course participants, highlighting:
  - the positive effect on the advisory competency aimed for and
  - the added value achieved with the same input.

- The course director (who is also the on-site project team member) was granted direct access to the decision-making body that sets the standards of the course.

Why were these circumstances not possible in the school traineeship practice components (PP and ISP)?

- The project team member at the ZfS could not contribute directly to shaping the project.
- There was no access to the potential for change with regard to the current study and examination regulations.
- No means and prospects were available to encourage the school mentors, research fellows and trainee teachers to put in extra efforts to use PREPARE.

To illustrate the contradictory and far-reaching problem, the above reasons for success and failure at the Freiburg site should be viewed in the context of action fields 2, 3 and 9: Despite a detailed analysis of the institutional and individual need for action and action potential (**action field 2**) and its conveyance to all participants, the institution was unable or had not planned to implement the necessary didactic consequences (**action field 3**) in a top-down approach. For the future, it is to be hoped that appropriate pressure, applied in a bottom-up principle based on best practice examples (cf. **action field 9**) can demonstrate to the institution that a constantly growing practice community exists and that it is motivated to systematically address the changes required to transition from paper-based portfolio work to digitalised portfolio work.

Research questions and methods

The following research questions were investigated in the closing, guided interviews conducted with four persons who used PrepareCampus at the Freiburg site in the training contexts outlined at the beginning:

→ To which extent does the use of PrepareCampus enable its users to experience the fundamental relevance of reflective practice for the development of professional skills?

→ To which extent do users experience the task design of PrepareCampus as comprehensible and feasible?

→ To which extent is the combination of primary and secondary reflection used and perceived

as an opportunity to learn?

These three research questions represent an interest in knowledge that is specific to Freiburg and linked to the local expert committee's intention to continue using the digital campus once PREPARE is concluded in order to generate best practice approaches and, with the help of a growing practice community, to persuade the institution to accelerate the transition from paper-based to digital portfolio work (cf. the interplay of **action fields 1, 2 and 9** described above).

The following section is a comparative discussion between the four interviews. For further information, check out the [guidelines](#) and [a table comparing the answers](#) .

Discussion of the guided interviews in the context of the education policy agenda

What follows is a brief presentation of the interview partners:

Interview partner 1 (P1) is in her mid-forties and is working in a university library, where she would like to set up a writing consultation in the near future, which is why she decided to enrol in a part-time (distance learning) course to become a writing consultant. In this course, PrepareCampus is used to organise the digital distance learning aspect and to reflect on the training progress. In four modules, an electronic portfolio is created as a so-called advisor's suitcase, which is then used to provide writing consultation. The interview takes place in the third training stage. The interviewee has been using PrepareCampus for seven months.

Interview partner 2 (P2) is in her early twenties and a third-semester student of a Bachelor's degree in adult education (*Erwachsenenbildung*). She is not part of the aforementioned distance learning programme, but enrolled in a writing consultation course specially developed for students of PH Freiburg. At the time of the interview, she is in the second training stage and has been using PrepareCampus for three months. In this case, too, the platform is used to organise the training digitally and to reflect on the training progress, and it also involves a so-called advisor's suitcase.

Interview partner 3 (P3) is in her mid-twenties and a fifth-semester teacher training student (*Lehramt*). At the time of the interview, she is attending a course entitled *Textqualitäten entwickeln* (developing text qualities) for her German studies. Here, too, PrepareCampus is used as a learning platform and as a medium for reflection, creating an electronic portfolio to present competencies in providing guidance and support to those writing in schools. Although only sporadically, P3 has already used PrepareCampus for one semester in another course.

Interview partner 4 (P4) is in her late twenties and, having completed her teacher training studies (*Lehramt*), takes part in the interview during her traineeship (*Referendariat*). The interview focuses on her PrepareCampus user experience during her professionalisation traineeship, which took place some six months before the interview and during which she used the platform for roughly two months.

At the beginning of their course or school traineeship, all four interviewees were given an introduction to the concept of reflective practice and instructions on how to use PrepareCampus by the person responsible for the project in Freiburg, who also provided advice during the interviewees' work on the platform.

Research question 1: The relevance of reflective practice for the development of professional competencies

When asked about the starting conditions of their experience in dealing with reflective practice and digital learning environments, all four interviewees mention some degree of previous experience, which however consists primarily in retrieving uploaded materials and less so in peer exchange and cooperative forms of work. Furthermore, they express concrete ideas on the relevance of reflection for the development of professional competencies. Three interviewees, however, react with verbal resistance when confronted with videos as a medium

forming part of the reflection structure on PrepareCampus: The responses "Oh, no!" (P1), "Oh dear!" (P2), "a pain in the neck" (P3) convey the individuals' hesitancy or insecurity ("I will have to film myself"/P1, "I'll never be able to do that"/P2) and technical doubts ("at some point I will lose track"/P3). But there is also some curiosity regarding the medium ("But I was also curious."/P2) and a pragmatic attitude ("that's just about what I need"/P4).

Even if the interviewees do not mention it specifically, it can be assumed in the above context that an introduction to working with videos (cf. **action field 4**) could be helpful in two instances: 1) to avoid or at least reduce diffuse reservations about videos as a medium and 2) to view video work as a key opportunity to classify one's own reflective practice and thus as an essential step towards the systematic development of professional skills.

When asked about changes in perspective or in the perception of digital reflection during the work on PrepareCampus, it soon emerges that the above fears with regard to both videos as a medium and the digital learning environment are quickly and significantly reduced by a well-structured task design (cf. **action field 3**) that is aimed at peer exchange and cooperative work and encourages learning based on discoveries ("by doing"/P4). Introductions to PrepareCampus should therefore under no circumstances be designed as a "dry run" (P1), but rather be task- and goal-orientated from the very beginning (cf. **action fields 3 and 6**).

Research question 2: Comprehensibility and feasibility of the PrepareCampus task design

Providing early task orientation, i.e. already in the introductory phase, quite clearly enables the users of PrepareCampus to quickly understand the task structures of the learning environment. After only a few weeks of using the platform, the motivational potential of PrepareCampus became apparent in statements such as "I am amazed at the interactive character of the platform" (P1) or "the tasks are generally very clear" (P2), a fact that once more underlines the urgency of **action fields 3 and 6** of the education policy agenda. Yet another confirmation of this is P3's description of an opposing scenario, in which new tasks are only posted with some delay owing to a teacher's illness: "I neglected my initially very motivated use, because my supervisor did not regularly provide new tasks that I could have worked on in the meantime". This demonstrates the need for continuous guidance in the case of less experienced students (cf. **action field 6**). P4 on the other hand, a much more experienced user (who is already in the final phase of her studies), displays a pronounced degree of self-organisation and control: "I simply used PREPARE, and with every hour spent using the platform it became more fun and easier for me." At this point it should be added that P1-3 used PREPARE on a basis of weekly tasks and feedback, while P4 was active in advance on the basis of a worksheet containing all the tasks for the professionalisation traineeship.

As explained above, the institutional framework for the use of PrepareCampus at the Freiburg site is governed by its facultative use. While this circumstance can certainly not be viewed as a strategically integrated part of the task design, it must nevertheless be taken into consideration as an important influence on the participants' motivation in handling the respective task arrangement. The fact that some 90% of those taking part in the training units represented by P1-4 (distance learning course, specialist seminar, school traineeship) decided not to use an electronic portfolio and instead create a paper-based portfolio as a

performance record is in itself a clear rejection of e-portfolios and the changes associated with them. In order to deal with this attitude constructively, however, it should be interpreted in a differentiated way. The following context information could have contributed to it:

a) In the distance learning course (represented by P1), the platform Moodle was (and still is) being used. The participants therefore had to decide whether or not to familiarise themselves with working on an additional platform.

b) In the specialist seminar (represented by P2 and P3), attendance is not compulsory and no performance record is required: Proof of performance can also be provided in another course in the form of either an academic paper or a paper-based portfolio.

c) In the professionalisation traineeship (represented by P4), the performance record can alternatively also take the shape of a paper-based portfolio. Moreover, in this case, the tasks required for the paper-based portfolio are set out retrospectively, i.e. the portfolio can be created at the end of the school traineeship without any teacher feedback, peer exchange or reference to a real addressee. In contrast to the continuous and dialogue-based e-portfolio task design on PrepareCampus, paper portfolios are simply submitted once the school traineeship is concluded and assessed on the basis of whether or not they are complete ("pass"/"fail").

The above contextual information once more illustrates the significance of **action fields 3, 4, 6, 7 and 8** of the education policy agenda and their reciprocal effects: They emphasise the call made in **action field 1** for a whole set of measures to continue the institutional and individual development within the context of the increasingly fast digitalisation of education. Individual or isolated measures will in most cases be bound to fail.

One answer provided by P1 regarding the influence of the optional nature of PrepareCampus seems to illustrate the need for an unequivocal institutional positioning: "I generally think that I would be more strongly and clearly motivated if PREPARE was compulsory, i.e. if there were no alternative courses of action (paper or Moodle)." According to P3 and P4, on the other hand, making e-portfolios optional has no influence on the decision. In their statements, the two appear intrinsically motivated and in control of their actions (P3: "...I plan to use the contents for another course..."). P2 even believes that the fact that using PrepareCampus is optional has a positive effect on her work attitude: "It has always been a weakness of mine not to be able to work so well when I'm forced to (...) then I would choose a 'more rigid format' to be on the safe side."

Research question 3: The interplay of primary and secondary reflection as a learning opportunity

As the interviewees' comments would suggest, the concept of primary and secondary reflection (Bräuer 2016), which serves as a basis for the media-didactic layout of PrepareCampus and its task design, carries a special learning potential for its users: P1 describes her "advisor's suitcase" (the e-portfolio) "as a specific result of my understanding process, of which I leave traces on PrepareCampus (in the task section, in the feedback for my peers)".

In the case of P2-4, this learning potential unfolds on the basis of previous experience in dealing with reflection and reflective media such as diaries or portfolios:

- "I am generally very experienced in reflection ..."; "in comparison, I am a very reflective person ..." (P2)

- "I have often experienced reflection in oral form in the shape of feedback to others or self-reflection." (P3)

- "I have been keeping a diary since the sixth grade. During my studies, I have already had to create two portfolios." (P4)

P1 had no previous experience but an early insight, clearly triggered by the reflective task design typical of PrepareCampus, which according to P1 requires the user to "personally engage with the material" (cf. **action field 3**): "At the beginning I wondered: 'Will I be up to it? Do I understand the requirements correctly?' Now I find being allowed to be self-determined in my work very fruitful."

The assumption that the transition from primary to secondary reflection holds learning potential is confirmed by the answers to the interview question on the extent to which the tasks, observations and comments in the edubreak® section of PREPARE motivate the participants to engage in a profound reflection on their e-portfolios within the Mahara part of PREPARE. P1 experiences this link between the two parts of the platform as already automated in terms of her actions. "Successively collecting (...) motivates you to continue working. A momentum of its own is created, which makes any input or the task itself almost unnecessary." P2 delineates learning in the aforementioned stress field as follows: " As soon as I am required to put my work into words [in the video–GB] and try to summarise it, I recognise what constitutes the core of what I have learned." P4 points out that the pendular movement between the two reflection phases or parts of PREPARE, i.e. the way the task design of the school traineeship is structured, is helpful and that it led to a working rhythm that emerged as early as in the second week of her traineeship:

1) determine the observation focus (in the portfolio on Mahara);

2) plan the lesson (in the portfolio);

3) post a video recording and comment spontaneously (on edubreak®);

4) peer feedback in the video (on edubreak®);

5) draw up conclusions (in the portfolio) and grant the teacher access.

