Developing Reflective Skills of Student Teachers in the Virtual Learning Environment

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Abstract: A technology supported environment in the educational context has been identified as a useful work space with the potential to deepen the learning experience. This study focuses on ways of using it for the development of reflection as a key teaching competence within initial teacher training. It is based on the premise that enriched reflection conducted in a technology supported environment will result in more a specific, more profound and thus deeper learning experience of student teachers. The purpose of this study was to measure the level of depth of the reflection conducted in a regular higher education ELT methodology course after a microteaching session and to compare it with the reflection student teachers provided after their experience had been enriched by other classmates´ suggestions within VLE. The study was conducted over 2 semesters and the research sample consisted of 52 undergraduate students. Non-probability sampling was applied, namely convenience sampling. Both qualitative and quantitative methods were used including content analysis and semi-structured focus-group interviews. To increase the internal validity and objectivity in coding the responses and data interpretation multiple researchers were used. The results of the current study suggest that enriched reflection provided student teachers with such a depth of stimuli that their approach towards their own reflection demonstrated a significant difference in comparison with regular reflection conducted in face to face learning.

Keywords: technology supported environment, virtual learning environment, higher teacher education, reflective practice, enriched reflection

1. Introduction

Education has been the focus of technological interventions for quite some time with a variety of aims (see e.g. Kirkwood and Price, 2013). The term technological intervention or enhancement can refer to multiple uses of technological devices applied in the educational context with the focus placed on the learner or the learning process. The prime intention for this enhancement in general is usually to raise the quality of the teaching/learning process within many different aspects of this process. This study investigates how technological enhancement through the use of virtual learning environment (VLE) can improve the reflective skills of student teachers by creating space for collaborative learning experience in initial teacher training courses.

Teacher education needs to create sufficient space for such aspects of the teaching profession which do not manifest themselves on the overt level. Decision-making processes, justification of chosen techniques, tendencies to operate on certain communication principles are rather subtle processes which teachers are not always aware of or able to articulate. The way of disclosing them requires conditions which are not always easy to set in the context of face to face learning. Virtual learning environment, on the other hand, has the potential to create more desirable conditions, especially for reflection which requires time and space and, moreover, frequent repetition. As Gün (2011) suggests reflection if practised systematically can be developed more effectively.

This paper addresses the issue of using virtual learning environment for the development of reflective practice and it particularly focuses on whether reflection becomes more effective if an online learning environment is incorporated in the training and on the perceptions of student teachers towards the e-learning component of their course.

2. Reflective practice in teacher training

The development of reflection as a part of complex metacognitive awareness has an irreplaceable position in teacher education (e.g. Richards and Lockhart, 1994; Spilková, 2007; Gough, 2007; Pollard and Collins, 2008) since it allows the space for reconsideration of prior beliefs which are deeply embedded and sometimes even difficult to express. Although there are many different viewpoints on what exactly we should define as reflective practice (Walsh and Mann, 2015) and its application would most certainly vary in the way how reflection interweaves teacher training courses, one thing is acknowledged by all of these approaches. Reflection is the key aspect in building a teaching self and developing the constant need for professional

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development (Marzano, et al., 2012). It is, therefore, essential to equip future teachers, already in the initial phase of their development, with skills that they can use independently in their own practice.

Learning from one's own experience is a profound and focused discovery process (Dewey, 1933) which needs to be guided (Hrevnack, 2011) especially when we speak about teacher development. As Kolb (1984) suggested in his *experiential learning cycle,* thinking about past actions, searching for the reasons why certain things happened and why the teacher opted for specific actions is crucial in understanding the core of the action and thus brings future results to a higher qualitative level. However, individual reflective observations might not always produce such conclusions. The individual holds on to prior knowledge and prior experience both of which seem to have a strong influence on how the new reality is going to be filtered, assessed and adjusted within the already existing schematic knowledge. It, therefore, opens the space for "other people´s observations" or enriched reflection (Ur, 1996, p.7) in order to bring about confrontation with other people´s realities to allow for justification, searching for solutions to stated problems. As DeWitt, et al. (2017) suggest the learning experience conducted through responding to stimuli and through constant interactions with peers activates and engages learners, providing a deeper learning experience. A qualitative study by Lee (2005) supports the idea of group reflective thinking pointing to the fact that if students are equipped with proper "collaborative reflection-supporting tools" it has a positive impact on their reflective outcomes. Lee (ibid.) underlines especially the facilitative aspects of collaborative reflection which are also the main focus of this study. Collaboration of peers seems to stimulate a higher quality of outcomes (Qin, Johnson and Johnson, 1995; Turcotte, 2012) and it generates much higher stimuli for the reflection process in comparison with a situation where the task is handled by an individual. This diversity of viewpoints generates deeper immersion and involves higher-order thinking skills, which allows student teachers to move from a descriptive approach in reflection into a deeper analytical approach.

