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Triggering Factors for (Self-)Reflection. An Inquiry in the Context of an ePortfolio Initiative

Abstract

The purpose of this paper is to give insight into an ongoing ePorfolio (ePF) implementation for students of a five semester Master's Programme for Business Education and Development. An accompanying study of this ePF implementation aims at evaluating the students' self-perception of their competence development. At six points of time throughout their Master's Programme, students fill in questionnaires totalling up to 2,326 questionnaires by March 2020. The focus of this paper lies on the triggering factors for (self-)reflection. The results show, that obligation is a main triggering factor for (self-)reflection, thus indicating the importance of curricular integration of the ePF work for a successful (self-)reflection process.

Keywords

(self-)reflection, competence development, e-portfolio, business education and development

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1   Introduction

Reflection is a vital component within every professional's skill set (SCHÖN, 1983; LYNCH, 2000). The ability for a critical reflection is a key for deepening and documenting learning especially for students in applied learning settings (e.g. internships, field experience) (ASH & CLAYTON, 2009; THOMPSON & PASCAL, 2012) and for their teachers (COWAN, 2006). Not surprisingly, reflection has become an essential component also of teacher education programmes (BEAUCHAMP, 2015) and therefore in Business Education and Development (RIEBENBAUER & STOCK, 2019). Furthermore, reflection is a core process in organizational learning, where it is important to distinguish different levels of reflection: individual, interaction level and reflection as organized practice (HØYRUP, 2004).

Based on the importance of reflection, instructional interventions to foster students' reflection should be a key component of many study programmes. However, reflection is not easy to teach or learn and requires a trusting relationship between teachers and learners. Furthermore, there are a lot of risks and challenges that can sabotage this reflection process. Cultural norms, self-disclosure or linking theory to practice are just some examples (FOOK & ASKELAND, 2007; SMITH, CLEGG, LAWRENCE & TODD, 2007). Within this paper, a didactic concept is presented to foster both reflection and self-reflection – (self-)reflection – among students of a Master's Programme for Business Education and Development. Arising from the mentioned challenges of designing such teaching and learning settings, the focus of this research lies on the triggering factors for (self-)reflection. This paper tries to answer the following research question: *Which factors are triggering the (self-)reflection processes of students of Business Education and Development?* The aim is to identify triggering factors for (self-)reflection, for the purpose of further developing this didactical setting as well as similar settings aiming at fostering students' (self-)reflection.

Business Education and Development at the University of Graz is a five semester Master's Programme of polyvalent nature, which qualifies students for a career in

various business fields (e.g. accounting) – but also for a career as teacher for commercial subjects at vocational schools. To foster students' ability to reflect and to self-reflect, students of the Master's Programme have to develop an *Electronic Competence Development Portfolio* (ePF). Within their first, third and fifth semester, students attend designated seminars where they continuously develop their portfolio, while being accompanied by a designated ePF coach. The ePF incorporates the students' self-perception of their competence development. Within this paper, a long-lasting accompanying research, involving 2,326 questionnaires as of March 2020 is introduced. Aside from insights into students' competence development (e.g. STOCK & FERNANDEZ, 2019), this accompanying study allows for an evaluation of the portfolio implementation (e.g. DREISIEBNER & SLEPCEVIC-ZACH, 2019) – but also for insights into aspects such as *triggering factors* for students' (self-)reflection process.

The introductory chapter is followed by a literature review, in which the term of (self-)reflection is examined and the concept of an ePF as an instructional intervention is introduced. Within the third chapter, the methodology of the longitudinal study is explained in more detail. The focus is set specifically on an examination on the triggering factors for reflection. It becomes apparent, that extrinsic factors (such as the curricular integration of the ePF work) represent main determinants for a successful implementation of the ePF and hence for the effectiveness of this instructional intervention. The paper ends with a conclusion, the limitations of the presented research and an outlook on further research.

2 Literature Review

Within this section the following questions are addressed: How are reflection processes defined? How might portfolio concepts be used to foster the students' competence to reflect and self-reflect? To address the second issue, an ePF implementation is introduced, which is embedded into the curriculum of a Master's Programme for Business Education and Development at an Austrian University.

2.1 (Self-)reflection

Although there exists no general definition for reflection (DILGER, 2007; LYNCH, 2000), reflection is undeniable an important part of a person's skill repertoire (LYNCH, 2000). According to SCHÖN (1983) reflection is considered the basis of professionalism: To become professionals in their fields, individuals must be reflective. Reflection in this sense comprises (1) the perception of the own situation, (2) the differentiating problems resulting from the own situation, (3) the restructuring of existing options of action and (4) the development of options of action.