Since then, this "pendular learning motion" between the two areas occasionally appears to take place even without a direct work assignment, e.g. "(...) when I spontaneously record something on Mahara (...) while working on a task (...), I go to edubreak® to look things up" (P1). P4 interprets her "jumping back and forth between the video platform and the ePF" as an expression of her practically orientated working approach: "I learn the most in my practical work, as it helps me to better understand the theoretical aspects." And yet, according to P2, this "follow-up" can also lead to a kind of self-censorship: "I once changed an already

established portfolio view, because I wasn't brave enough to share a certain idea of mine after all." For P3, the learning process takes place even further inside the portfolio: "Displaying the link between the different displays [of my portfolio–GB] was one aspect of my personal approach from the very start (...), so I created a [digital–GB] folder in which I can 'flick through' the different displays. That way I can visualise the connections in terms of content."

The final block of questions in the interview investigates the assumption that by "scaffolding" the reflection tasks based on Bräuer's four levels of reflection, the learning documented above in the interplay of primary and secondary reflection is rendered visible and can be put into words to be conveyed linguistically (2016; cf. **action field 3**). Preliminary studies at the PREPARE project sites had repeatedly shown that if the task-didactic approach for written reflection is not split into small steps, most texts merely list or superficially describe actions and stereotypically evaluate their quality of action (e.g. "Worked out quite well!").

The interviewees were therefore asked about their individual experiences in implementing the different levels of reflection and about the role of orality in the video as an intermediate step towards in-depth written reflection. P4 reports that it was the special task design on PrepareCampus (cf. **action fields 3 and 6**) that first made her aware of the many facets of reflective practice. "I did not know about the levels of reflection until my PP [professionalisation traineeship–GB]. But they seem useful, because they help me to go deeper in my reflection. In the past, I used to only write down what I'd done and then determine what had been successful or not. Now that I have to deliver a specific and well-founded judgement, I am motivated to think about how I could improve my teaching."

P1 takes using the four-level model of reflection even further by describing the design of the materials in her advisor's suitcase as an "anticipatory evaluation" and by asking herself how efficient the materials will be in supporting her future advisory work.

With regard to her portfolio notes, P3 points out that up to the time of the interview, she had, if anything, rather unconsciously made use of the levels of evaluation and planning. As a general rule, however, she finds written reflection easier than oral reflection, "because I can structure my own thoughts better". P2 also considers written reflection to be easier than reflecting in a video: "My type of writing is predominantly that of a structure creator: I can casually type up texts just like that. With videos, it's a little different (...)." In the concept underlying the PREPARE model, it is assumed that (primary) reflection in videos can lead to a deeper (secondary) level of reflection in writing – a presumption that is challenged by these two users at the very least.

However, successfully concerting paper and e-portfolios in terms of task didactics and for the purposes of consultant training appears to open up yet another learning resource beyond task design. This seems particularly worth considering with regard to the implementation of **action field 1** of the education policy agenda. In response to the question as to why she keeps a paper-based consultant's suitcase (CB) in addition to her electronic one, P1 states: "I collect everything that I consider important for my work as a writing consultant in the digital CB. That is a lot of material. My paper-based CB, on the other hand, is much slimmer and always related to the current consultation case. In other words, when preparing for a consultation, I stand in front of my big 'wardrobe' (the digital CB) and decide what luggage I should take with me on this next 'expedition' (...)."

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Abstract

This explanatory case study provides insights into the concluding evaluation of the EU project PREPARE (Promoting reflective practice in the training of teachers using e-portfolios) at the University of Teacher Education in Vienna (PH Wien). Overall, the aim of the project was to find a solution – drawn from the digital space and based on video reflection, e-portfolio work and learning analytics – for a key shortfall in terms of the information required to recognise the need for instruction, guidance and support in training and in the transition phases between training periods. The example of three selected teaching practice groups of the Bachelor's degree in primary school teaching (*Lehramt Primarstufe)* at PH Wien will serve as a basis to discuss in which way the approach developed in the project indicates transfer potential aimed at enabling prospective teachers to adapt their professional actions to the ever-changing requirements of heterogeneous groups of learners.

Introduction

Based on a comprehensive analysis covering literacy management and SWOTs with regard to the role that reflective practice plays in the partner institutions involved in the project, a higher education didactic concept and a corresponding task design were developed. To implement it, a digital learning environment (PrepareCampus) for the promotion of reflection competency, teaching competency and the exchange of knowledge and practical experience on the basis of video reflection, e-portfolio work and learning analytics was developed.

Electronic portfolios are part of the upcoming digitalisation of the education sector. Before the start of the PREPARE project at PH Wien, this education policy mobilisation towards a transition from paper-based to electronic portfolios had only been successful to a limited extent (cf. [notes on the situation at PH Wien](#)). The following section explains how working with e-portfolios and videos on PrepareCampus for the pedagogical-practical studies (PPS) course at PH Wien changed the attitude of both practice supervisors and students during the course of the project.

About the pedagogical-practical studies course at PH Wien

Throughout the Bachelor's degree in primary school teaching (*Lehramt Primarstufe)* at the University College of Teacher Education in Vienna (PH Wien), the course *Pädagogisch-Praktische Studien* (PPS, pedagogical-practical studies; 40 ECTS) is anchored over the entire course of study and links theoretical content relevant to teaching with pedagogical-practical components. The teaching traineeship primarily serves to provide orientation in the professional field, to implement methodological-didactic considerations and to gain experience in the different requirements and areas of responsibility of teachers (cf. PH Wien, 2018). During teaching practice, a mentor is assigned to small groups of students at each school.

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[1] The case study at PH Wien was developed with the participation of Reinhard Bauer, Katharina Grubesic, Klaus Himpsl-Gutermann, Gabriele Kapeller, Gabriele Mayer-Frühwirth, Karin Riedl, Erich Schönbächler, Susanne Tomecek and Michaela Ziegler.

The students can sit in on lessons or teach and are involved in other educational tasks at the school. An accompanying course at the university serves to prepare and follow-up the practice stages and the didactic reflection. Building on the students' increasing professionalisation, different priorities apply (cf. PH Wien, 2017).

A detailed breakdown of the literacy management and SWOT analysis carried out at PH Wien in the first six months of the project can be found here.

Case study schedule and workflow

The work of the selected school traineeship groups on PrepareCampus (video and e-portfolio work within the context of the PPS from semester 1 to 6) is described shortly after the experiences were made and analysed as a whole. The aim is to explain and critically review the e-portfolio model developed for PH Wien to prepare pedagogical decisions. Figure 2.3.1 illustrates the workflow. The primary concern in analysing the three individual case studies, the results of which are brought together in a cross-case study analysis, is to highlight any changes in the practical actions of the stakeholders involved (mainly students and teachers, but also mentors).
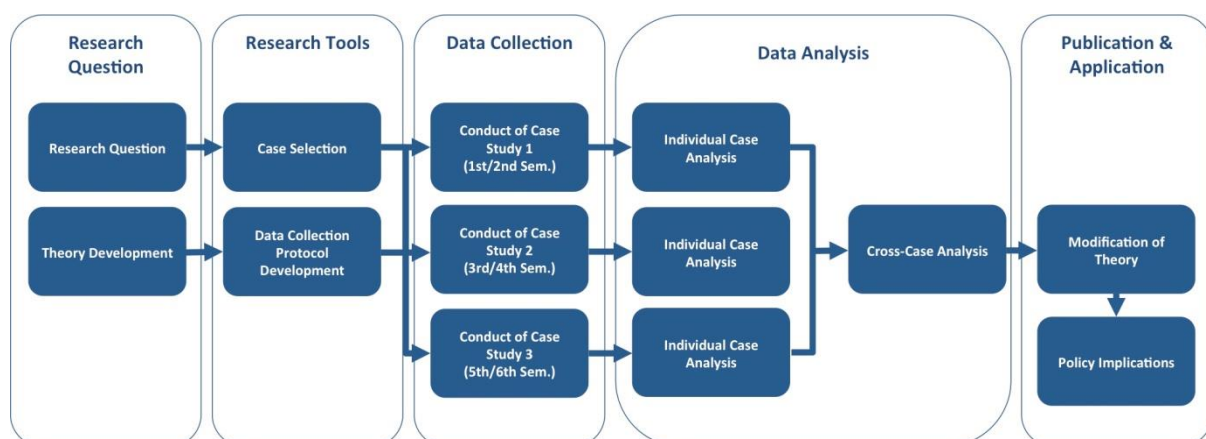

Fig. 3.2.1: Workflow of the case analysis at PH Wien (cf. Yin, 2014)

Definition of the research question and of the theoretical reference framework

The postulations and positions calling for a strengthening of reflective practice in teacher training through the use of electronic portfolios set out in chapter two represent the overarching theoretical framework of reference for the case study at PH Wien. Departing from the fact that at PH Wien, in contrast to the *Institut de formation de l'Éducation nationale* (IFEN) in Luxembourg, e-portfolios have already been used in teaching since 2011, the research questions and theoretical framework of reference must be adapted to this specific situation. To this end, a series of text passages from as yet unpublished (Bauer, 2018; Bauer et al., 2018) and already published contributions (Bauer, 2017; Grubesic et al., 2018) were used.

Research questions

Taking into consideration the central questions of reflective teacher training raised by Häcker (2017, 30 ff.), the following questions are of particular interest in the case study:

- To which extent is it possible to increase the reflectivity of future teachers with the help of PrepareCampus (video and e-portfolio work)?

- When and where in the training are time, "spaces" and formats made available that provide an appropriate setting for reflection as an "attention-absorbing action" and, if necessary, structure it? Which courses and practical formats are available [...]? (Häcker (2017, 31)
- Upon assessing the quality of reflection processes and results, how are the framework conditions of the reflection requirements (e.g. motivations or triggers) adequately taken into account? (ibid.)
- Which risks are involved in the didactisation of reflection?
- In which training phases is reflection beneficial or detrimental to professionalisation?

Theoretical reference framework

Häcker (2017: 26) ponders when people reflect in the first place and concludes that "[s]ystematically speaking, [...] reflection [can] both be caused by a practical motivation [e.g. disruptions, failure etc.] and be the result of a deliberate trigger [didactic setting as a starting point]" An individual finds that a hitherto effective pattern of action no longer works, or others purposely address a certain pattern of action. In the first case, reflecting is not an end in itself. According to Häcker (ibid.: 32), however, in the second case there is a risk that with the didactisation of reflecting, "its practical-expansive sense is lost" and "reflection can thus go from being a means to becoming an end (in itself) [...]": From the students' perspective, he continues, the activity is reduced to merely working through and ticking off the reflection tasks, which leads to defensive reflection.

But what about video reflection and e-portfolio work in the case of new and advanced students? Does meditating about one's own patterns of action require a "trigger", i.e. a didactic setting as a starting point, or do the students view it as a motivation in itself? The aim of analysing the case study at the project site PH Wien is to shed light on these questions and those mentioned above.

Case study selection and development of the case study report

Selection of case studies and period analysed

The impact potential of social video learning can be observed with the help of quantitative data (collected using learning analytics tools[2] that track the students' engagement with the video material uploaded to PrepareCampus and their digital interaction with each other), the results of an online survey and qualitative data obtained from video (re-) comments and reflection in e-portfolio displays as well as from video interviews and e-portfolio displays. All data used for

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[2] Learning Analytics (LA) collects data on learners and their learning context. The aim is to gather sets of data from different sources (in this case, from video and e-portfolio work on PrepareCampus) and to evaluate them after confronting them in a purposeful way. To this end, the PREPARE project offers an interface connecting to edubreak® through which the data relevant to LA can be retrieved continuously, and a database in which the data retrieved is condensed and analysed. It serves to, for example, measure learning progress and predict future performance, but it is also a means to systematically support a student's learning process. In connection with PrepareCampus, for instance, it is possible to determine who is (not) active, when and for how long someone works on individual tasks, which tasks seem attractive to students (distribution of activities among different task types), which learning paths they use, where there are content clusters and who gives or receives what kind of feedback. This knowledge can be used to establish a connection between primary and secondary reflection (cf. Bräuer, 2016).

this case study is from the 2017/2018 winter semester and the 2018 summer semester. The overall analysis covers three case studies with a total of five school traineeship groups:

- case study 1: semesters 1 and 2 with two groups (group A: eight first-year students, three mentors and three teachers accompanying the teaching practice from PH Wien; group B: initially eleven, then ten first-year students, three mentors and two teachers accompanying the teaching practice from PH Wien);
- case study 2: semesters 3 and 4 with two groups (group C: eleven students and one teacher accompanying the teaching practice from PH Wien; group D: fourteen students and one teacher accompanying the teaching practice from PH Wien);
- case study 3: semesters 5 and 6 with one group (group E: seven students and one teacher accompanying the teaching practice from PH Wien).