Execution of learning tasks within the online learning environment and the use of technology for collaborative purposes allows for extended space and sufficient time for observation, reflection, forum-discussions, i.e. conditions in which student teachers have more opportunities to undergo the analytical process of what happened in the classroom experience context.

DeWitt, et al. (2017) highlight that one of the aspects of collaborative learning is that it enables participants to bring their prior knowledge and perspectives and share them within the community as a result of social interactions. If this is conducted in virtual environments e.g. in discussions, or feedback sessions, the participants need an awareness of belonging to the community, demonstrating a supportive attitude to peers participating in discussions. A thorough investigation of collaborative learning experience within the online environment has been conducted within the Community of Inquiry framework (Garrison and Arbaugh, 2007; Arbaugh, et al., 2008; Swan, Garrison and Richardson, 2009; Garrison, Anderson and Archer, 2010; Bogle, et al., 2009) with the focus on the "potential and effectiveness of computer conferencing" (Garrison, et al., 2010, p. 6). Their model of three interconnected presences (cognitive, social and teaching presence) which should involve students in a deep and meaningful learning experience and purposeful communication has been further researched in connection to new conditions and innovative approaches towards implementation of new technologies (Whiteside, 2015; Whiteside and Dikkers, 2012; Gunawardena and Zittle, 1997; Richardson and Swan, 2003; Rourke, et al., 1999).

Stepanyan, et al. (2009) conducted action research focusing on student attitudes towards peer evaluation conducted in the virtual learning environment and showed that students achieving the highest scores were most interested in studying the evaluations of their colleagues. Nortcliffe (2012), based on her five-year study of embedding formative peer feedback and self/peer assessment, states that students perceive it as a fair method. At the same time, she underlines that students need to understand that peer assessment is a means for students to reflect upon the quality of completing the required performance and/or learning outcome. Experience with assessing their peers and thinking about other students' comments will consequently influence the way they reflect upon their own performance. This kind of approach fine-tunes the feedback of students and improves validity of their comments in comparison with those of a tutor. Bouzidi and Jaillet (2009) support this by claiming high correlation between the tutor's grades and students' evaluation and similar findings were also reported by Strang (2015).

Virtual learning environment offers space for the development of individual viewpoints, which is often limited in the face-to-face classroom context. Student teachers in this context do not always manage or are willing to

take their turn in sharing their comments. On the other hand, virtual context gives them time to consider thoroughly what and how they want to respond and even compare their viewpoints with other peers. Even though this virtual context is blended into face-to-face learning for the purposes of the course, it still can increase student engagement. As Garrison states it is important to question what the e-learning component "allows us to do that we could not do before" (2011, p.6).

3. Study design

This study presents the case of student teachers who are involved in conducting reflection on their teaching. Each student teacher reflected on their performance after teaching part of the lesson in front of their peers and was given immediate feedback from the peers and the tutor. This reflection framework seemed to generate oversimplified and superficial conclusions of a rather descriptive nature (for similar results see e.g. Cohen-Sayag and Fischl, 2012) and failed to demonstrate any evidence that deep thinking and consequently learning was taking place. Even after being given structured guidance on what they needed to focus on, they had a tendency to approach it as a question-and-answer format instead of getting involved in deeper consideration of the highlighted issues. In their reflection logs, student teachers inclined towards addressing "visible" aspects of their experience in a descriptive way rather than trying to understand why things were happening. However, without deep insight into the core of how actions and reactions relate to each other in the classroom, the student teachers missed the opportunity to develop as professionals understanding the covert layers of their own teaching beliefs.

This situation led to designing a modified reflection framework in order to foster deep learning experience through collaboration with peers in a virtual learning environment. The e-learning supplement of this framework was set up with the aim of offering more space for thinking, consideration and reconsideration of ideas and at the same time of avoiding simple transition of a trainer's ideas and viewpoints on the student teachers.

The framework included identification of the problematic situation by the student teacher and selection of problem questions connected to this situation for a collaborative forum discussion. This decision included a twofold expected outcome. The student teachers would need to first identify which part of the lesson would be selected for discussion. Secondly, the student teachers would reflect on the stimuli they receive from other student teachers and only after this phase would they prepare a final reflection report for the trainer. Both these actions were believed to prevent them from jumping to conclusions or working on the basis of first impressions.

Thus, the main aim of the present study was to investigate the possible influence of online moderated discussions in the virtual learning environment on student teachers' ability to reflect upon their teaching performance. The study focused also on the attitudes of the student teachers towards using self-reflection as a regular part of their teaching practice and towards collaborative e-learning aspects of the Methodology course which came as a novelty for the student teachers.

