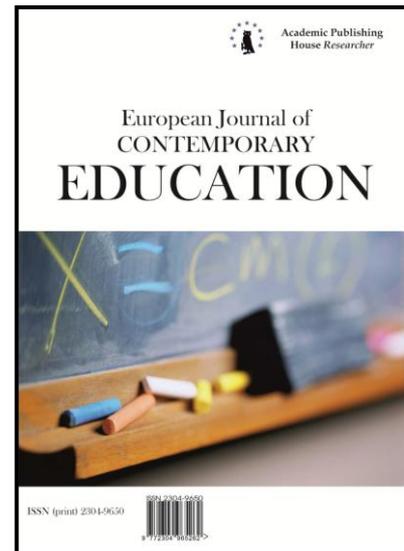




Copyright © 2017 by Academic Publishing
House Researcher s.r.o.
All rights reserved.
Published in the Slovak Republic
European Journal of Contemporary Education
ISSN 2304-9650
E-ISSN 2305-6746
2017, 6(2): 264-279
DOI: 10.13187/ejced.2017.2.264
www.ejournal1.com

WARNING! Article copyright. Copying, reproduction, distribution, republication (in whole or in part), or otherwise commercial use of the violation of the author(s) rights will be pursued on the basis of Russian and international legislation. Using the hyperlinks to the article is not considered a violation of copyright.



Investigating the Efficiency of Scenario Based Learning and Reflective Learning Approaches in Teacher Education

Cigdem Hursen^{a,*}, Funda Gezer Fasli^a

^a Division of Curriculum and Instruction, Near East University, Turkey

Abstract

The main purpose of this research is to investigate the efficiency of scenario based learning and reflective learning approaches in teacher education. The impact of applications of scenario based learning and reflective learning on prospective teachers' academic achievement and views regarding application and professional self-competence perceptions are also searched. This research is both qualitative and quantitative oriented and is conducted with two different groups: one is scenario based learning group and the other one is reflective learning group. Besides, the research is carried out with 62 prospective teachers who take "Teaching Practice" course. The group of reflective learning is composed of 30 prospective teachers whereas the scenario based learning group is composed of 32 prospective teachers. The applications which are lasted 12 weeks are supported with one of the educational social networks called edmodo. The findings of the research revealed that the scenario based learning is more effective than reflective learning in terms of prospective teachers' academic achievement. However, there is no significant difference found in the professional self-competence perceptions of both scenario based learning group and reflective learning group.

Keywords: Academic achievement, edmodo, prospective teachers, self-competence.

1. Introduction

The developments in the field of information and communication technologies have a great impact on social, political, economic, cultural and similar areas and thus the profile of human power that is a crucial requirement for information societies is changing each passing day. Bringing up individuals who search, question, are entrepreneur and information literate and have advanced

* Corresponding author

E-mail addresses: cigdemhursen@gmail.com (Cigdem Hursen),
fundagezerfasli@gmail.com (Funda Gezer Fasli)

thinking skills is gaining importance day by day in particular in the information age we are in. It is well known that bringing up qualified individuals who could fulfil the requirements of the age is only possible with a good quality education (Schlichter & Danylchenko, 2014; Kossai & Piget, 2014; Polat & Odabaşı, 2008). However, today innovation is needed in every area of life as it is needed in the field of education and it is not surprising that traditional teaching methods that are mainly based on an objectivist approach are considered unsatisfying (Hançer, 2006; Kılıç, 2004). Within this context, teachers who are one of the most outstanding elements of education should possess skills of being able to implement contemporary approaches that would enable students to carry out active learning. Jakee (2011), claims that active learning is a much more effective process than a process that teacher spoon feeds students. Jakee (2011) continues to claim that it is this process that students gain advanced thinking skills. Furthermore, it is believed that learning outcomes of students are improved with active learning techniques. The studies about learning-teaching that have been carried out in the last 25 years, however, refer to three different approaches which are “teacher centred”, “subject centred” and “student centred”. These studies also stress that students should be responsible from their own learning processes during teaching process whereas teachers should be guides in this process (Baeten, Struyven & Dochy, 2013; Donche & Van Petefem, 2011; Richardson, 2005). Schelfhout, Dochy, Janssens, Struyven, Gielen and Sierens (2006), nevertheless, emphasised that the most fundamental problem encountered during learning-teaching process is that students memorize the new information and they fail to convey what they have learned into new situations. Schelfhout et al. (2006) expressed that teachers play big roles in solving these problems. Within this context Hammond (2006) by making a point to teachers’ professional self-competencies, stressed that for students to have effective learning teachers should present effective teaching (Beusaert, Segers & Wiltink, 2013; Loughran, 2009). Teachers could only present effective teaching when they are fully equipped in their professions. Therefore, it is so apparent why teacher education is very crucial in this sense. Likewise, Özçınar (2015) pointed out that the best way to increase the quality of teacher is to increase the quality of teacher education. In the studies of teacher education carried out in recent years, it has been stated that there are gaps between theory and application. The findings of these studies have also shown that different teaching approaches and events for increasing as well as enhancing prospective teachers’ knowledge, skills and attitudes within classroom applications should be given a place (Seidel, Blomberg & Renkl, 2013; Potts & Schlichting, 2011; Ellis et al., 2009; Schelfhout et al., 2006; Hammond, 2006). Dinther, Dochy and Segers (2015) besides making a remarkable point to contemporary teaching approaches and professional self-competence in teacher education, claimed that self-competence has a crucial role in the development of teacher efficiency. Self-competence that is defined as individual competence believes is considered as an important factor in teacher education (Aydemir, Duran, Kapidere, Kaleci and Aksoy, 2014). Teachers’ self-competence perception is directly related with students reaching their desired learning outcomes and how qualified teachers see themselves in the teaching process (Kleinsasser, 2014). Also, it is stated that improving prospective teachers’ self-competence perceptions would increase the success of teachers’ professional applications and students’ learning success in the teacher education (Vieluf, Kunter and Fons J. R. van de Vijver, 2013).