Data collection methods

The data[3] used in the case study was obtained with the help of a variety of survey tools, among which consultations (video interviews with students, mentors and teachers, online polls among students working on PrepareCampus), document analysis (learning and reflection logs, e-portfolio displays) and, as outlined above, learning analytics (tracking data).

Surveys

The surveys were centred on a problem-orientated approach (focus: lessons learned, with an explicit reference to the respective action fields of the education policy agenda).

Video interviews with students of the second, fourth and sixth semesters

In the videos, students in their second, fourth and sixth semester talked about their experiences with PrepareCampus and their work within the project. The central questions were as follows:

- What do you generally think of video-supported reflection on teaching work?
- How did you find your way around PrepareCampus?
- How did you use the platform?
- What about SVL? Were you able to exchange views with your colleagues on the platform?
- What would you improve?

Video interviews with teachers of the second, fourth and sixth semesters and with mentors of the second semester

The discussions with the teachers (practice supervisors) and mentors were centred on the following key questions:

- [3]LimeSurvey PH Wien - PREPARE (questionnaire, June 2018): https://cloud.phwien.ac.at/index.php/s/64ctoCKXMqGvVQP
- Results of Online-Survey: https://cloud.phwien.ac.at/index.php/s/stzAFVeDfiqVL0i
- Video-Interviews (students, teachers, mentors): https://cloud.phwien.ac.at/index.php/s/CeebIqgoFfR2KxY
- Data of Learning Analytics: https://cloud.phwien.ac.at/index.php/s/av1CwrXHbjM0KAV

- What should the students have learned at the end of the pedagogical-practical studies course (PPS) in their respective semester?
- Which measures are required to shape the content and methods of the didactic reflection course? Which role did PREPARE (working with videos and e-portfolios) play?
- Looking back, what worked well? What didn't, and how could those instances be optimised?
- To which extent did changes occur among the students during the course that accompanied their PPS (especially in terms of how the new model was received and applied at micro-level)?
- How suitable is the PREPARE model for working in the PPS course? What does a purposeful implementation of the PREPARE concept at PH Wien look like?
- What has changed in the preparation and follow-up phases?
- Which learning effects can be observed among the students, and what can they predominantly be attributed to?

Written survey among students of the second, fourth and sixth semesters

The written part of the interviews was conducted with the help of LimeSurvey (cf. survey: printable html file). Closed questions were used to ask about working on PrepareCampus in general, while open questions left room for comments, suggestions and experiences in particular etc.

Document analysis

Written documents on PrepareCampus (video re-comments on edubreak® and e-portfolio displays as well as reflection logs on Mahara) were used for the document analysis process. Because the work was done in closed (course) groups, it is not possible to directly access the data (video comments, e-portfolio displays etc.).

Data analysis and interpretation of the results

Video interviews with students, teachers and mentors

Table 3.2.3 provides information on what the students thought of the reflective work on PrepareCampus from semester one to six, and what findings they derive from it.

Table 3.2.4 summarises the practice supervisors' most important findings with regard to reflective work on PrepareCampus.

One view that the statements provided by the students, teachers and mentors have in common is that videography represents an added value for reflective practice, since the video sequences enable all participants to look at their own actions from a different angle again and again. Mayer-Frühwirth (2017: 74) agrees: Analysing videos on edubreak® should serve as a basis for students to document and reflect on their own experiences in development and presentation portfolios (cf. **action field 1**), while the exchange with peers allows for an additional facet (cf. peer-to-peer learning, cf. **action field 11**). The experience gained during the PrepareCampus pilot phase (cf. here) indicates a need to highlight to the students the added value that social video learning holds in store for their personal mastery (cf. Senge 2011; cf. **action fields 8, 9 and 11**). Video recordings allow the user to reflect on their own

teaching actions from an outside perspective, while commenting and re-commenting create the basis upon which to enter into discourse with others (cf. Vohle 2011: 52). Specific tasks, focused on individualised and theory-based core competencies of pedagogical professionalism, can allow students to document and reflect on development processes (cf. **action field 3**). These competencies to be acquired are listed in the learning and achievement documentation of the pedagogical-practical studies course (cf. **action field 10**). The aim of the documentation is to support students in designing and managing their own professionalisation process.

The mentors point out that PrepareCampus, which is made available to the students as a virtual space for reflection, should be used more – and more specifically so with a view to writing down the findings gained in an intensive exchange with all persons involved (cf. **action field 11**). This is the only way, they argue, to achieve a certain degree of sustainability. The students agree, and they advocate using the campus over a longer period of time and not just for the purposes of school practice (cf. **action fields 7, 8 and 9**), as doing so would also lead to an increase in the quality of the reflections where (re-) commenting is concerned. According to a mentor who supervises first- and second-semester students, at present, the comments are still rather superficial. She would have expected a more intensive exchange: "Things could have been livelier." In comparison with the higher semesters, the new students have not yet engaged in an intensive discussion of theoretical concepts. In this context, theory serves to define a problem. From a didactic point of view it must precede practice. From the perspective of the teachers involved in the project, the reflection work on PrepareCampus leads to better results from the third semester onwards: The students already have the theoretical knowledge that helps to identify and denominate problem areas and makes it possible to search for solutions or derive consequences for further action.

Online survey among students

For the online survey, the questions were divided into groups: A (general questions on reflective practice), C (use of the video-supported e-portfolio environment PrepareCampus) and D (implementation of video and portfolio work in the PPS course). The results were as follows:

The vast majority of students surveyed (cf. figure 3.2.2) believe that video-based reflection contributes to improving their teaching (cf. **action fields 8 and 11**). One reason for this result is certainly that within the context of the PPS course, the student groups selected for PREPARE and their supervisors primarily used the core functionalities of edubreak® (the task-based, pinpoint video annotation feature within the video player) to collaborate on PrepareCampus. This is also mirrored by the different opinions on the benefits of edubreak® (cf. figure 3.2.5) and Mahara (cf. figure 3.2.6) for the development and enhancement of (self-) reflection competency.

I find the video-based reflection of my own teaching activity helpful to improve my teaching.

■ 2nd Semester (n=9)   ■ 4th Semester (n=18)   ■ 6th Semester (n=3)
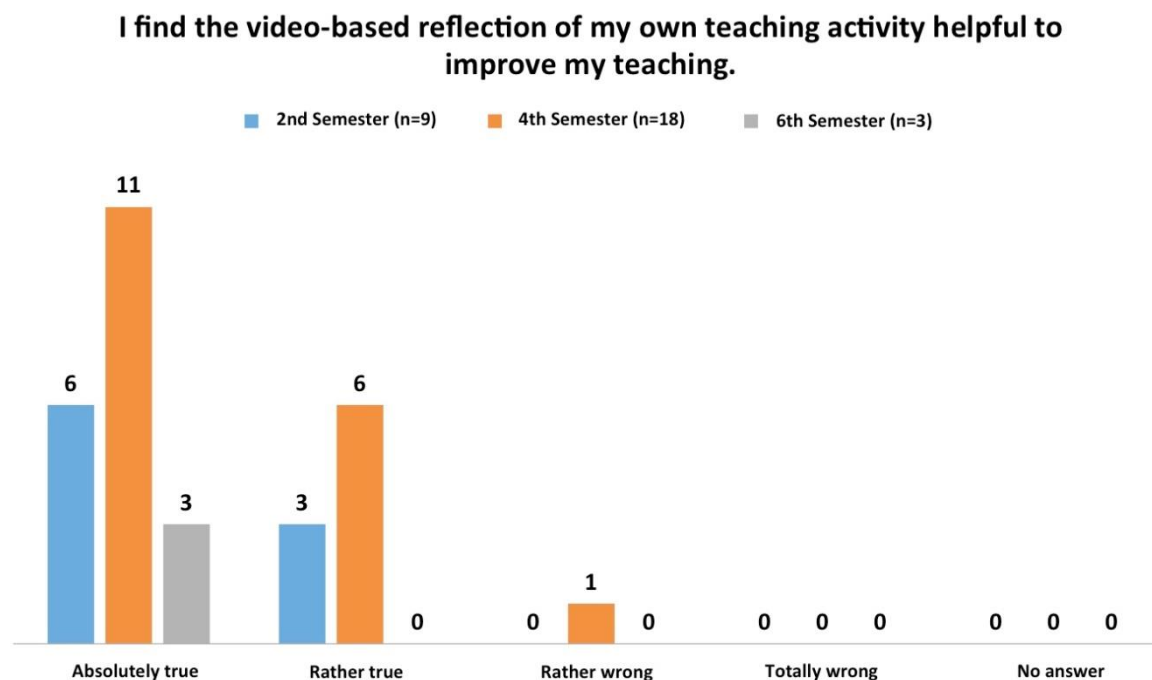

Fig. 3.2.2: Evaluating video-based reflection with regard to the development of one's own teaching activities

24 out of 30 students state that watching their own teaching videos provides valuable input for the reflection of past teaching situations (cf. figure 3.2.3) and describe the exchange with their peers as particularly beneficial (cf. figure 3.2.4). This applies above all to fourth- and sixth-semester students. Compared to students in higher semesters, sharing videos and the social video learning aspect associated with it is probably still a bit of a challenge for second-semester students since they do not know each other as well as students in the fourth and sixth semesters, for example. A high degree of trust is a basic prerequisite for working with the videos of others (cf. the video interviews with the students and **action field 11**).
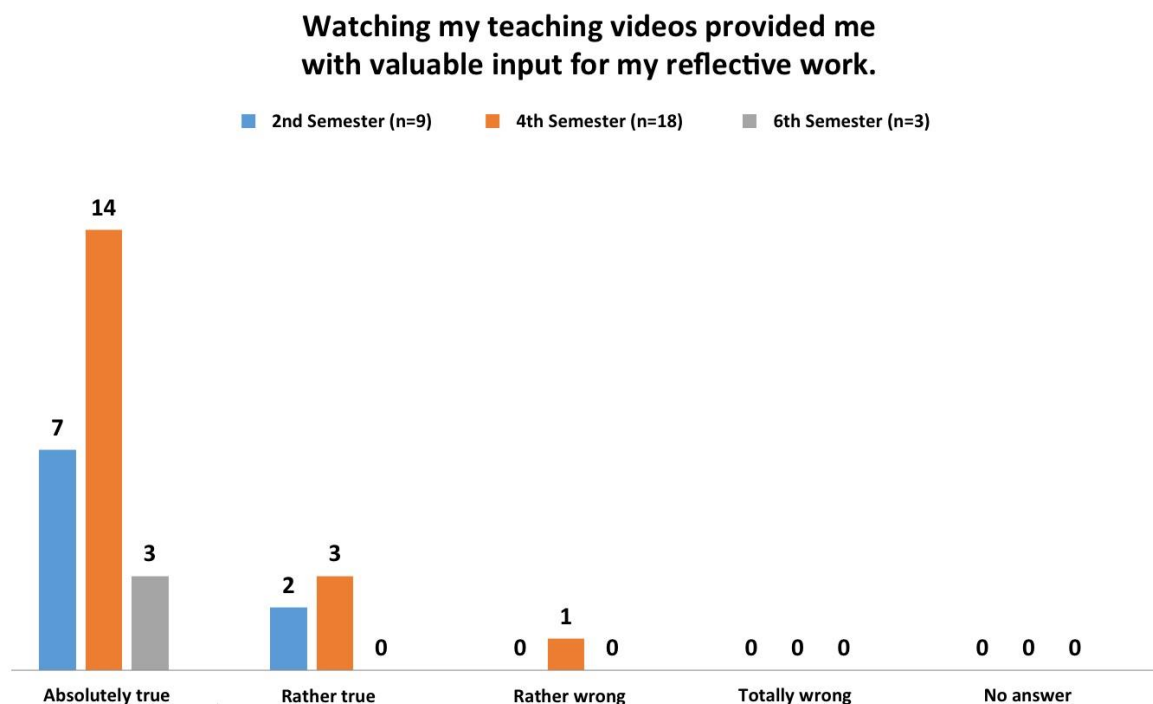
Watching my teaching videos provided me with valuable input for my reflective work.