The research examined:

1. whether student teachers would produce more thorough and detailed self-reflection as a result of e-learning online discussions/fora engagement
2. whether observing colleagues and providing them with VLE feedback would lead to deeper consideration of planning their own lessons
3. the attitude of the student teachers towards regular evaluation of peers' performance, giving feedback, accepting feedback and the possible benefits of the processes.

3.1 Methodology

3.1.1 Participants

In the present research non-probability sampling was applied, namely convenience sampling where those elements are selected that are the most convenient, the most easily accessible.

The research sample consisted of 52 pre-service teacher student teachers of both genders enrolled in a teacher training MA programme at the University of Presov in Slovakia. They all studied English as a major

study programme. The student teachers voluntarily split into two groups where either classroom-based face-to-face teaching (n=29, the control group) or e-learning enhanced teaching (n=23, the experimental group) was applied.

3.1.2 Procedure

The study itself was conducted over a one-year period (2 semesters). The EFL Methodology course consists of three 39-units of study distributed over a period of 13 weeks and the student teachers take part in three school placements at both primary and secondary level.

The first semester of the Methodology course builds on the knowledge acquired in courses on general pedagogy and psychology. It focusses on building a profound understanding of the theoretical background. The next two semesters strive to transfer this understanding into classroom application and the tutors' aim is to impart critical thinking and especially teaching skills training. During these two semesters the training is accompanied by a school placement lasting for two weeks. Student teachers are asked to keep records from the lessons they teach together with observation sheets, lesson plans and their self-evaluations.

The special course Microteaching was introduced as a reaction to student teachers' feedback claiming they missed teaching practice and asked for more teaching experience. A safe environment and developmental attitude was also provided by clear instructions about how open but respectful feedback can help in making progress. Student teachers in the course taught two lessons (30 minutes) which were recorded. Each lesson was followed by an immediate short discussion with the participants. Student teachers who did not teach performed as learners in the lesson taught. The recording of the lesson was later uploaded to the VLE and student teachers could watch it again and focus on the areas selected by the student teacher and provide their comments and feedback. An e-forum was used to give feedback to the teaching peers (the requirement was to express both positive aspects and suggest space for improvement). The tutor monitored the feedback session and contributed only at the end summarising and supporting relevant peers' comments and adding her own feedback and evaluation.

It should be mentioned that prior to the Methodology course they experienced 1 week of in-class observations (on average 25 hours per week) where they focused on general aspects of teaching.

3.1.3 Instruments

To address the research questions of the study, two instruments were used. The first instrument was content analysis of the online discussions and reflection sheets. They were used to examine whether and how student teachers benefit from self-reflection and online discussions about their own teaching. The data (online discussions records and self-reflections) were evaluated quantitatively and qualitatively (see below). Student teachers delivered self-reflections after their teaching performance (twice).

In the control group the lesson taught by a student teacher was discussed and analysed immediately after delivery and the student teachers submitted their self-reflection within a week in written form.

In the experimental group the lesson taught by a student teacher was recorded and uploaded to VLE. The student teachers opened a discussion in VLE giving their immediate feedback after observing the lesson recorded and possibly stated some questions. Peer-evaluation was conducted for every student teacher in the experimental group continuously.

To analyse the content of self-reflections, the data was manually coded. The initial coding (done after the first self-reflection sheets were delivered) led to setting 3 main categories further subdivided into 12 subcategories. Reviewing the codes generated consequent modification of selected categories and resulted in two main categories (feedback about students and their performance; feedback about the teachers and their performance) and 17 subcategories (in the statistics and graphs labels with index B or A to identify the time of measurement: B – (before the intervention) first self-reflection; A (after the intervention) second self-reflection report).

1. *Feedback about students*
    1. Performance
    2. Behaviour
    3. Ability to cooperate
    4. Use of first language
    5. Problems with grammar
2. *Feedback about teachers*
    1. Lesson structure
    2. Activities
    3. Time management
    4. Interaction patterns
    5. Teaching strategies
    6. Giving instructions
    7. Checking understanding
    8. Giving feedback
    9. Lesson planning
    10. Accuracy, fluency and appropriacy of language
    11. Materials
    12. Assessment

The decision to set two different categories, namely feedback about students and feedback about teachers, was based on our prior experience. We faced the situation in which students in their self-reflection reports had the tendency to evaluate the learners, their performance and behaviour, instead of thinking about their own teaching, their own performance and behaviour (does not matter whether in a positive or negative way). They frequently described (rather than analysed) what happened in the class from the teachers' perspective, they did not consider or suggest possible alternative solutions and ways to make the lesson more effective or interesting, motivating. It often occurred that they "accused the learners" of lesson failure without objective self-reflection. Such division enabled us to focus on a possible shift after the intervention, which could tell us more about the focus of student teacher attention.