When the literature is reviewed, it is so clearly seen that contemporary teaching approaches like project based learning, problem based learning, inquiry based learning, and scenario based learning and reflective learning in teacher education have attracted considerable attraction recently. It is also discovered that numerous studies have been conducted about the efficiency of teaching approaches and self-competence (Özçınar, 2015; Selmo & Orsenigo, 2014; Skaalvik & Skaalvik, 2010; Schneider & Synteta, 2005). However, it is found that most of these studies were conducted with the aim of comparing the efficiency of contemporary teaching approaches with traditional methods. Therefore, with this study it is aimed to make a comparison of the efficiency of reflective learning which is one of the most popular approaches in teacher education and of scenario based learning approaches and this is how this current study is distinguished from the other studies in the existing literature. Additionally, it is significant to point out that there is not much study in the literature that solely focus on identifying the impact of scenario based learning approaches on prospective teachers’ professional self-competencies. Thus, in this study it is also aimed to identify the impact of these approaches on prospective teachers’ professional self-competencies. The specific research questions to be pursued in this research are:

1. Is there a significant difference in the academic achievement levels of prospective teachers both scenario based learning group and reflective learning group?
2. Is there a significant difference in the pre-test and post-test score means of professional self-competencies of prospective teachers of both scenario based group and reflective group?
3. What are the views of the prospective teachers regarding the applications of both scenario based learning and reflective learning?

2. Theoretical perspectives

Scenario Based Learning

Within the scope of situated learning theory, the scenario based learning is one of the current approaches that reinforces gaining meaningful learning within the authentic context (Yetik, Akyuz & Keser, 2012). Scenario based learning creates an opportunity for learners for being more active and improving their real life skills during their learning processes (Yarnall, Toyama, Gong, Ayers & Ostrander, 2007; Sorin, 2013). Scenario based learning that is very conducive to learners particularly about being more skilful when they are indecisive about certain details bridges the gap between theory and practice (Errington, 2011; Meldrum, 2011). Sheridan and Kelly (2012) claimed that scenarios should have a connection with the real world so that learners could establish a connection with the applications they would encounter in their future professional lives. Gossman, Stewart, Jaspers and Chapman (2007) like Sheridan and Kelly believe that real life scenarios have a great role for contributing effective learning for the learners. The ones who learn with scenario based learning find themselves into the situation like a player who could solve the problems they encounter easily and this is how they reach the targeted gains (Karaçanta, 2013). Mariappan, Shih and Schrader (2004), on the other hand, stated that scenarios should not only offer the best and the most realistic learning experiences but also they should be amusing and pleasing. However, they also stressed that learners' mistakes should be allowed during learning process. Mariappan et al. (2004) believed that nobody could learn without making mistakes. Sorin (2013) also emphasised the significance of scenario based learning and claimed that with scenarios prospective teachers are given the chance of discovering the situations they could come across in their future classrooms. Besides, teachers could find more than one solution to the teaching dilemmas they encounter everyday with the scenario based learning and could establish a strong link between theory and practice. Within this context, it is thought that scenario based learning approach is considerably important in teacher education.