■ 2nd Semester (n=9)   ■ 4th Semester (n=18)   ■ 6th Semester (n=3)

	Absolutely true	Rather true	Rather wrong	Totally wrong	No answer
2nd Semester	7	2	0	0	0
4th Semester	14	3	1	0	0
6th Semester	3	0	0	0	0

Fig. 3.2.3: Evaluating the personal benefit of video reflection

I find it valuable to share my reflective insights with my peers in order to learn from them.

■ 2nd Semester (n=9)   ■ 4th Semester (n=18)   ■ 6th Semester (n=3)

	Absolutely true	Rather true	Rather wrong	Totally wrong	No answer
2nd Semester	1	6	2	0	0
4th Semester	13	4	1	0	0
6th Semester	3	0	0	0	0
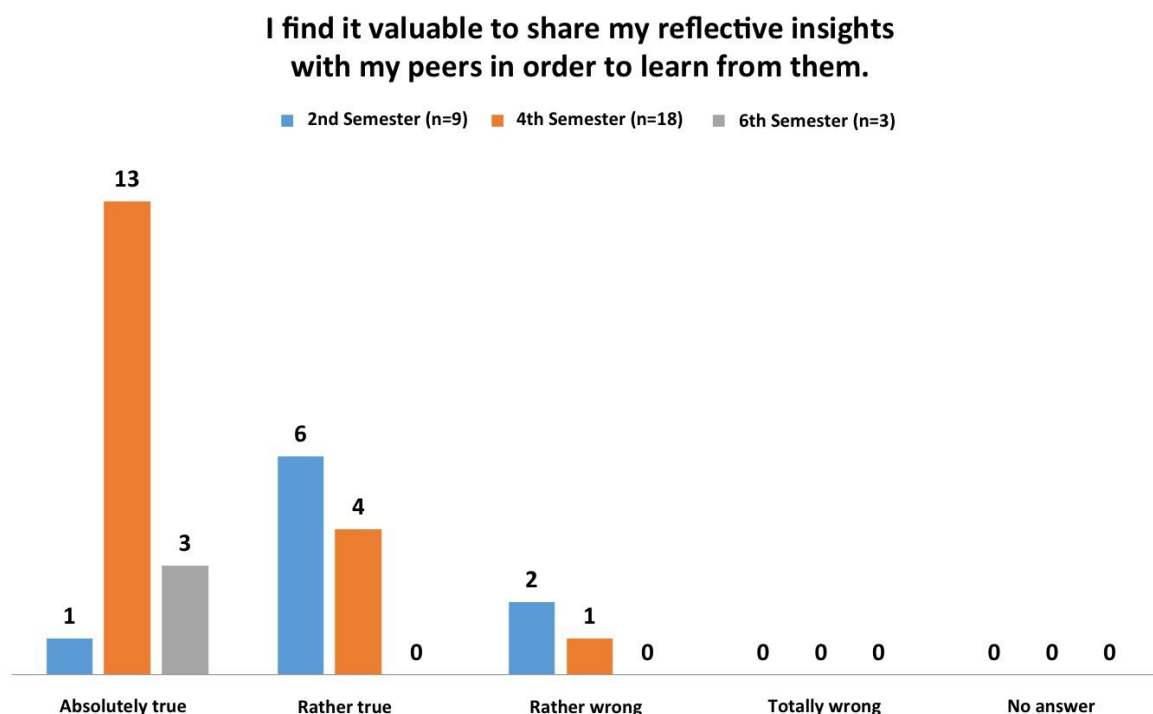
Fig. 3.2.4: Evaluating the personal benefit of social video learning

The poorer performance of the environment for working with e-portfolios (cf. figure 3.2.6) compared to that used for video work (cf. figure 3.2.5) can be explained by the fact that the Mahara surface is not as intuitive as that of edubreak®. Mahara requires a much more intensive training and continuous use to prevent users from forgetting the different functionalities and having to start from scratch every time they work on it. One way to

counteract this could be the creation of new "learning spaces", e.g. peer-to-peer learning formats and/or tutorials accompanying the PPS course that, among other things, focus on the use of digital tools (cf. **action fields 7, 8, 9, 10 and 11**).

The online activities (video work on edubreak® and portfolio work on Mahara) were suitable for the development and deepening of my (self-)reflection competence.
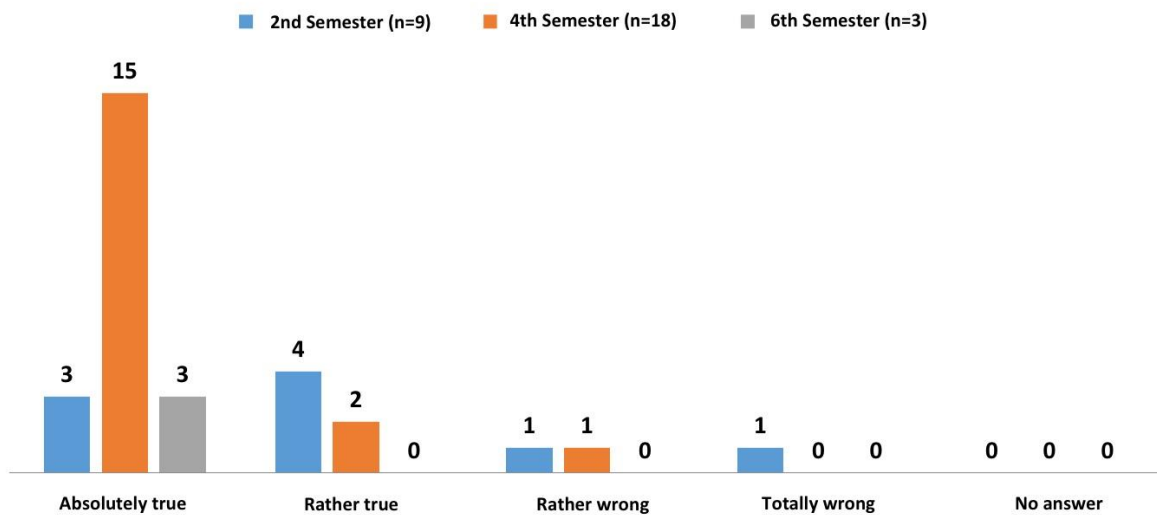**[edubreak®]**

Fig. 3.2.5: Evaluating the personal benefit of video work on PrepareCampus (in relation to edubreak®)

The online activities (video work on edubreak® and portfolio work on Mahara) were suitable for the development and deepening of my (self-)reflection competence.
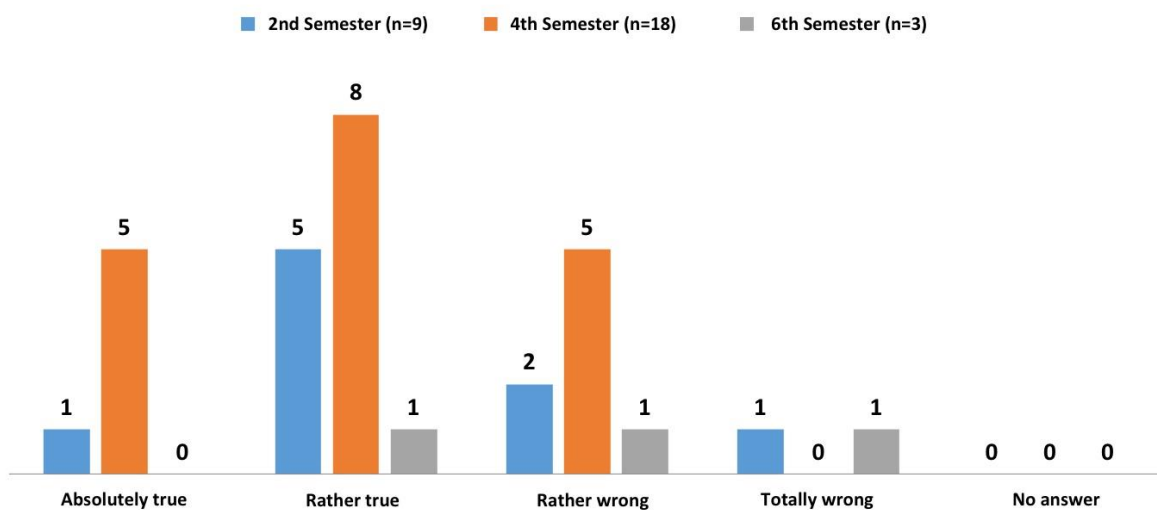**[Mahara]**

Fig. 3.2.6: Evaluating the personal benefit of e-portfolio work on PrepareCampus (in relation to Mahara)

Document analysis

Leonhard and Abels (2017: 53) point out that for reflective practice, if it is conceptualised as "reflection-on-action", tools such as portfolios, learning diaries etc. are very well suited to trigger reflection and its documentation: "It can be empirically proven that written formats, when compared with self-evaluation, videos, interviews and vignette tests, produce the 'most evidence of reflection' [...]." What still needs to be examined in how students deal with reflection, they continue, is the question of "whether the concept of 'reflection competency' and the semantics of increase or refinement associated with it can be empirically maintained". This is the very core question of the PREPARE project: How can the reflective practice of teacher-training students and teachers in further education and training be supported with the use of e-portfolios? A random look at the e-portfolios of students from the second and fourth semesters reveals that reflection competencies can be enhanced to a certain extent, and that with the help of video and e-portfolio work they have taken a big leap from surface learning towards deep learning.

The following section contains some examples from the e-portfolios of second-semester students to illustrate how the students combined e-portfolio work and SVL to document and reflect on their two weeks of practice.

Fig. 3.2.7: Screenshot of an e-portfolio at the end of school practice in the second semester (student P. P. from group B, 2018 summer semester)

As the example shows, the students have exhausted the multimedia possibilities of e-portfolios. Relevant subheadings, text passages, images of teaching materials and

situations are complemented by documents containing didactic models and progress planning. The written reflections include references to findings – in particular to those from the follow-up viewing and analysis of videos. The following is an excerpt from a student's conclusion (student S. V. from group B, 2018 summer semester):

"*The two weeks of practice were once again very instructive and a lot of fun. We had great mentors who let us try out a lot of things. What I take away from it all is that I can be completely relaxed in front of the class and don't need to be afraid. To ensure that, over the last two weeks I have picked up a few tricks, for example holding something in my hand when teaching, like a pen. That makes me more relaxed. [...] My conclusion about working with the video material is quite a positive one. Because you can observe yourself while teaching, you can spot a great many things that you didn't notice before. You also see what effect you have on other people. Going through and discussing the videos with the mentor and your peers, you also come across things that you could have done differently or better. That's why I'm very much in favour of being filmed in a classroom situation.*"

A look into the portfolio reveals that the suggestion to hold a pen was made by the mentor as an immediate response to a comment made by the student herself in a video of her own lesson starter, in which she addressed her insecurity.

Some passages from a second portfolio (student S. L. from group B, 2018 summer semester) also substantiate how video situations can directly trigger individual reflection that is later revisited in written statements.