To increase internal validity, objectivity in coding the responses and data interpretation multiple researchers were involved. The differences in coding were resolved through discussion. Inter-rater reliability was calculated to test the agreement between the raters. Statistical tests were run individually for the results before intervention and after intervention measurements. The sums of two main categories (feedback about students and feedback about teachers) were compared for each subject individually. Intra-class correlation (ICC) statistics was selected as we worked with continuous data. The interclass correlation coefficient indicated excellent agreement between the two raters as can be seen in the tables below.

Table 1: Inter-rater reliability test results – before intervention

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
A1B	3.83	2.863	.921	.848	.
A2B	3.87	2.991	.921	.848	.

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
7.69	11.244	3.353	2

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.921[a]	.886	.946	24.206	103	103	.000
Average Measures	.959[c]	.939	.972	24.206	103	103	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

Table 2: Inter-rater reliability test results – after intervention

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
A1A	3.37	5.108	.928	.861	.
A2A	3.17	5.135	.928	.861	.

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
6.54	19.746	4.444	2

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.925[a]	.890	.949	26.707	103	103	.000
Average Measures	.961[c]	.942	.974	26.707	103	103	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

The inter-rater agreement before intervention was .959 and after intervention we recorded similarly excellent agreement .961

The length (measured in words) of the self-reflection was considered as an indicator of space and time devoted to deeper thinking. Despite understanding that time in this case might be a rather relative concept it was accepted as an indicator for comparing experimental and control groups.

The second instrument involved a set of pre-formulated questions for a focus-group interview. Topics and issues were specified in advance; the structure was set in advance as well with the aim of minimising unrelated responses and thus to increase their comparability; yet researchers could develop the discussion and ask additional questions based on observations.

3.2 Results

Even though the aim of the study was to gain primarily qualitative data, we decided to convert them into quantitative data, which enabled us to run the statistical tests and to evaluate the progress of both experimental and control groups. We also compared individual variables (coded categories) between the experimental and control group after the experiment (see Table 6).

The coders identified more than 740 references to 17 themes discussed within more than 100 instances of feedback. Levene's test was used to test if samples have equal variances. The homogeneity of variance was confirmed.

Table 3: Levene's test of homogeneity of variances (variable number of words)

Test of Homogeneity of Variances[a]

NUMBER OF WORDS

Levene Statistic	df1	df2	Sig.
1,723	1	50	,195

a. time = B

Both control and experimental groups generally focused their attention on the same aspects; mostly on the students' performance and behaviour in their first reports. The length of their reports was similar (see Figure 1). The average number of words in the control group was 327.5 words and 335.9 in the experimental one and there was no significant statistical difference recorded (p=0.106).

Significant progress was recorded in both groups. In the control group the average number of words in the first self-reflections was 327.5 and 607.3 in the second reports (with statistically significant difference, see table 4). The experimental group resulted in an average of 335.9 words in the first self-reflections which increased to 708.9 in the second reports.

Table 4: T-test for independent samples

Variable	T-test for Independent Samples (sp_vazba2.sta) Note: Variables were treated as independent samples										
	Mean Group 1	Mean Group 2	t-value	df	**p**	Valid N Group 1	Valid N Group 2	Std.Dev. Group 1	Std.Dev.Group 2	F-ratio variances	P variances
b number of words vs. a number of words control group	327.48	607.31	-15.88	56	**0.0000**	29	29	55.07	77.28	1.97	0.08
b number of words vs. a number of words experimental group	335.87	708.87	-11.96	44	**0.0000**	23	23	76.17	128.78	2.86	0.017

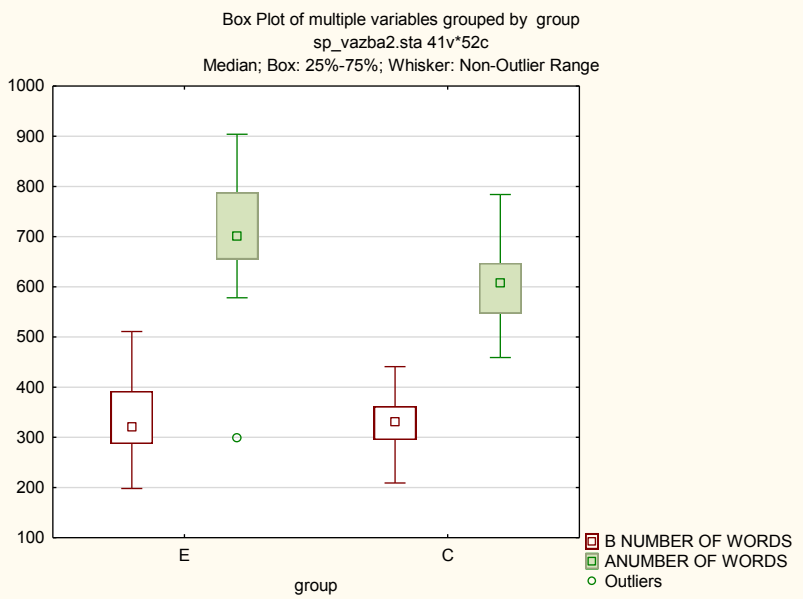

Figure 1: The length of self-reflections before *(B number of words)* and after *(A number of words)* the intervention in the experimental *(E)* and control *(C)* groups

What was most important for this study was also the statistically significant difference between control and experimental groups (see Table 6) measured after the intervention. Levene's test was used to test if samples had equal variances before intervention. The homogeneity of variance was confirmed for all subcategories of feedback about the learners category and most of the subcategories feedback about teachers. Comparing the groups based on the sums of the subcategories of the second category shows the homogeneity of the variances as well.