Processes of reflection might refer to one's own action (as *self-reflection*) or to the individual's environment (HELSPER, 2001). Reflection might occur in two forms (SCHÖN, 1983):

Reflection-in-action refers to a situation, where the person reflecting becomes a „researcher in the practice context" (SCHÖN, 1983, 68), by reflecting upon a situation where he/she is still involved in. While processes of reflection-in-action occur, the situation reflected upon might still be influenced by the individual's actions.

Reflection-on-action occurs after the situation to be reflected upon is already finished. Therefore, the individual cannot alter the outcome of the situation anymore, but it might profit in future action situations from the gained insights. Reflection-on-action therefore is simply defined as „thinking back on what we have done" (SCHÖN, 1983, 26).

These two types of reflection are not conducted merely for their own sake, but specifically to directly improve action options in the situation reflected upon (by reflection-in-action) or for further action situations (by reflection-on-action). This process is visualized by the ALACT-model by KORTHAGEN (1999). ALACT is an acronym, covering five steps of a circular reflection process: Reflection starts with an *Action* to be reflected upon. This action is followed by a *Looking back on the action*. Within a next step, the *Awareness of essential aspects*, the individual identifies e.g. reasons for specific issues. As the reflection process is forward-

looking, in a fourth step (*Creating alternative methods of action*), as the name suggests, the individual begins to create alternative methods of action by formulating goals, considering advantages and disadvantages and reviewing their feasibility. The final step involves the *Trail* of the most desirable of the created alternatives which in turn leads to a new action to be reflected upon.

As described by SCHÖN (1983) and KORTHAGEN (1999), reflection is a circular process. Reflection is never 'finished', but the results of previous reflection processes provide the basis for future reflection. In addition, reflection processes might address past issues, as indicated by KORTHAGENS (1999) *looking back on the action*. On the other hand, reflection might also be directed towards the future (e.g. creating alternative methods of action). The broad definition spectrum makes apparent, that the terms reflection and self-reflection are closely related and interwoven. Within this paper, the term *(self-)reflection* is used in reference to JAHNCKE, PORATH, REBMANN, RIEBENBAUER & STOCK (2018, 118) in the sence of the view towards the inside as well as towards the outside – and both to the past and to the future.

2.2 The Electronic Competence Development Portfolio (ePF)

Due to the importance of the topic specifically for students of teacher education (see RIEBENBAUER & STOCK, 2019), a great deal of research work in previous years has addressed the question of how to design didactical settings to foster students' ability to (self-)reflect (BERNDT & HÄCKER, 2017). To foster the competence of (self-)reflection among students, various instruments have been developed. Instruments for promoting (self-)reflection are, for example, written reflection reports (e.g. learning diaries), which may also be supported by fellow students in the role of critical friends, as well as portfolios (BRÄUER, 2016). A portfolio is „a purposeful collection of student work that exhibits the student's efforts, progress, and achievements in one or more areas" (PAULSON, PAULSON & MEYER, 1991, 60).

BAUMGARTNER (2009) distinguishes between three major categories of portfolios: (1) reflection portfolios, (2) development portfolios and (3) presentation portfolios. *Reflection portfolios* incorporate (personal) learning portfolios as well as (organizational) assessment portfolios. Within the (personal) learning portfolio, the focus lies on a specific learning product, alternatively the entire learning process itself also might be reflected upon. Within (organizational) assessment portfolios the learning process itself is documented with the goal of enabling the grading of the students. Within *development portfolios* the focus lies on the development of new competences or career planning. The *presentation portfolio* is used to demonstrate one's own competences (e.g. for the purpose of a job interview) or for advertising purposes (e.g. advertising the product range of a company).