Fig. 3.2.8: Screenshot of a second-semester video analysis (student S. L. from group B, 2018 summer semester)

In the first example, the student herself points out that she tends to reply by saying "exactly" whenever the children get their answers right, after which she resolves to come up with different replies and reactions, i.e. directly planning to change her own actions.
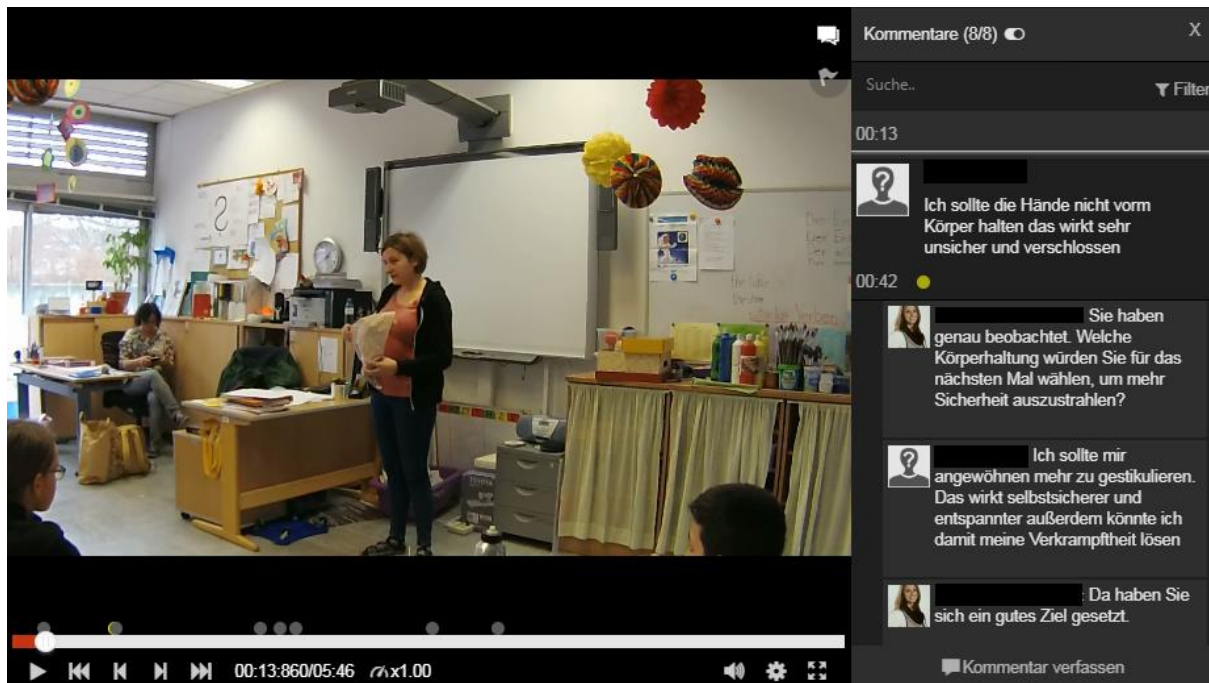
Fig. 3.2.9: Screenshot of a second-semester video analysis (student S. L. from group B, 2018 summer semester)

In the second example, the student comments that she appears insecure and withdrawn because of the position of her hands. When the lecturer enquires about it in the video, the student directly reacts with a suggestion for improvement. The written conclusion to a lesson in the portfolio contains several references to experiences that were also reflected on with the help of the video analysis and linked to a series of considerations from the lesson preparation (student S. L. from group B, 2018 summer semester):

"*The lesson starter was shorter than I had planned because the children were still a bit sleepy and I had not prepared for that. A little game to get them started would have worked much better. I also could have started by letting the children tell me what they think a wood elf or a gnome look like, discuss their tasks and what they enjoy doing. I also should have remembered to go through how a story should be constructed again and to point out that they should use direct speech.*

Besides, I should have explained in more detail that the key words selected should be from the story. It would have been a good idea to also check the words before they are collected.

While the children were working, I was able to help them with their questions and writing."

Another statement from this practice portfolio captures an aspect that cannot be valued highly enough if a portfolio is to be successful: appreciation expressed by an experienced teacher.

"*The quiet lesson starter worked wonderfully. The children were very concentrated and enthusiastic, and during the preliminary discussion of the comics, they were full of energy and contributed an increasing amount of new ideas. Here, I should have paid better attention to the time and not spent so much time on the topic of good deeds. It was also very easy to calm the children down by holding up the sign saying 'Shush' when they got too excited. That is the reason why I plan to work more often with visual stimuli when I want something from the children.*

Drawing with the children also worked perfectly well, and at the end of the lesson they even wanted to take the comics with them as homework. B. and M. [the names of the mentors have*

been anonymised] *then continued to work on the comics in their lessons and put them up on the wall outside the door. I'm as proud of that as the children were.*"

In this case, the remark refers to the (indirect) acknowledgement expressed by mentors B. and M. for the student's work with the children on comics, which can be applied to the practice portfolios in a similar way. The synopsis of two parallel learning groups – in which the mentors and lecturers were active to different extents with comments and preliminary feedback – clearly shows that active support can also motivate the students to exhibit a higher degree of reflection (cf. chapter two, action field 4).

Bräuer's (2016) model of primary and secondary reflection (cf. chapter one), among other things, is the basis for all work on PrepareCampus. At the primary reflection level, students combine action documentation (in this case the videography of a teaching sequence) with spontaneous analysis. The result is a short text that is first recorded directly in the corresponding video or in a learning log without going into further details. The next step is secondary reflection – the revision of the primary reflection, where the students deal with an aspect that is important to them personally in greater depth. The following two examples from e-portfolios of fourth-semester students (group D) show how secondary reflection unfolds.

Table 3.2.5: Linking primary with secondary reflection (text extracts from e-portfolios of group D)

Primary reflection	Secondary reflection
Student B: *"There was one sequence in the video in which I became a little insecure. It was when I noticed that my mouth was getting a bit dry. You can tell that that my voice seems a little thin and high. For me, that's a typical sign of insecurity. [...] And yet, I still managed to get the children's attention when things got a little livelier […]."*	Student B: *"These thoughts eventually make me increasingly nervous at the beginning of the lesson. Now, I try to banish these negative thoughts from my head and be more relaxed upon entering into the situation. [...] The fact that the children were interested helped me a lot, because I noticed that the pupils were paying attention and enjoyed telling the group about their daily routine. I even managed to motivate some pupils who were a bit more reserved at the beginning to talk about their daily routine. This, too, has reassured me in my actions [...]. In the future, I would like to try to be calmer and more relaxed from the beginning, which would allow me to concentrate fully on the matter itself. I am sure that will help me to better handle disruptions and the likes."*
Student N: *"I found it a bit difficult to explain the conversions. I had the constant feeling that I needed material to make the topic more visual. Especially because I find the weight units very complex (to explain, but also for myself). But in my planning, I chose this kind of explanation because this unit was only meant to be a repetition."*	Student N: *"I've noticed that I don't use any proper explanations in the part where I talk about weight units. As I've already mentioned in the blog entry, I find the weight units in particular to be very difficult to explain, as they are hard to imagine. My colleague suggested bringing along objects that weigh a kilo, a decagram or a gram, for example, to allow the children to get an idea of what these weight units mean. I would definitely like to try that – also because [...] said*

	that too much material is almost impossible, especially with such complex topics as weight units. This method might also be an alternative (or at least an addition) to using old scales for illustration purposes. You can also let them arrange the materials or play other 'games' with them. However, these ideas are for an introductory lesson to the topic rather than for a repetition."

With regard to the research questions defined for this case study, the following result can be formulated:

- In order to allow teacher training students to adjust their reflection competency as well as their professional actions to the ever-changing requirements of heterogeneous groups of learners, it is helpful to make digital teaching and learning spaces such as PrepareCampus and formats such as SVL available for them to engage in a continuous examination and evaluation of the actions of teachers. By doing so, the spatial and temporal limitations that often govern school practice and its accompanying courses are left behind, giving students the chance – following the basic notion of seamless learning – to look into their teaching experiences with the help of annotated videos inside and outside of the corresponding courses.
- New students are still inexperienced when it comes to teaching as well as observing and reflecting on it: At the beginning of their studies, they lack in practical motivations (*lebenspraktischer Anlass*), as Häcker (2017: 26) calls them. SVL and its didactic settings (i.e. specific tasks for observing and commenting on videographed teaching) represent what Häcker describes as a systematic trigger (*Veranlassung*; ibid.), but they set reflection processes in motion. Tasks that prevent defensive reflection are of course important for this.
- Generally speaking, reflecting on professionalisation is beneficial for all training phases. Working with videos in the group described in the case study has shown that at the beginning of the teacher training, it is recommended to work with third-party videos. The students can observe the teaching actions of other teachers and are therefore less inhibited in their comments compared to when they see themselves in a video. With this approach the reflection trigger, i.e. the didactic setting as a starting point, gradually turns into a motivation to reflect in itself.

Application of the results

This section contains conclusions and proposals for the project site Vienna (PH Wien) with a view to implementing the education policy agenda.

Since 2011, PH Wien has been looking for ways to promote student reflection competency through the use of e-portfolios in pedagogical-practical studies (PPS; cf. Strasser and Knecht 2012, 2013; Strasser, Knecht and Kulhanek-Wehlend, 2013). The objectives are the conception, development and gradual implementation of an innovative e-portfolio model for the Bachelor's degree in primary school teaching (*Lehramt Primarstufe)* at the University College of Teacher Education in Vienna, whose central concern is the professionalisation of students, in particular the consideration of the ability to reflect and discuss, the ability to differentiate, cooperation and collegiality, professional awareness and personal mastery

(*Entwicklung von Professionalität im internationalen Kontext*/EPIK; cf. Schratz et al., 2008) based on an inclusive attitude to values and taking into account the dimensions of diversity (cf. **field of action 1**).

Using the concept of reflective practice (Bräuer 2016), anyone involved in a PPS course (practice supervisors, mentors and students) should be included. At the same time, the model allows all interested students to pass on, apply and critically reflect on theoretical and practical knowledge acquired during their e-portfolio work on Mahara (plus, in the PREPARE project, video reflection) with fellow students in the form of workshops (tutorials) held on a regular basis (cf. **action field 11**).

Peer-to-peer learning is considered an essential pedagogical approach: Working on e-portfolios promotes and supports students both in problem- and action-orientated discussions or evaluations of their experiences in school and in systematic documentation as well as joint reflection. PH Wien aims to tie into the students' practical experience, promote peer-led discussions and to connect the students with a view to joint reflection on teaching activities.

In addition to documenting, analysing and evaluating one's own experience in the form of reflection, development- and presentation portfolios, the exchange among students simplified by the work on PrepareCampus plays a pivotal role, as peer-to-peer learning offers outstanding opportunities: The PREPARE project thus not only enables and promotes networking among peers, but also links formal and informal learning, making a significant contribution to the core discipline of personal mastery, which is part of the curriculum of the Bachelor's degree in primary school teaching (*Lehramt Primarstufe*; cf. **action field 8**).