Table 5a: Levene's test of homogeneity of variances (variable feedback from students before intervention)

Test of Homogeneity of Variances[a]

	Levene Statistic	df1	df2	Sig.
1.1 Performance	2.425	1	50	.126
1.2 Behavior	2.291	1	50	.136
1.3 Ability to cooperate	.735	1	50	.395
1.4 Use of first language	.001	1	50	.974
1.5 Problems with grammar	.013	1	50	.909

a. time = B

Table 5b: Levene's test of homogeneity of variances (variable feedback from teachers before intervention)

Test of Homogeneity of Variances[a]

	Levene Statistic	df1	df2	Sig.
2.1 Lesson structure	.225	1	50	.637
2.2 Activities	.969	1	50	.330
2.3 Time management	.142	1	50	.708
2.4 Interaction patterns	8.653	1	50	.005
2.5 Teaching strategies	.	1	.	.
2.6 Giving instructions	26.214	1	50	.000
2.7 Checking understanding	14.898	1	50	.000
2.8 Giving feedback	23.166	1	50	.000

Test of Homogeneity of Variances[a]

	Levene Statistic	df1	df2	Sig.
2.9 Lesson planning	.602	1	50	.442
2.10 Language	.225	1	50	.637
2.11 Materials	6.387	1	50	.015
2.12 Assessment	.108	1	50	.744

a. time = B

Table 5c: Levene's test of homogeneity of variances (variable feedback from teachers before intervention - sum)

Test of Homogeneity of Variances[a]

Levene Statistic	df1	df2	Sig.
2.546	1	50	.117

a. time = B

Table 6: T-test for independent variables (codes vs groups) after the intervention

Variable	T-tests; Grouping: group (sp_vazba2.sta) Group 1: E Group 2: C										
	Mean E	Mean C	t-value	df	p	Valid N E	Valid N C	Std.Dev.	Std.Dev.	F-ratio	p
B1.1 Performance	0.826	1.000	-0.763	50	0.449	23	29	0.887	0.756	1.376	0.421
B1.2 Behaviour	1.478	1.517	-0.190	50	0.850	23	29	0.846	0.634	1.782	0.149
B1.3 Ability to cooperate	0.696	0.759	-0.339	50	0.736	23	29	0.703	0.636	1.223	0.608
B1.4 Use of mother tongue	0.522	0.655	-0.790	50	0.433	23	29	0.593	0.614	1.071	0.879
B1.5 Problems with grammar	0.609	0.828	-1.141	50	0.259	23	29	0.656	0.711	1.172	0.710
B1	4.130	4.759	-1.478	50	0.146	23	29	1.842	1.215	2.299	0.039
B2.1 Lesson structure	0.087	0.069	0.237	50	0.813	23	29	0.288	0.258	1.248	0.574
B2.2 Activities	0.304	0.241	0.500	50	0.619	23	29	0.470	0.435	1.167	0.691
B2.3 Time management	0.522	0.448	0.518	50	0.607	23	29	0.511	0.506	1.018	0.951
B2.4 Interaction patterns	0.304	0.138	1.461	50	0.150	23	29	0.470	0.351	1.797	0.143
B2.5 Teaching strategies	0.000	0.000		50		23	29	0.000	0.000		
B2.6 Giving instructions	**0.304**	**0.069**	**2.298**	**50**	**0.026**	**23**	**29**	**0.470**	**0.258**	**3.328**	**0.003**
B2.7 Checking understanding	0.304	0.103	1.850	50	0.070	23	29	0.470	0.310	2.304	0.038
B2.8 Giving feedback	0.043	0.241	-2.002	50	0.051	23	29	0.209	0.435	4.362	0.001
B2.9 Lesson planning	0.043	0.069	-0.384	50	0.702	23	29	0.209	0.258	1.530	0.310
B2.10 Language	0.087	0.069	0.237	50	0.813	23	29	0.288	0.258	1.248	0.574
B2.11 Materials	0.087	0.207	-1.184	50	0.242	23	29	0.288	0.412	2.048	0.089
B2.12 Assessment	0.043	0.034	0.164	50	0.870	23	29	0.209	0.186	1.261	0.557
B2	2.130	1.690	1.366	50	0.178	23	29	1.359	0.967	1.972	0.091
B NUMBER OF WORDS	335.870	327.483	0.461	50	0.647	23	29	76.167	55.068	1.913	0.106
A1.1 Performance	0.913	1.034	-0.482	50	0.632	23	29	0.900	0.906	1.012	0.989
A1.2 Behaviour	0.957	0.862	0.408	50	0.685	23	29	0.878	0.789	1.237	0.589
A1.3 Ability to cooperate	0.217	0.276	-0.433	50	0.667	23	29	0.422	0.528	1.565	0.285
A1.4 Use of mother tongue	0.478	0.552	-0.407	50	0.686	23	29	0.665	0.632	1.109	0.786
A1.5 Problems with grammar	0.565	0.552	0.079	50	0.938	23	29	0.662	0.572	1.339	0.461
A1	3.130	3.276	-0.328	50	0.745	23	29	1.517	1.645	1.177	0.702