Regarding this categorization of portfolios, the focus of this paper is on both reflection and development portfolios (see figure 1), as the ePF implementation presented and examined in this paper represents a mixture of these two portfolio types (STOCK, SLEPCEVIC-ZACH & DREISIEBNER, 2020). The resulting portfolio concept might be subscribed as an „*electronic competence development portfolio*" (STOCK, SLEPCEVIC-ZACH & DREISIEBNER, 2020, 522, translation by authors).
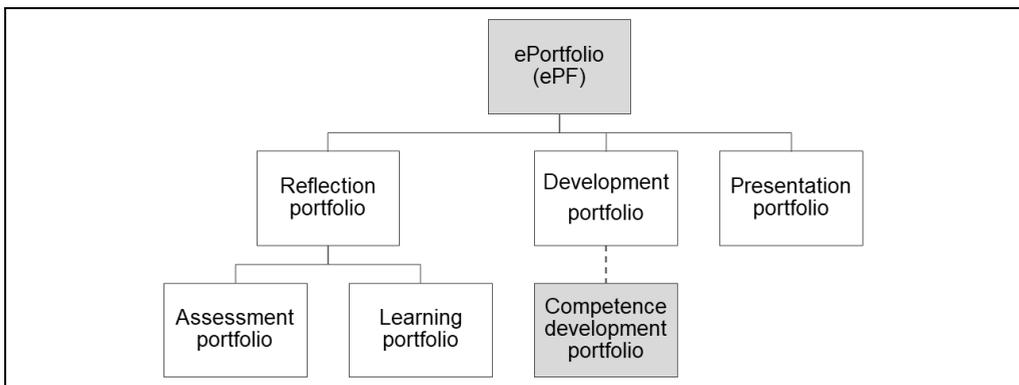

Figure 1: Taxonomy of electronic portfolios. Adapted from BAUMGARTNER (2009, 33) and STOCK, SLEPCEVIC-ZACH & DREISIEBNER (2020, 522)

The ePF is mandatory for all students of the Master's Programme of Business Education and Development. Within their first, third and fifth semester, students attend a designated seminar where they develop and improve their ePF under the guidance of an ePF coach. The implementation closely follows pre-existing guidelines for portfolio implementations (PAULSON, PAULSON & MEYER, 1991; BREAULT, 2004). Since (self-)reflection is a process of circular nature – as indicated by SCHÖN (1983) and described within the ALACT-model by KORTHAGEN (1999) – students are encouraged to engage into (self-)reflection at multiple points of time. The foundation of this ongoing process of (self-)reflection evolves around the three designated ePF seminars (first, third and fifth semester).

In contrast to other previous attempts to utilize portfolios in educational contexts, the ePF discussed within this paper does not aim at assessing the students' competences. The ePF is implemented as a tool to foster the students' (self-)reflection (DREISIEBNER, RIEBENBAUER & STOCK, 2017; SLEPCEVIC-ZACH & STOCK, 2018). The portfolio is exclusively visible to the external coach too for the purpose of giving feedback and guiding the (self-)reflection process (STOCK & KÖPPEL, 2012). This is in strong contrast to other portfolio-implementations, which often utilize the content of the portfolio for assessment purposes (MASON, PEGLER & WELLER, 2004; LOPEZ-FERNANDEZ & RODRIGUEZ-ILLERA, 2009). After successfully creating or improving their portfolios, students are granted ECTS points. By doing so, the (extensive) effort behind the (self-)reflection process is valued.

The typical sequence within every ePF seminar consists of an initial attendance phase (where students are introduced to the concept of (self-)reflection and portfolio work), followed by an online phase, in which students create their individual ePF (SLEPCEVIC-ZACH & STOCK, 2018). Due to Covid-19 this initial attendance phase took place online via video conference from the summer term of 2020 on. However, all other aspects of the ePF seminars remained constant during the period of distance learning. A clear communication of the aims and benefits of the portfolio work is conducted in the very first session. To create the portfolio, students use an online template, which consits of the elements of a Curriculum

Vitae and their personal competence profile (for a template see SLEPCEVIC-ZACH, RIEBENBAUER, FERNANDEZ & STOCK 2015, 127–139). The resulting portfolios remain electronically accessible (exclusively for the student and the ePF coach) on a university-owned plattform.

All ePF sessions follow the principle *collect – select – reflect – connect* (BAR-RETT, 2005): By *collecting* all competences, students start into the process of (self-)reflection. Afterwards, the students *select* their most distinctive competences. Based on this competence profile, students *reflect* how they might utilize their individual strenghts and how they could meet their potential for improvement. Within a final step, students *connect* their insights by summarizing them.

To continously improve the quality of the portfolio implementation (e.g. DREISIEBNER & SLEPCEVIC-ZACH, 2019) an examination of students' motivation to reflect – i.e. an examination of *triggering factors* for students' (self-)reflection – is considered to be a key component.