The problem areas from which PREPARE departed in 2016 can be described as follows: The classic form of documenting experiences throughout the PPS course largely consisted of so-called practice folders; the students' reflection processes were usually limited to summarising and presenting results once the learning and work processes were completed. Although the documentation of experiences from school practice in the form of learning logs (= the prerequisite for a deeper reflection on learning progress) was suggested to the students, no real guidance was provided. As a result, very few students kept a learning log in the sense of a tool for self-organised learning. The work tasks to be found in the semester layout of the PPS course (definition and research as well as practical tasks) were only loosely connected. This predominantly encouraged surface learning rather than deep learning (cf. Bräuer 2014: 21). Using the portfolio method in the open source e-portfolio tool Mahara in connection with the video reflection tool edubreak® (PrepareCampus), students were successfully encouraged to engage in more reflection (at primary and secondary level) and cooperation (e.g. peer feedback in the form of social video learning; cf. Himpsl-Gutermann and Bauer, 2011).
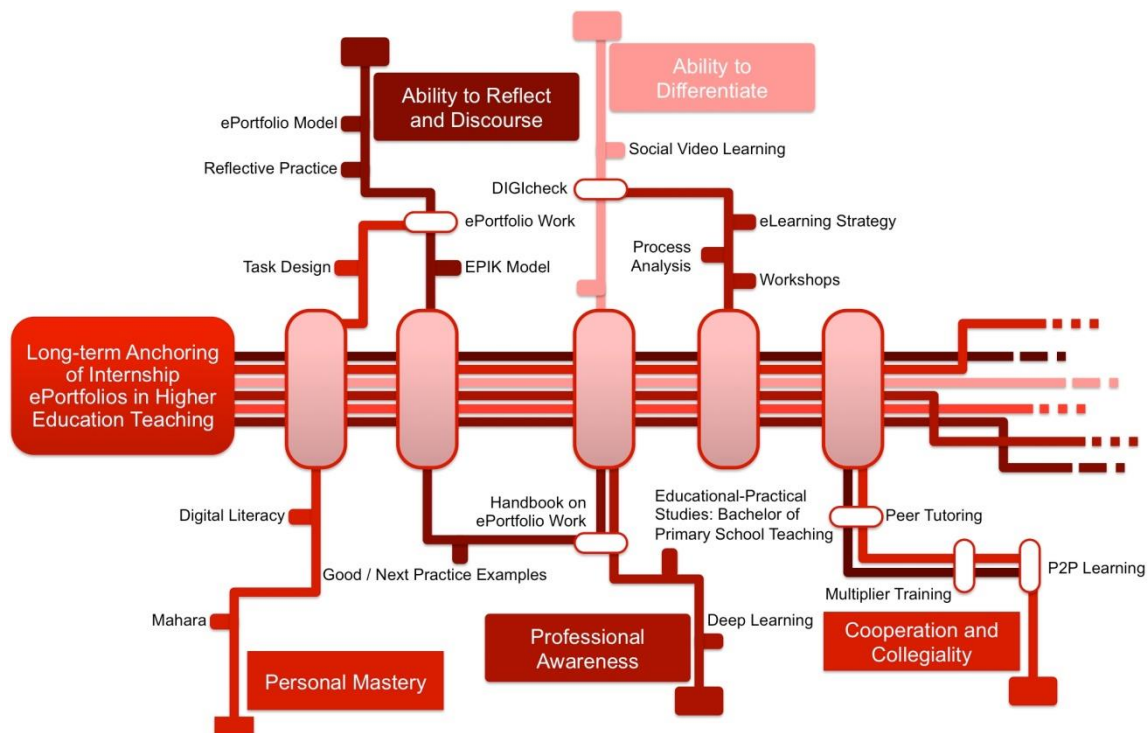
Fig. 3.2.10: The e-portfolio landscape: Mapping the aspects required to turn electronic traineeship portfolios into a long-term teaching asset at PH Wien

With regard to content, methodology and structural objectives (cf. Fig. 3.2.10), PH Wien focuses on promoting sustainable reflection competencies and cooperation between students (peer-to-peer learning) with the help of e-portfolios. In this context, Bräuer (2014: 22) mentions the role of student learning portfolios as work- or achievement documentation. They represent an effective means of linking theory (specialist sciences) and practice (everyday school life) by addressing different levels of reflection: documentation, analysis, evaluation and planning.

For the purposes of student professionalisation that takes into account the aforementioned EPIK domains, a special, superordinate e-portfolio model had to be implemented, enabling peer-to-peer learning and accompanying the students on the above reflection levels with the help of a task design or feedback (cf. **action field 3**). Such a model was developed and tested in the PREPARE project. Now, the primary goal is to promote and support the EPIK domains (above all the ability to reflect and discuss as well as cooperation and collegiality) with the help of e-portfolio work within the scope of student professionalisation. This objective is to be pursued within the context of developing a sustainable digitalisation strategy in the course of the appointment of a new Vice Rectorate for teaching, research and international affairs. More specifically, the aim is – departing from the e-portfolio model developed during the PREPARE project – to design a number of different sub-models (reflection, development and presentation portfolios) for the PPS course, which will help students to better perceive their own learning biography and their personal development potential associated with it, assess their current learning status and make work results transparent during the eight semesters of the Bachelor's degree in primary school teaching (*Lehramt Primarstufe).* This requires a continuous design of specific work tasks for reflective practice in general and for e-portfolio work and video reflection in particular, thus supporting the professionalisation of students.

There is also an increasing need to work out how peer-to-peer learning promotes e-portfolio work or what contributes to the success of this form of cooperative learning, and

what contribution video and e-portfolio work and the closely related aspect of reflective writing make to the systematic presentation of ideas and convictions as well as of knowledge and skills in a scientific text (e.g. term papers or Bachelor theses) in general.

Institut de formation de l'Éducation nationale (P3, Luxembourg)

Abstract

This case study highlights the process of implementing a blended learning course concept in which reflection and perception skills are promoted through social video learning and e-portfolio work at the *Institut de formation de l'Éducation nationale* (IFEN) in Luxembourg. Particular success factors were the promotion of perceptiveness in teaching with the help of focused tasks, formative feedback and self-reflection in e-portfolios. In retrospect, the use of social video learning in the classroom management training module combined with a theory-based reflection in the e-portfolio resulted in deep insights that improved the quality of the trainee teachers' tuition, a fact documented in the written reflection papers. Dealing with institution-level resistances (acceptance) was a problem and remains a future challenge. This phenomenon is directly related to the willingness of anyone involved in the learning process to embark on new learning paths. An open, inquisitive and reflective attitude is a key prerequisite for this.

1   Introduction

This case description is embedded in the EU project PREPARE (Promoting reflective practice in the training of teachers using e-portfolios) and provides an insight into the process of promoting reflection competency in teacher training at the project site in Luxembourg (*Institut de formation de l'Éducation nationale*/IFEN).

The research focus at IFEN was on promoting the perceptiveness of new students with regard to teaching situations that are important for effective classroom management, which, in turn, plays a significant role in the learning success of a class. The trainee teachers learn to recognise situations and to link them with professional knowledge on how to direct learning and teaching. To train the skills relevant in this respect, a course that uses video analysis as well as e-portfolios was developed. The aim is to refine certain aspects of reflection and teaching competency and to outline and describe them in the portfolio in a clear and vivid way. In this course, the trainee teachers are encouraged to reflect on their teaching independently and on the basis of peer and expert feedback and to think of alternative courses of action. The case study investigates to which extent embedding social video learning can enhance the trainee teachers' perceptiveness in their classroom management. A particular focus examines to which extent differences can be documented in the processing of criteria-guided versus open tasks and between analogue versus digital portfolios.

2   Teacher training in Luxembourg (IFEN)

The training of secondary school teachers in Luxembourg is combined with a two-year pedagogical training course at the *Institut de formation de l'Éducation nationale* (IFEN).

Future teachers are typically recruited at Master's level, with the majority of prospective trainee teachers entering the profession with a specialist degree but without pedagogical training. To

become a civil servant (*fonctionnaire*), aspiring teachers are required to pass a selection procedure (*examen concours*). The training is based on Terhart's integrative model (2008), which is characterised by the fact that the theory and practice stages interlock simultaneously. During the first two years, the training takes place at both IFEN and the respective training schools: On two days a week, the trainee teachers receive didactic and pedagogical instruction at IFEN, which they then apply in their respective training schools. The final year of teacher training takes place exclusively at school and is concluded with a demonstration lesson and a paper (*mémoire*), both of which must be completed successfully. At the Luxembourg site, portfolios are mandatory and part of the examination. Since the 2015 reform of teacher training, they are kept in analogue form. The evaluation consists of formative and summative components that accompany the modules and take place at the end of some modules. The legal basis amounts to the competency framework (*Référentiel de compétences*) and the portfolio, with interviews conducted for the purposes of learning process orientation (assessment for evaluation; Winter, 2014). Both instruments are prescribed by law and therefore institutionalised (art. 13/14 of the *Loi du 30 juillet 2015 portant création d'un Institut de formation de l'éducation nationale*).

All learning at IFEN is orientated on a systemic, socio-constructivist approach. In doing so, great importance is attached to the development of a professional self-concept by prospective teachers. A key aspect of constructivist training programmes is that they consider "looking into personal prior knowledge about school and teaching, reflection and the development of one's own actions" to be important components of training (cf. Felten, 2005: 31; Abels 2011; Roters, 2012; Wyss, 2013; Košinár, 2014).

3   Case study schedule and workflow

The following section presents and analyses the concept of the classroom management module on PrepareCampus (criteria-guided work with videos, reflection and e-portfolios). The aim is to improve the quality of the classroom management module, since effective teaching that causes learning is a central requirement of any good initial training in pedagogy. Here, the significance of in-depth structures of good teaching is evident. This includes classroom management, cognitive activation and constructive support, among other things (Terhart, 2014; Helmke, 2015).

When analysing how tuition is perceived (description, analysis, predictions), it is important to discover whether the perception competency among trainee teachers has increased and to which extent criteria-based observation is beneficial or detrimental (see workflow, figure. 3.3.1).
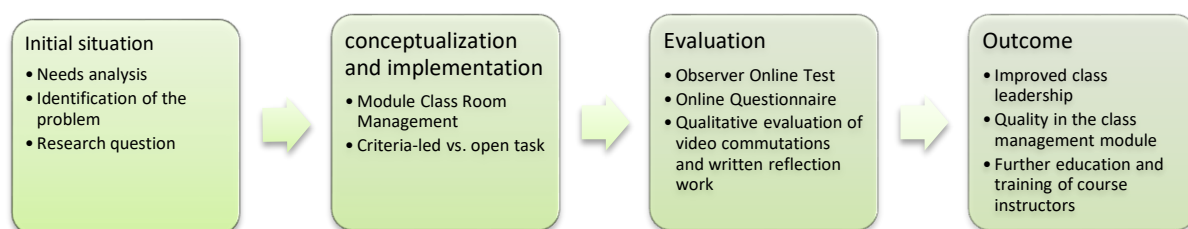

Fig. 3.3.1: Implementation process of the classroom management module

4 Research question, theoretical frame of reference and setting

The postulations and positions calling for a promotion of reflective practice in teacher training through e-portfolios set out in chapter two represent the overarching theoretical framework of reference for the case study in Luxembourg.

4.1 Research question

The case study investigates to which extent embedding social video learning and e-portfolios can enhance the trainee teachers' perceptiveness and reflection skills in their classroom management. A particular focus examines to which extent differences can be documented in the processing of criteria-guided versus open tasks and between analogue versus digital portfolios.

4.2 Theoretical frame of reference and setting

In addition to the theoretical findings on e-portfolios and the elaboration of success factors in the education policy agenda (cf. p. 11 et seqq.: The concept from a higher education didactics perspective), the following section contains a theoretical reference to classroom management and the promotion of reflection and perception competencies.

International research has shown that no other attribute is more clearly and consistently associated with the performance level and progress of school classes than classroom management (Gold, Förster and Holodynski, 2013; Hattie, 2009; Seidel, 2015 et al.).
Novice teachers are often unable to draw their attention to relevant features of classroom management in order to select situations that show an influence on student learning (Putnam and Borko 2000; Star and Strickland, 2008). Effective classroom management ensures that lessons run swiftly and are well-organised by allowing the teacher to keep track of what is happening in the classroom and effectively deal with any disruptions (Waldis et al., 2010). Many novice teachers struggle while teaching and feel unable to handle the complexity of the classroom environment (Stokking et al., 2003). It is therefore important to successfully promote perceptiveness in teacher training in order to build professional competency and, in particular, classroom management expertise and skills. According to Kounin (2006), the characteristics of effective classroom management include an appropriate "disciplining" of pupils in the event of disruptions, the teacher's omnipresence, overlapping teaching and the mobilisation of the entire group of pupils. Lessons should also be varied, challenging and lively and run as smoothly as possible.
The development of professional action competency in the classroom results firstly from the strategic promotion of the ability to reflect on the "noticing" level with the perception of teaching components as well as knowledge-based reasoning, an expertise-guided processing of tuition, and secondly from the systematic promotion of the perception competency in classroom management with a view to criteria and indicators relevant to teaching (Seidel and Shavelson, 2007; Berliner, 1987,1991; Sherin and van Es, 2009).
Based on these insights, a blended learning course concept (cf. p. 66 et seqq.) was developed for PrepareCampus in Luxembourg and applied in eight groups with a total of 171 participants. The attendance phases were structured in blocks of content on the subject of classroom management. The following topic groups were drawn from teaching research literature specifically for classroom management: learning-friendly teaching climates (Helmke, 2015; Dubs, 2009; Meyer, 2004; Tausch and Tausch, 2013), rules and rituals (Helmke, 2014: 173;

Kounin, 2006), non-verbal communication (Gröschner, 2013; Kosinar, 2009), verbal communication (Dubs, 2009; Rosenshine, 1986) and teaching conduct as well as leadership styles (Lewin et al., 1939; Schneewind and Böhmert, 2016).