Variable	T-tests; Grouping: group (sp_vazba2.sta) Group 1: E Group 2: C Mean E	Mean C	t-value	df	p	Valid N E	Valid N C	Std.Dev.	Std.Dev.	F-ratio	p
A2.1 Lesson structure	0.522	0.379	1.017	50	0.314	23	29	0.511	0.494	1.070	0.855
A2.2 Activities	0.739	0.517	1.519	50	0.135	23	29	0.541	0.509	1.131	0.750
A2.3 Time management	0.522	0.448	0.482	50	0.632	23	29	0.593	0.506	1.373	0.424
A2.4 Interaction patterns	**0.435**	**0.138**	**2.492**	**50**	**0.016**	**23**	**29**	**0.507**	**0.351**	**2.086**	**0.067**
A2.5 Teaching strategies	**0.217**	**0.000**	**2.783**	**50**	**0.008**	**23**	**29**	**0.422**	**0.000**	**0.000**	**1.000**
A2.6 Giving instructions	**1.000**	**0.586**	**2.539**	**50**	**0.014**	**23**	**29**	**0.603**	**0.568**	**1.127**	**0.756**
A2.7 Checking understanding	0.304	0.241	0.500	50	0.619	23	29	0.470	0.435	1.167	0.691
A2.8 Giving feedback	0.435	0.241	1.479	50	0.145	23	29	0.507	0.435	1.355	0.444
A2.9 Lesson planning	**0.652**	**0.172**	**3.972**	**50**	**0.000**	**23**	**29**	**0.487**	**0.384**	**1.605**	**0.236**
A2.10 Language	0.391	0.310	0.600	50	0.551	23	29	0.499	0.471	1.123	0.762
A2.11 Materials	0.391	0.207	1.460	50	0.151	23	29	0.499	0.412	1.465	0.337
A2.12 Assessment	0.565	0.207	2.812	50	0.007	23	29	0.507	0.412	1.512	0.300
A2	**6.174**	**3.448**	**5.743**	**50**	**0.000**	**23**	**29**	**1.875**	**1.549**	**1.465**	**0.338**
NUMBER OF WORDS	**708.870**	**607.310**	**3.526**	**50**	**0.001**	**23**	**29**	**128.783**	**77.284**	**2.777**	**0.012**

The number of occurrences in different categories was compared in both experimental and control group. Before intervention there was no statistically significant difference between the groups (except for one variable, namely A2.6 Giving instructions). A significant change between the groups was measured in A2 category (total number of A2 subcategories) according to the number of occurrences in the second self-evaluation reports, concerning subcategories – it was recorded in 4 subcategories, namely A2.4 Interaction patterns, A2.5 Teaching strategies, A2.6 Giving instructions and A2.9 Lesson planning.

From the data it can be seen that in the first reports student teachers in the control group focussed mainly on students' behaviour (average 1.53 in the control group and 1.48 in the experimental group) and their performance (see Table 2). The values in all subcategories of category 1 (except for performance) decreased in the second evaluation reports and all subcategories in category 2 either increased or remained unchanged. The biggest increase in the control group was recorded in subcategory 2.6 Giving instructions (0.3 to 1.0). Concerning teaching performance, student teachers focused their attention mostly on time management in the first reports and giving instructions and activities in the second reports. Generally speaking, there was a substantial shift from thinking and writing about students' performance in the first reports to writing about teachers in the second reports. Student teachers started to reflect upon their own experience rather than evaluate students' performance. To be more specific, the data are presented in the following table (Table 3) summarizing the notes dealing with students and teacher in both groups in the first and second records.