3　Methodology

While this paper specifically addresses triggering factors for (self-)reflection, the overall aim of the accompanying study is much broader and is to evaluate the students' perception about their competence development.

The overall study design and the resulting questionnaires are based on the results of a preliminary study (STOCK & KÖPPEL, 2012). In the first, third and fifth semester of the Master's Programme, the students attend designated seminars for the purpose of developing and improving their individual ePF. At the start and at the end of each of these seminars, the students fill in the questionnaires of the accompanying study. As of March 2020, the sample consists of 2,326 questionnaires, distributed upon six points of inquiry (see figure 2). Since data collection is an ongoing process, the data set includes more students from the very beginning of the Master's Programme (questionnaire Q1.1) than students at the very end (Q3.2).
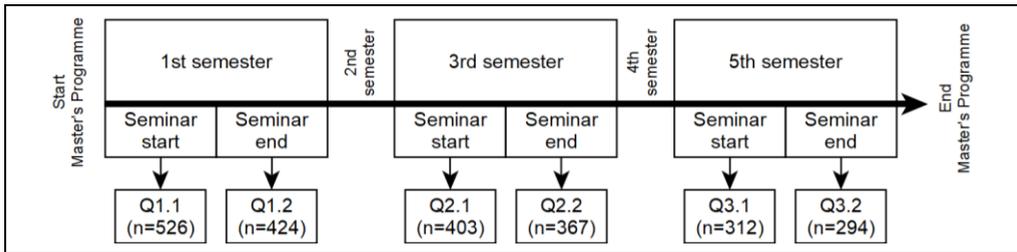
Figure 2: Research design and sample size of the ePF accompanying study.
Adapted from STOCK & WINKELBAUER (2012, 52)

The questionnaires are filled in by the students during the very first and the very last session of each ePF seminar. Each questionnaire contains a code associated with an individual student, thus enabling the tracking of individual development processes, while still granting anonymity to the participants of the study. The questionnaires incorporate quantitative items (mostly aiming at the evaluation of the implementation process) and qualitative items (aiming at the students' perception of their competence development).

The participation within the ePF seminars is embedded within the curriculum and mandatory for all students (see also the recommendations of BREAULT, 2004), therefore the sample equals a full population survey of all students of the Master's Programme of Business Education and Development at the University of Graz since 2011. However, the design of the study involves just the (self-)perception of the students regarding their most distinctive competences and not cover any kind of competence assessment. In addition, since the questionnaires are an integral part of the didactical intervention, the repeated questionnaires might have an impact on students' self-perception of their own competences.

4 Results and Discussion

The impact of the ePF implementation described within this paper is well documented by previous studies and has been the starting point for the ongoing improvement of the instrument. Selected results include:

Longitudinal analyses of the students who have already successful finished their ePF, show over all six points of inquiry (from Q1.1 to Q3.2) that the number of self-perceived competences increases. In addition, also the frequency of (self-)reflection increases continuously (although the largest increase can be found in the first semester, i.e. between Q1.1 and Q1.2 (STOCK & FERNANDEZ, 2019, 5f.).

The importance of self-reflective learning is more valued by older students (born before 1980), in contrast to their younger study colleagues (FERNANDEZ, SLEPCEVIC-ZACH & GÖSSLER, 2015, 72ff.).

The accompanying study allows the tracking of the self-perceived competence development of the students and the assessment of the impact of specific learning settings. Results show, that the teaching practice (one semester of teaching at a higher vocational school) leads to an increase in the self-perceived professional competences of the students (RIEBENBAUER, DREISIEBNER & STOCK, 2017, 62f.)

Within this paper, the focus lies on the *triggering factors* for (self-)reflection, where it becomes apparent that the curricular integration of the ePF work is a main determinant for sucessful ePF work. Triggering factors for students' (self-)reflection have been documented by previous studies (DREISIEBNER et al., 2017, 40f.). Within the questionnaires Q1.1, Q2.1 and Q3.1 students are required to indicate triggering events for (self-)reflection via a multiple-choice item:

- o Obligation (in connection with a seminar at university)
- o Job application
- o Success or failure in private or professional life
- o Increase of knowledge about oneself (self-awareness)

  o Changes in private life (move, partnership, etc.)
  o Other: _____

As figure 3 depicts, 57 % of the students in the first semester indicate that obligation is their primal triggering factor for (self-)reflection. Even more first-semester students (78 %) indicate, that the possibility of an upcoming job application is the main triggering event for their (self-)reflection process. Another important aspect is success and failure in private or professional life (62 % at Q1.1), leaving 'Obligation' (with 57 % at Q1.1) to be only the third most important triggering factor. 'Self-awareness' and 'Change' seem to play a minor role compared to the other triggering factors with approximately one third of all students across all three questionnaires.
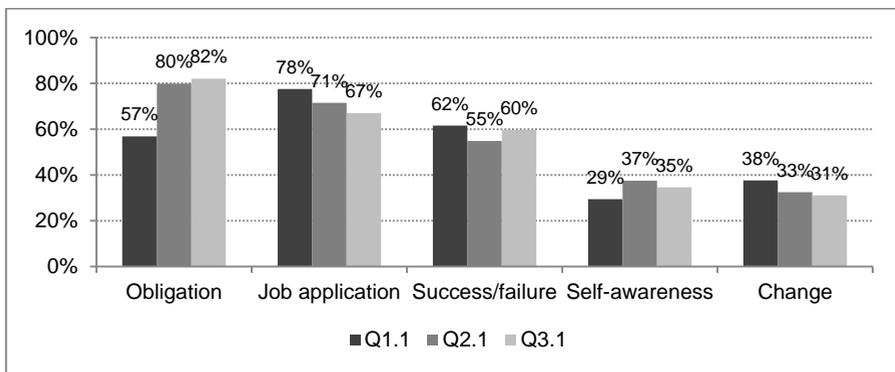

Figure 3: Triggering factors for (self-)reflection.

Most notable is the significant increase of 'Obligation' over the ePF-Seminar of the five semesters of the Master's Programme, which seems to be accompanied by a decrease in the triggering factor 'Job Application' (from 78 % of all cases down to 67 %). At the start of the ePF work, content, purpose, and process are controlled by the organization. It might be expected in accordance with BARRETT (2005) that extrinsic factors (e.g. obligation or job application) dominate as triggering factors for (self-)reflection at the beginning. With increasing ownership over the portfolio,

it is expected that intrinsic factors (e.g. self-awareness) are gradually replacing the extrinsic factors.

The rise of 'Obligation' to the dominant triggering factor does not seem to fit within this picture. However, since the ePF is mandatory for all students, it is likely that 'Obligation' is – among others – a triggering factor for the students. Since the items displayed in figure 3 were multiple choice items, the question arises which items were chosen *together* by the students. A Hierarchical Cluster Analysis utilizing the Jaccard Similarity Coefficient (JACCARD, 1912) as proximity measure allows insight into this matter (see figure 4). The analysis was carried out for Q1.1, Q2.1 and Q3.1 respectively. Within each dendrogram, the vertical axis contains the triggering factors for (self-)reflection. The horizontal axis shows the distance between the single clusters, with a smaller distance on the horizontal axis indicating a greater similarity between the clusters.
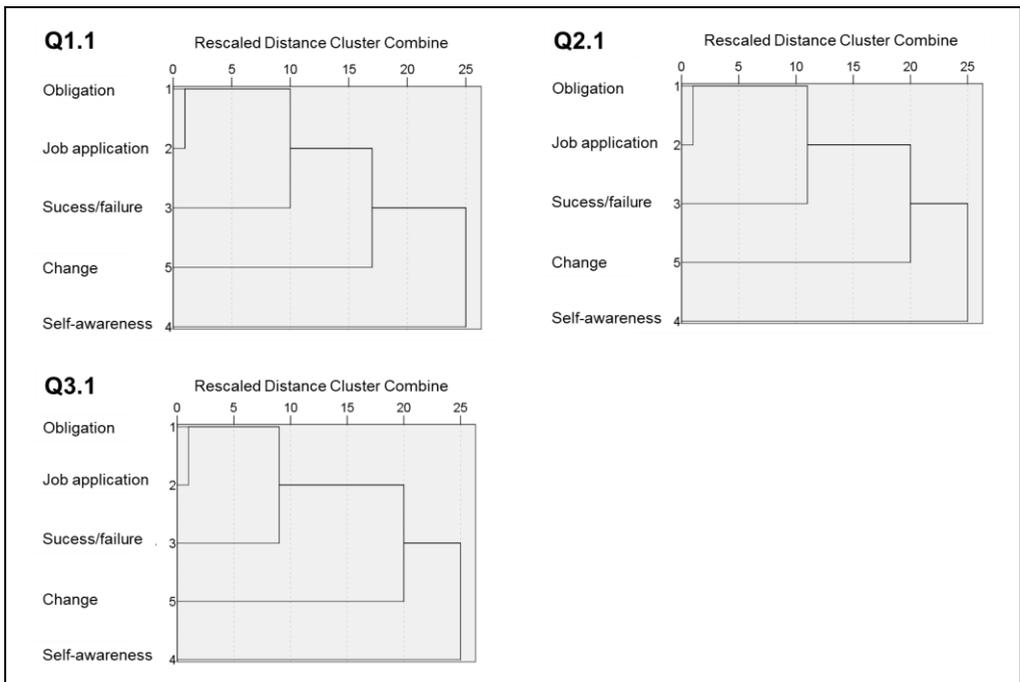
Figure 4: Triggering factors for (self-)reflection. Hierarchical Cluster Analysis, Dendrogram using Average Linking (between groups).