For the virtual phase on PrepareCampus, criteria-based (study group) and open (control group) observation assignments were formulated for each group. The trainee teachers were required to upload a short video from their lessons to PrepareCampus and annotate a focal point of observation on the basis of a criterion and indicators in the video. The peers and trainers were asked to provide feedback on the pre-defined criterion. Based on the feedback and tasks, the trainee teachers wrote down their reflection according to the levels defined by Bräuer (2014) with the aim of identifying alternative courses of action in order to improve their teaching in light of their criterion in a second video. After each in-class lecture, the participants were given time to write their reflection into their e-portfolio. In doing so, they could link their reflective thoughts directly with parts of the virtual learning environment, videos and their own comments as well as those of other campus users (primary reflection).

Their ability to reflect was then evaluated in a written paper entitled "reflection of classroom management through video recordings" in accordance with Bräuer's (2014) four levels of reflection (secondary reflection), with the formative feedback of their peers and course instructors providing a framework for orientation.

In order to link the reflection work with their working practice, the trainee teachers chose three moments and presented artefacts from their e-portfolio in portfolio discussions with their practice assistants to outline their development with regard to professionalisation.

A total of 17 trainee teachers adopted e-portfolios – an approach planned for all locations of the PREPARE project for the purposes of progressive dissemination. In contrast, 154 trainee teachers continued to work with analogue portfolios. The following is a best-practice example describing the course of the e-portfolio group at micro-teaching level:

The pedagogical-didactic approach in the e-portfolio group was based on the course contents proposed in the guidelines for the classroom management module, which were derived from the latest research in teaching as described in chapter four. The six attendance courses on classroom management were characterised by the same framing at the beginning as well as at the end of each course, i.e. a fixed teaching ritual serving as a model. Each block was opened with an advance organiser (Ausubel, 1974) and ended with feedback to the course instructors, each time using a new feedback method. To give a general example, courses were structured as follows:

- preparation of an inviting seminar room in accordance with the didactic intention;
- welcome, review and advance organiser;
- establishing a link to any previous experience of the trainee teachers' in the respective subject area;
- use of different teaching methods designed for self-activation and a constructive exchange among colleagues in the sense of co-constructing knowledge (TPS);
- use of other users' videos as examples in which to practice the respective topic and the reflective levels according to Bräuer;
- completion of the course "Writing blog entries on PrepareCampus" using the following questions: "What inspired you today? Which insights do I take with me? Which questions remain unanswered?";
- feedback to the course instructors.

The following diagram (cf. figure 3.3.2) provides an overview of the entire setting:
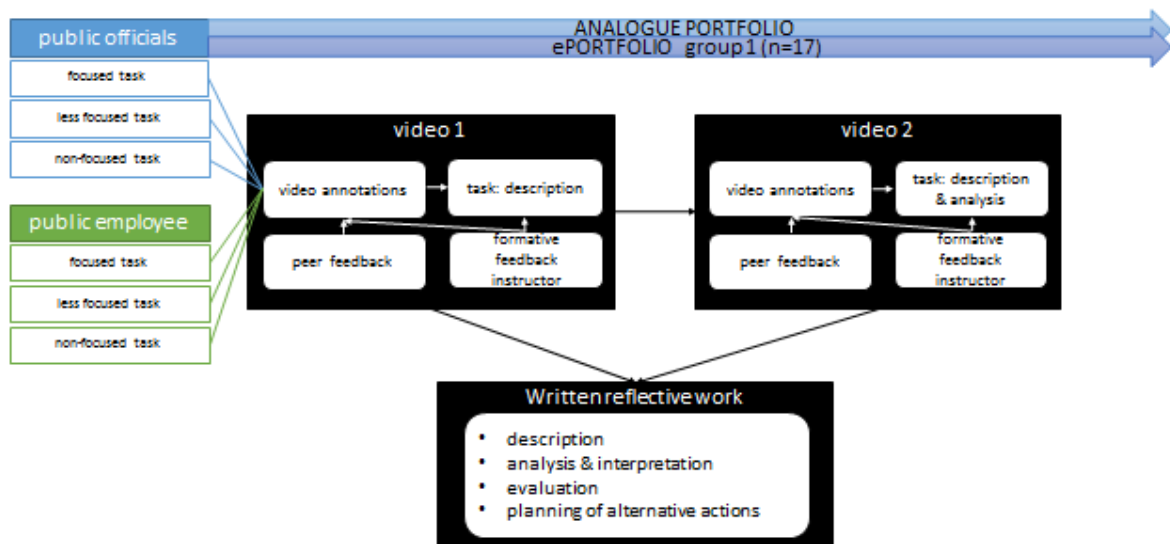
Fig. 3.3.2: Overview of the course setting

4.3   Random sample

In autumn 2017, a total of 171 trainee teachers began their pedagogical training at IFEN. The case description refers to a group of 17 participants working with e-portfolios on PrepareCampus. The practice assistants (17) and the coordinators of the respective discipline (5) are also part of this e-portfolio group. In contrast, a total of 154 participants work with an analogue portfolio.

4.4   Investigation tools and evaluation procedures

The effectiveness of the blended learning concept is examined from a quantitative and a qualitative perspective at research level.

In terms of quantity, Observer, a video-based tool, was used to capture the professional perception of tuition. At theoretical level, the tool is based on the concept of professional perception as a component of teacher expertise (Godwin, 1994; Sherin, 2002). It was assumed that professional perception relies on knowledge-based processes of attention control and information processing and can be divided into two components: (1) noticing: identifying relevant situations and events in class; (2) knowledge-based reasoning: expertise-driven processing of identified situations and events. The video-based tool Observer captures teacher competencies in a situated and at the same time standardised manner through six short video clips. For each video, the participants receive key background information on a given part of the lesson, after which they can assess the clip based on rating items on the levels of description, explanation and prediction. The processing time is calculated to amount to 90 minutes on average. Rating assessments by experts ensure the validity of the tool and are placed over the new students' assessments like a template in the evaluation. The scales for the levels of description, explanation and prediction as well as for the summarised professional perception of tuition were compared with the pre-post data using the arithmetic mean (M). These were, in terms of variance analysis, examined for possible mean value differences between measurement point 1 and measurement point 2. High values in the rating

scales represent a high level of agreement or positive rating, while low values represent a low level of agreement or negative rating (e.g. below 20% = very low congruence, above 80% = very high congruence).

In addition, a questionnaire was developed to assess how the participants rate the extent to which their perception of disruptions with regard to real-time learning, the use of rules and rituals, the relationship with pupils and individual learning support has improved. The questionnaire was used at a peer group meeting of all eight groups (N=171) once the entire module was completed. It contained a total of 46 items for the participants to assess themselves with on a five-tier scale ranging from "deteriorated considerably" to "improved considerably". At the end, an open question collected comments and suggestions for improvement. The questionnaire data was collected and evaluated using the EvaSys survey software.

The analysis of the video comments focused on the frequency of comments and on the extent to which they were criteria-guided. The written reflection work was analysed by comparing it with a criteria-guided evaluation sheet. A total of three cases were selected for this purpose, all of which met the task requirements (criteria-guided and a maximum of two indicators).

5   Results and discussion

The following section contains the results of the enquiry to which extent embedding social video learning and e-portfolios can promote the perceptiveness of trainee teachers in their classroom management.

On a quantitative level, the results obtained through Observer showed group effects on how professional tuition is perceived with reference to groups with criteria-guided versus open tasks and on the use of analogue versus digital portfolios. As figure 3 illustrates, the percentage values of how professional tuition is perceived between measurement point 1 and measurement point 2 produced different results among the groups in terms of congruence with the expert opinion. The results show that, compared to the seven other groups with analogue portfolios, the e-portfolio group corresponds most closely with the expert judgement on how tuition is perceived. In the e-portfolio group, measurement point 1 produced low congruence levels, while measurement point 2 recorded medium-level congruence (see fig. 3.3.3).
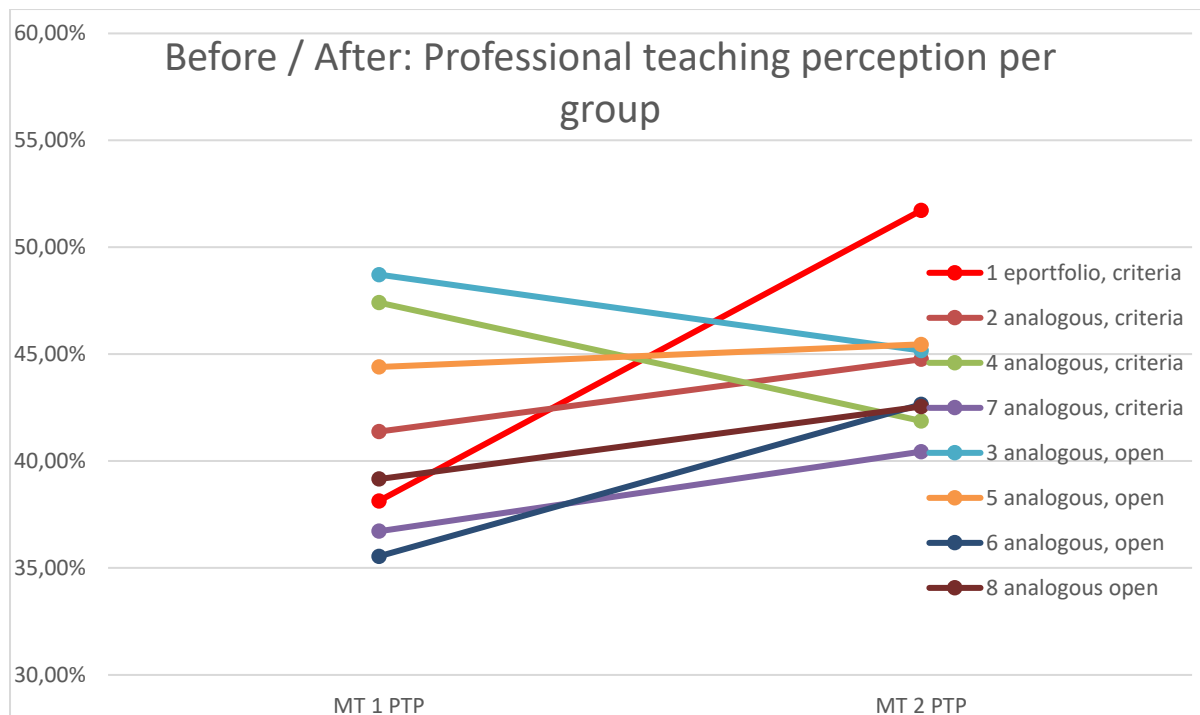
Fig. 3.3.3: How professional tuition is perceived: before/after

Overall, the EvaSys evaluation produced a very positive result with regard to how the participants judged the improvement of their teaching perception. None of the participants reported a deterioration, and the perceptions showed a tendency towards strong improvements. The open question confirmed the positive inclination that the classroom management training module is important and significant and that video analysis is perceived as helpful for one's own development as a teacher.