Table 7: Average numbers of references and average number of words reached before and after the intervention in both groups

	Group	Time	1 Feedback about teachers – average number of references	2 Feedback about students – average number of references	average number of words
AVG E	E	B (first reports)	4.130	2.130	335.870
AVG E	E	A (second reports)	3.130	6.174	708.870
Difference			**-1.000**	**4.043**	
AVG C	C	B (first reports)	4.810	1.720	327.731
AVG C	C	A (second reports)	3.318	3.540	607.215
Difference			**-1.492**	**1.820**	

It can be seen from Table 7 that the focus on students and their behaviour was less intensive in the second report and the focus on the teacher was intensified; in the experimental group it almost tripled and in the control group it doubled compared to the first reports.

Content analysis was used to evaluate the quality of their feedback. The majority of student teachers improved their self-evaluation. Quotations from participants' feedback were extracted to illustrate the extent of reflection. Student teachers concentrated their attention in the feedback before the intervention on the learners rather than on the teacher in both groups: *"… their English skills had very good potential to master C1 level at the end of their study ..."*, *"They didn't want to cooperate with me", "a boring lesson, they did not like the textbook and the students seemed to [be] sleep[ing]…"* While these comments would be acceptable as observation remarks, they say nothing about the teaching performance, their strengths and weaknesses and possible suggestions how to change it. Their critical reactions concentrated mostly on time management and planning. They stated, e.g.: "…*only a few times [did] I manage to do everything I planned exactly according to my lesson plan. I often had to slightly modify the plan or change the order of the activities according to students…"; "bad time management – a lot of time spent on the activity…".*

After intervention in the experimental group we observed an increased number of themes that can be illustrated using the following quotes: *"I did not correct all the mistakes* students made…", *"small variety of activities…", "…I didn't motivate students at all…", "work with ADHD… I reconsidered the number of activities….* Moreover, what could be observed was the balance student teachers tried to reach. They mentioned both positive and negative aspects about their own teaching considering strengths and weaknesses which was not the case of the control group. *"I achieved better fluency and the dynamics of my lessons was according the students very good even though I still cannot manage my time in a way I would like to".*

The focus group interview was conducted with the experimental group after the end of the intervention procedure with the aim of learning more about the attitude of the student teachers towards regular evaluation of peers' performance, giving and accepting feedback in VLE. All student teachers confirmed they could see the benefits of giving feedback to their peers. They became aware of the fact that a focussed and attentive observation of a peer had an influence on their own teaching performance, e.g. "…*I realised that talking to the board is not effective and only watching Peter I realised I do it in the same way…*" Student teachers also mentioned that they realised how important the feedback was when they were reading their peers' evaluation of their own teaching. "…*Even though it was very nice to read the positive feedback, I was looking for certain criticism, to learn what could be done in another way, to learn more what I should do to improve my teaching".* Not all student teachers were ready to be honest: *"I did not want to be critical. I know that some of my mates did not manage to teach a good lesson but I did not want to tell them I didn't like it… And may be... hmmm… somebody would like it".* Generally, all student teachers appreciated using VLE and explained they had more time to think about the lesson, watch certain parts more times if necessary and carefully consider how to comment on their peers' performance. They also mentioned the benefit of peer evaluation in VLE which could be reread in comparison to the feedback conducted orally in a face-to-face situation in the classroom.

3.3 Discussion

Darling Hammond (2006, p.304) highlights that teachers (similar to student teachers) should demonstrate content knowledge, pedagogical knowledge and teaching ability. She stresses that the teacher must "learn to address the problems of practice they encounter and to meet unpredictable learning needs of their students – and they learn not only to their own practice but also that of their colleagues".

The goal of this research was to explore whether student teachers would produce more thorough and detailed self-reflection as a result of e-learning online discussions/fora engagement. We assessed whether observing colleagues and providing them with VLE feedback would lead to deeper consideration of planning their own lessons. A further aim was to study the attitude of the student teachers towards regular evaluation of peers' performance, giving feedback, accepting feedback and the possible benefits of the processes.

We observed the positive and statistically significant difference between the in-class and online groups as to the length of self-evaluation and the positive shift was recorded from the description of learners, their behaviour and activities towards reflecting the student teachers themselves. These findings are consistent with those of Ross and Starling (2008, p.183) who investigated the effects of self-evaluation training on

achievement and self-efficacy in a computer-supported learning environment. They concluded that self-evaluation training had a positive effect on student achievement, "the treatment effect was as large for females as for males and for those with low initial self-efficacy as it was for those with higher scores. However, self-efficacy increased more in the control than in the treatment group". The results are also similar to those reported by Plešec Gašparič and Pečar (2016) who observed benefits of combination of online and face-to-face teaching for in-depth learning. Wilson and Friedrich (2015) noticed that participants started to use the same terminology and phrases from the tutors' feedbacks in their reflections which was also the case in our study.