At Q1.1 (first semester), the first cluster is formed by 'Obligation' and 'Job application' with a small distance between the two factors (indicated by the horizontal axis). This indicates that the two factors 'Obligation' and 'Job application' have been frequently chosen together by the students as triggering factors. All other factors show an increased distance and are incorporated at a later stage of the cluster analysis. At Q2.1 (third semester), 'Obligation' and 'Job application' are still the factors which are chosen together most often. However, distinctive clusters of triggering factors are beginning to form out. While the distance to 'Success/failure' is still high, there is a small distance between 'Change' and 'Self-awareness', leading to three clusters of triggering factors: (1) *Obligation and Job application*:

These are triggering events of external nature. (2) *Success/failure:* This second cluster is also of external nature, but much less specific. The motivation to reflect might also originate in intrinsic motivation. (3) *Change and Self-awareness*: This third cluster constitutes of triggering factors which are of intrinsic nature. At Q3.1 the distance between the second cluster ('Success/failure') and the third cluster ('Change' and 'Self-awareness') even increases, indicating that students chose the triggering events incorporated into a cluster frequently together.
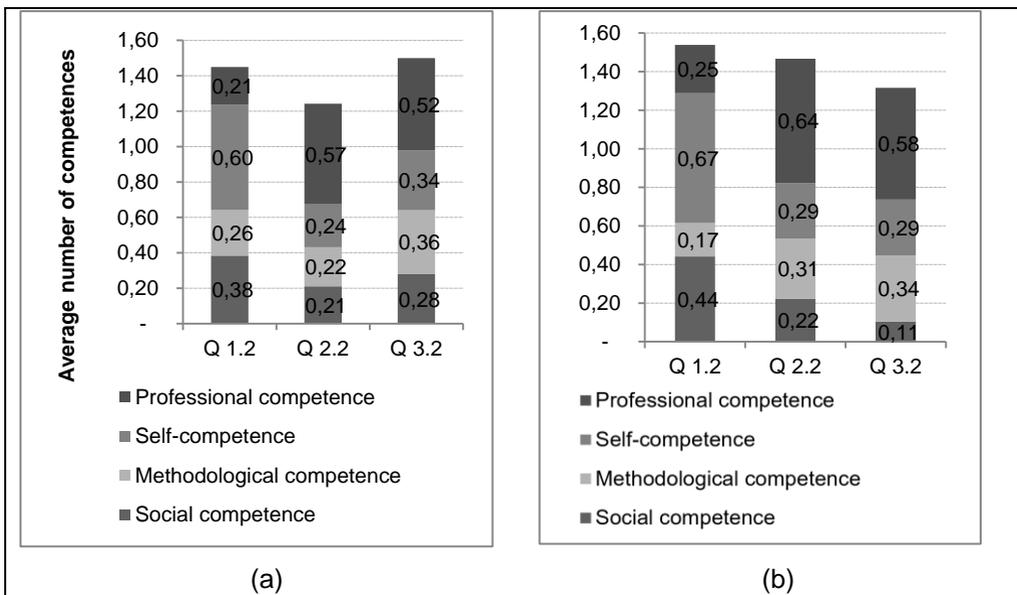

Figure 5: Newly discovered competences (a) for all students and (b) for students who indicate to reflect out of self-awareness.