Furthermore, there were helpful comments on how to improve the module:

- "your own videos should be integrated into the course on a topic-specific basis; [...] better than other users' videos, and you get direct feedback from your peers"
- "the scarce feedback of some course instructors"
- "the comments made by peers aren't always helpful"
- "it's difficult to handle criteria and indicators"
- "time and date and filing of blog entries"
- "sense and purpose of self-assessment not clear"

In order to gain a deeper understanding of the higher congruence of the expert opinions in the e-portfolio group, the written reflective work of the e-portfolio group was analysed at a qualitative level with the help of random samples from three cases. The qualitative evaluations of the written reflective work show that trainee teachers who strictly followed the focus and constructively exchanged ideas in the video were able to elaborate viable alternatives for action in their written work.

6   Reflection

The findings and many experiences derived from participating in the PREPARE project have highlighted ways to improve the quality of teacher training in Luxembourg at micro, meso and

macro level. Being a learning organisation, the project site now faces the challenge of further developing those location-specific results and experiences. The following section illustrates the factors that had an impact on the acceptance and implementation of social video learning and e-portfolios.

At the micro level, it was found that a theoretically sound basis is essential for creating the knowledge content of the classroom management module, and that it leads to a reduction of contents down to the essentials. In this way, a substantiated basis was created to guarantee the quality of the course contents. In preparation, this approach includes advance networking with research institutes, professional literature research and the development of a concept through a co-constructive exchange among experts. This resulted in a superordinate guideline, which in turn was tested and reflected upon with all twelve course instructors to create an immanent feedback cycle contributing to quality development. This model will serve as an orientation framework for quality improvements in other training modules.

At the meso and macro levels, the resistance of some course instructors showed that the focus in all further dissemination efforts must be on acceptance and attitude. Working on the PREPARE project accentuated the importance of a professional attitude in the sense of Dewey's open-mindedness, wholeheartedness and responsibility (Dewey, J, 1933). It was found that innovation can only be successful if all those involved in the process participate. With regard to the participants' professional training, in the future, some thought must go into aspects such as giving feedback. Keeping a portfolio gains special importance against the background of lifelong learning as it offers a chance to counteract the reproduction of implicit images with the help of literature-based reflection.

Another factor is networking, both within the PREPARE group and in the e-portfolio community of *Internationales Netzwerk Portfolio* (INP), where knowledge and experience gained in analogue portfolios are linked with new research work on the acceptance and implementation of e-portfolios.

The evaluation of the course concept has revealed important success factors. At present, the main questions are:

- To which extent can a pedagogically designed model have a positive impact on the acceptance and attitude towards e-portfolios among teachers and learners?
- To what extent can we succeed in making e-portfolios usable for the entire learning community with the help of a benefit-orientated implementation strategy?

Department of Pedagogics of the Autonomous Province of Bolzano/Bozen – South Tyrol (P4, Italy)

Abstract

This case study provides an insight into the process of promoting reflection through video analysis, however with only a marginal reference to portfolios since the project was carried out with teachers already pursuing their careers, i.e. with framework conditions different to those at universities. Exploring the available potential, the focus was put on training that offers new opportunities for training itself and for teaching and school development. This case study can therefore also be seen as an outlook that extends beyond the university level and becomes significant for every-day work in schools.

With regard to the political agenda, there are some differences to the other case studies, since in South Tyrol, the discussion within the context of the career entry phase – which has been compulsory since the 2018/19 academic year – had already started before the PREPARE project was launched.

In this context, some legal and technical aspects that are in no way insignificant must also be taken into account. The tasks were designed to embrace the concept of self-learning (Wolf, 2001). The following section contains examples of the implementation in a number of different scenarios of further training and teaching development.

Point of departure

Located within the Directorate for German-language Education and Training of the Autonomous Province of Bolzano/Bozen – South Tyrol (Italy), the Department of Pedagogics is in charge of providing training to teachers as well as kindergarten staff and of supporting schools in their school- and teaching development. Training courses take different shapes:

- full- and half-day sessions lasting 3.5 to 7 hours
- seminar series
- course suites with approx. 70 hours over 1.5 to 2 years
- courses of instruction with a minimum of 270 hours over 2.5 to 3 years

The course suites and the courses of instruction are best suited to integrate video analysis in order to create a continuum that also has an impact on teaching.

While blended learning has so far been focused primarily on the processing of text content, edubreak® – the video annotation platform of PrepareCampus – now offers everything that schools in South Tyrol could previously not implement.

Edubreak® facilitates online video analysis that can be linked to work assignments. It can be applied to teacher training in a number of ways, but the fact that the learners have a full-time job and all work on the platform is done on the side needs to be taken into account. The participants are between 24 and 65 years old, causing the phenomenon of different teaching experiences in the temporal dimension.

On the one hand, the teachers' time is very limited, but on the other hand they already have classes or groups available and are in touch with the parents, which allows them to directly embark on the process of video analysis. For most participants, portfolios do not play an important role as they usually do not have time for them. In fact, the predominant focus was on bringing the existing potential, i.e. the teachers' experience, to bear on supporting each other and on developing together, as defined by Wolf's (2001) concept of self-learning.

A central point in this training form is that the learners themselves – the teachers, in this case – define the focal points of the planned analysis, based on which the video analysis tasks are then developed. It is a basic prerequisite that the needs of teachers within the context of their daily teaching practice are adequately met.

A second approach, which could bear great potential for the future, is the integration of video analysis into teaching development processes.

The following projects were put into practice:

- video analysis with reflection in two courses of instruction; 30 participants each from primary and lower secondary education level (*Sekundarstufe* I)

- video analysis in the career entry phase of teachers at lower and upper secondary level (*Sekundarstufe* I and II)
- video analysis in a course suite for kindergarten teachers
- video analysis to support teaching development processes

Learning in a digital context

Today's great challenge is to make the most of the opportunities offered by digitalisation for the benefit of the learner while reducing the complexity of the digital application. Learning through video analysis in teacher training makes it possible to meet the demand for competency development in work processes at least to some extent (cf. Erpenbeck and Sauter, 2015). In doing so, the decisive factor is to meet the teachers at their technical skill level and accompany them from there onwards. Adequately introducing the teachers to video analysis and portfolio work is of the utmost importance. Baumgartner's concept (2013), which distinguishes the following competency levels, is a good starting point:

- Level 1: Beginner – has no experience at all; questions nothing
- Level 2: (Advanced) beginner – has some skills; perceives necessary actions/situations; does not act independently
- Level 3: Competent – can act independently in their own field; assumes responsibility; carries out self-critical reflection; still has a long way to go
- Level 4: Adroit – perceives situations in their entirety, revealing possibilities for problem-solving
- Level 5: Expert – recognises 'cases' (patterns) in the most diverse, complex situations; is familiar with them and can use them to construct problematic 'cases' that already include the solution

For many teachers, this type of work and learning is an entirely new situation that can be very demanding both technically and in terms of content.

The concept of self-learning

The needs of kindergarten teachers is the starting point for the video analysis work – a concept that applies to all the sub-projects carried out at the South Tyrol site. An in-class session was used to identify, together with the learners, what their needs are and what they wish to focus on in their video analysis. In addition, it was mandatory for the participants to form small groups of approximately five to define, reflect upon and discuss one or more questions. The work was based on what Wolf (2001) calls the learner's interest in knowledge (*Erkenntnisinteresse des Lernenden*), from which the learners' motivation to take an active part in the project is derived.

Implementation

Courses of instruction

Three phases of video analysis were carried out in two courses of instruction on progressive education with 60 participants over a period of three weeks with 20 hours. The participants were primary school teachers and upper secondary level teachers (*Sekundarstufe* II). The

participants selected the focus based directly on their everyday school life, mirroring the stakeholders' actual working conditions and their daily realities in the classroom. All tasks throughout the groups related to topics that were of great importance to them in the current school situation or teaching reality. Even the discussion on how to make the video led to a reflection on their teaching. The same also became evident in the annotations that were later added to the video.

To get started, the participants used situations in which video recordings could be made without featuring people, e.g. setting up a room. This allowed them to gain first experiences, develop scripts and deal with the technical aspects of video analysis.

Course suites

Based on a procedure similar to the one described above, a course focusing on media education was held for the kindergarten section.

Career entry phase

The video analysis was carried out in small groups of teachers at lower and upper secondary level (*Sekundarstufe* I and II), discussing the following topics and competencies: communication, classroom management, cognitive activation, learning activities, getting started with group work, work assignments.

Lesson development

Yet another use of video analysis arose in the context of lesson development at a school that receives outside guidance in its work on this focus. The aim is to use this approach to get teachers involved in an ongoing debate that will ultimately improve the quality of tuition. The starting point was the idea that a great deal happens at school and in the different classes (e.g. "class council" work) of which the teachers have only a vague notion. In everyday teaching, there is no time to reflect on and sit in on lessons. Therefore, lesson sequences were recorded and made available for individual reflection. The advantages of flexible time management in the peer exchange were highly appreciated. Moreover, the learners were able to look into and intensively engage with a number of aspects in the videos, which was sometimes directly translated into changes in their teaching. This ultimately led to the introduction of two phases of video analysis per school year.

Summary

To conclude, this form of video analysis offers great potential for teaching development processes. The participants reflect on their own teaching from different perspectives and points of view. Some teachers have also pointed out that the video recordings and reflections provide them with a pool of ideas to further develop their teaching activities. Therefore, edubreak® can be considered an effective tool within PrepareCampus that facilitates efficient teaching development processes.

Key aspects that need to be discussed include:

Training of staff and participants

To ensure a successful outcome, training must be provided for all participants and tutors from the backgrounds of school- and tuition development, subject didactics, inclusion and kindergarten, including those in the early stages of their career.

Technical training

All course participants, tutors and participants must receive technical training in a face-to-face session.

Conclusions

Based on the above experiences, the Department of Pedagogics within the Directorate for German-language Education and Training in Bolzano/Bozen (Italy) has decided to successively expand the use of PrepareCampus and to develop a series of initiatives based on it. Providing training for tutors and participants to accompany the initiatives on offer is an essential aspect of this. Schools, in turn, will be offered the chance to use PrepareCampus for their own purposes, i.e. for lesson- and school development.

Closing remarks

To summarise the project, it can be concluded that not all initial hopes listed in the project application form have been fulfilled. It is perhaps in the nature of longer-term projects that they are often overshadowed and sometimes even massively encumbered by everyday work outside the project. In addition, the limits of the institutional development potential at the project sites only become clear over the course of the project. Oftentimes, where there had appeared to be an open door at the time of applying and launching the project, or where it had been agreed with an institution that a door would be constructed as a viable path for the project, all of a sudden there would be nothing but a concrete wall.

Many a time, this drastic shift in the working context is linked to the fact that the home institution only gradually grasps the whole extent of the challenges a project such as PREPARE poses – and often, the institution would prefer to stick to the previous, the tried-and-tested approach. This appeared to be particularly true of the project aim to transition from paper-based portfolios to electronic portfolios at such a neuralgic point as school traineeships in teacher training.

Looking back, perhaps it can be interpreted as a key strength of this project and its team that the project implementation – especially over the course of last year – increasingly focused on the work at the individual project sites rather than invest additional time and energy into expanding the cooperation between the sites. After a joint scope of action had been defined in the first half of the project – a reflection concept, a basic task design and the technical configuration in the form of PrepareCampus –, in the second half of the project it became much quieter between the partners.

This can be explained by an increased workload (writing and giving feedback) on the one hand and, on the other hand, to some extent also by disappointment and resignation due to local problems on-site and at the partner locations. After all, every team member had been looking forward to a close and mutually stimulating exchange with their colleagues! This exchange did take place, of course, but on a much more pragmatic and therefore more limited level than previously anticipated. What was lost in the wake of the sometimes very tiring confrontation with the home institutions was the theory-based and conceptual exchange, a look beyond one's own or current horizon and the effort to construct joint (educational) visions that would outlast the project.

We hope to continue using this wiki to maintain the visionary cooperation in matters of reflective practice and e-portfolio work in the future, and we hereby invite all colleagues from near and far to participate, intervene and provoke with questions and problem perspectives in order to truly advance the scientific research and educational policy discussion on the role and function of reflective practice in higher education and training.

If you have read the English version of this document and are interested in receiving more information, please contact the project site most relevant to you. We will be happy to send you English-language material.

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