The results of the present study are in accord with the research conducted by Hsu and Huang (2015, p.161) who studied peer evaluation as a way or tool of promoting self-regulated learning and 84% of students in their sample agreed that "doing peer assessment on other students' assignments led them to reflect on how they personally performed their own assignment". Ertmer, et al. (2007, p.416) studied "students' perceptions of the value of giving and receiving peer feedback, specifically related to the quality of discussion postings in an online course." The results of their study indicated that even though they did not record "quantitative improvement in the quality of students' postings during the peer feedback process, interview data suggested that participants valued the peer feedback process and benefited from having to give and receive peer feedback" (p.425). The results of our study indicate that the growth could be seen in both cognitive and social development of students. Peer evaluation led student teachers to critically look at peers' work but also to perceive critical comments on their own work and they had to develop the mastery of giving critical feedback; as Breuch (2004, p.133) argued "peer review response may not be all that helpful when peers do not offer criticism or when they do not know what feedback to offer". It is important to realise that peer feedback must be supportive, critical and at the same time constructive, with explicit arguments providing the suggestions, ways of improvement. Sometimes it is more difficult to learn to give feedback than to accept and receive feedback. Cheng and Warren (2005) showed that students in their research did not feel comfortable in peer-evaluation situations (they claimed they felt unqualified to provide the relevant feedback) and they did not rely on their peers' evaluations. Stepanyan, et al. (2009) indicated that technology, especially those tools allowing for a certain degree of anonymity, can create a safe environment that encourages student participation. Contrary to expectations, student teachers in the present study stated they had no problem with giving feedback but they had to learn how to present the ideas in a way that was beneficial to their peers. Our findings are consistent with that of Grez, et al. (2012) who reported students' very positive attitude towards the value of peer evaluation.

Concerning using VLE, student teachers positively responded to the possibility of asynchronous communication, they appreciated the permanence of the online feedback compared to the immediate face-to-face feedback in class. This, however, stands in contrast with the results of a study conducted by Kemp and Grieve (2014) who compared undergraduates' preference for online vs. tradition face-to-face classrooms, and their academic performance. Students strongly preferred running discussions face to face but there was no significant difference in their test performance. This is an important finding as the learners' preference, meeting learner's needs and preferences is reflected in their motivation and result. The reasons they introduced were immediate feedback, stronger and more active engagements than in online discussions. As to the written activities, participants preferred the online mode.

Facilitating active engagement was not the subject of the present study, however, it seems to be an important factor that might influence the success of blended or online learning and thus should be the subject of further research.

4. Limitations

Generally, in accordance with Cohen, Manion and Morrison (2011, p.179) it needs to be acknowledged that qualitative data such as those presented in this study do carry a certain degree of bias as to "the subjectivity of respondents, their opinions, attitudes and perspectives". In this way several limitations are apparent within the presented study. It was evident that results would be influenced by specific characteristics and culture of this group and might fail to bring generalizations applicable to any other group. The risk of bias is high and we have no way to determine how closely the sample value is likely to approach the population value.

In addition to some of the limitations mentioned another potential problem is that the sample size was modest and split into control and experimental groups based on their discretion.

The natural limitation with direct observation is the change in student teachers' performance when they know they are being observed and also the fact that observers may have misunderstood what has been observed (incorrect analyses). To make the analysis more valid and reliable multiple researchers were involved.

5. Conclusion

Reflection in pre-service teacher training seems to take a high level of importance and does not always find a proper place within classroom limitations (e.g. Brandt 2008; Copland, Ma and Mann 2009). Taking into considerations what student teachers need to go through in their reflective teaching, e.g. examine their beliefs about the teaching or learning process and search for the reasons for their decisions, reflection requires attention, private consideration in a supported and safe environment.

This study presented the results of the intervention in a teacher training programme which was focused on inclusion of e-learning components into regular face-to-face teaching with the aim of deepening the experience of giving and getting feedback and reflecting on one's own teaching. Our main argument is that the face-to-face learning experience does not provide sufficient conditions for deep involvement in reflecting upon one´s own performance and does not allow sufficiently for peer reflection.

The results of the study suggest that student teachers when given sufficient time and space learnt how to accept peer feedback more easily and to evaluate themselves more profoundly. Student teachers stated they could see the benefits of collaboration in VLE in their own ability to evaluate and reflect on their own performance and behaviour. A positive shift in the quality of self-evaluation was also observed in the transfer from the focus on learners and from the descriptive way of the reports before intervention to more complex self-evaluation after the intervention programme. Online discussions did generate more thorough and detailed self-reflections thus its incorporation in face-to-face learning can positively contribute to the quality of pre-service teacher preparation.

Despite the limitations stated above, it can be concluded that this experience of introducing an e-learning supplement to a face-to-face course provided the opportunity to focus the reflection and critical thinking of student teachers not only on the behavioural domain but also on cognitive and emotional domains. Student teachers also had more space to consider and think profoundly about their values, motivations and understand where their strengths and weakness were. Future research focus needs to address facilitating student engagement as well as the tools for supportive and effective collaboration in VLE.

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