The underlying motivation of the (self-)reflection process (intrinsic or extrinsic) seems to be an indicator for the 'success' of the (self-)reflection. Within the questionnaires Q1.2, Q2.2 and Q3.2 students were asked to indicate their newly found competences. These competences were then classified according to PETERSSEN

(2009) into professional-, methodological-, social- and self-competences. As indicated by figure 5, students who reflect out of self-awareness, were able to detect more new competences during their ePF work than their colleagues (for Q3.2 this number is higher, however, for the general sample).

Although 'Obligation' seems to play a major role as triggering factor for (self-)reflection (as indicated by figure 3), it almost exclusively acts as additional factor among others. Only for 11 out of 526 students at Q1.2, 'Obligation' was the only triggering factor. For all other students, 'Obligation' was just one triggering factor among others. However, the substantial role of 'Obligation' as triggering factor comes not surprising, since this is a side effect of the curricular integration of the ePF. This close curricular integration is based on the recommendations of successful portfolio work by BREAULT (2004). As the results indicate, the students are well aware of the important role of (self-)reflection within the curriculum.

The results of the accompanying study show on the one hand that the students highly value the ePF work. The students denote that reflective learning is of importance to them and the frequency of (self-)reflection increases from the first until the fifth semester. On the other hand, the students also need the close curricular integration and the obligation to reflect, they also look at the ePF work as obligation respectively.

5 Conclusion

Didactical settings to foster students' ability to reflect are a key component of teacher training programmes at higher education institutions (BERNDT & HÄCKER, 2017). To support students' competence development in (self-)reflection, portfolios might be utilized as one possible didactical setting (BRÄUER, 2016). Within this paper, one possible approach towards an *electronic competence development portfolio* (ePF) was presented. The focus of the research presented within this paper lies on the triggering factors of students' (self-)reflection with the intention to

derive implications for the improvement of this particular didactic setting as well as similar settings.

The results from the accompanying research indicate that an examination of the triggering factors for (self-)reflection are of high importance. Among these triggering factors there are intrinsic factors (such as the desire to increase the knowledge about oneself), but also extrinsic factors, such as obligation. The curricular integration of the ePF – one of the recommendations for the implementation of portfolios according to BREAULT (2004) – might also act as such an extrinsic triggering factor.

BARRET (2005) suggests that learners need initial institutional guidance regarding content, purpose and development process of their portfolios – with institutional control being gradually replaced by learner ownership of their own portfolios – thereby substituting extrinsic with intrinsic motivation. As indicated by the figures 3 and 4, the extrinsic component of motivation remains of high importance for the students throughout their Master's Programme. However, the results also suggest (see figure 5) that students who reflect out of self-awareness (i.e. out of intrinsic motivation) where able to find more newly obtained competences and thus were more 'successful' in their (self-)reflection process.

An early formation of a positive attitude towards the method of ePF is key for a successful implementation (CHEN, CHANG, CHEN, HUANG & CHEN, 2012). Within the discussed ePF implementation, this formation of a positive attitude towards the instrument is realized via an exemplary competence interview with one voluntary student in front of the whole class (for an extensive description see STOCK, RIEBENBAUER & NEUBÖCK, 2015, 51ff.).

A main limitation of the presented research design lies in the fact, that it involves only the self-perception of the students regarding their competence development and (self-)reflection process. The results are not based on measuring actual competence increase of the students – which would be impossible if a competence definition such as the definition of WEINERT (2001) is applied. A second limitation is linked to the accompaniment of the whole process of (self-)reflection by a desig-

nated ePF coach. It is most likely, that the positive effect of the ePF does not result by the isolated use of the instrument itself, but also by feedback from the ePF coach. However, with the current research design it is not possible to distinguish between the effect of the instrument of ePF and the effect of coaching or the effect of (self-)reflection while repeatedly filling in the questionnaires of the accompanying study. A third limitation is, that the results allow just for insights into the period of the five semesters of the Master's Programme. The sustainability of the ePF initiative beyond the Master's Programme is largely an issue still to be addressed. First results on the sustainability of the ePF initiative seem to be promising (DREISIEBNER et al., 2017). However, a large-scale study on the sustainability of the ePF initiative is still to be conducted. This issue is a pressing one, since 'Obligation' has proven to be a highly important triggering factor for (self-)reflection. After the students have finished their studies, curricular integration of (self-)reflection is missing. How well students will integrate measures of (self-)reflection into their future work-life and personal life will largely depend on the attitude towards the instrument, which they have acquired during their Master's Programme. Therefore, further promising research fields involve the sustainability of the ePF work among graduates.

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