Reflective Learning

The reflective theory that provides the integration of thinking and action is an approach that is searched deeply by researchers (Colomer, Pallisera, Fullana, Burriel & Fernandez, 2013). It is also described as a process of reaching new values by combining past experiences, actions and theories (Koong, Yang, Wu, Li & Tseng, 2014). While John Dewey emphasized the significance of reflective learning in 1933, Schön underlined the importance of how reflective applications could be carried out in 1983 (Ryan & Ryan, 2012). Yasin, Rahman and Ahmad (2012) claimed that reflective learning encourages learners to a deeper understanding and it creates an opportunity for students to be able to understand their own learning processes. Besides, the reflective learning is appropriate for improving lifelong learning skills of learners. It also contributes to learners to develop new experiences by using their previous skills. Although arguments are put forward in the literature in the last 20 years about the fact that reflective learning improves learners' skills and provides them with deeper understandings (Rushton & Lahlafi, 2013); Liou (2001), it is claimed that reflective applications are a dominant paradigm in teacher education. Liou (2001) argued that reflective applications are to increase teachers' awareness about instruction and cause a positive start in teaching practices. Schön (1987) very much like Liou claimed that reflective applications are an important factor that improve professional activities (Selmo & Orsenigo, 2014). Kilpatrick, Hart, Najee-ullah and Mitchem (1997), on the other hand, maintained that reflective learning is a teacher change model that started in 1980s. It offers a systematic structure to the educators. Also, teachers are offered the opportunity of reflecting their experiences to the learning-teaching process by means of reflective learning. Besides, Kilpatrick et al. (1997) argued that teachers have the chance of discovering their applications and restructuring their new knowledge with this model. Some other researchers have also argued that the reflective learning approach presents

some practical values and is not limited to a formal structure. Along with this, the reflective learning approach that provides learning-teaching process with a significant perspective, offers teachers the chance of improving their instructional implementations in the direction of students' needs (Galea, 2012). The reflective learning that is considered to be an important factor both for change in students' behaviour and cooperation among teachers (Fatemipour, 2013) also plays an important role in bringing up prospective teachers. The reflective learning that additionally helps prospective teachers to think like a teacher is seen as an indivisible part of teacher education (Jay & Johnson, 2002). Canniford and Young (2014), furthermore, claimed that although there is numerous illuminating research on the significance of reflective implementations, the research on the instruction of techniques of these basic skills is only little. Therefore, they emphasised the need for such research. In this regard, the current research will be considerably valuable for the existing literature.

3. Methodology

This research is both qualitative and quantitative oriented. Therefore, it has a mixed method where both qualitative and quantitative research techniques are reserved.

Selection of Participants

This study is carried out with 62 prospective teachers in total who study at the Near East University. Fraenkel and Wallen (2006) pointed out that there is not a certain rule that specifies the size of the experimental research group. Thus the number of prospective teachers of scenario based group and reflective learning group is seen sufficient. The study is carried out within the scope of "Teaching Practice" course that is taken by the final year prospective teachers. The scenario based learning group is consisted of 32 prospective teachers while the reflective learning group is consisted of 30 prospective teachers. The applications lasted for 12 weeks. In order to distinguish the scenario based learning group from the reflective learning group, the school numbers of prospective teachers are taken into consideration. The last digits of school numbers of prospective teachers are only taken into account. The prospective teachers who have odd numbers in the last digits of their school numbers are included in the scenario based learning group while the ones who have even numbers in the last digits of their school numbers are included reflective learning group. As soon as the groups are separated from each other, each group is assigned with pre-test (achievement test) in order to evaluate whether the groups are equal or not in terms of achievement. The results of the "independent samples t-test" are given below in table 1.

Table 1. Pre-Test Score Distributions of Scenario Based Learning Group and Reflective Learning Group

	Group	N	Mean	SD	df	T	P
Pre-test	Scenario based learning group	32	36.53	10.65	60	.295	.769
	Reflective learning group	30	35.73	10.6			

As it can be seen in the table above, there found no significant difference in the pre-test scores of scenario based learning group and reflective learning group ($t=.295$, $p>0.05$). The findings have revealed that both groups have equal knowledge in terms of the knowledge to be conveyed within the scope of the teacher practice course. Besides, 18 (56.2 %) of the prospective teachers are women and 14 (43.8 %) of them are males in the scenario based learning group whereas in the reflective learning group 15 (50 %) of the prospective teachers are women and 15 (50 %) of them are males. It is also significant to point out that all the prospective teachers who joined the study are Turkish Cypriots and the courses are mother tongue (Turkish) based. The prospective teachers who joined the study will work at secondary or high schools after their graduation.

Data Collection Instruments

All the data collection instruments that are used to identify the impact on the prospective teachers' achievement and professional self-competence perceptions of scenario based learning group and reflective learning group are explained in the following.

Multiple Choice Academic Achievement Test

Multiple choice academic achievement test is developed by the researchers (Authors, 2015) and is applied for two different purposes. First of all, the academic achievement test is used for forming the groups before the application has commenced. Whether there is a significant difference in the knowledge and skill levels of prospective teachers who joined scenario based learning group and reflective learning group regarding teacher practice course is simply determined with the multiple choice academic achievement test. Therefore, strict attention is paid for both of the groups to have a homogenous structure. Another purpose of having multiple choice academic achievement test is that to determine which of the two approaches is more efficient in teacher education. The multiple choice academic achievement test is used before (pre-test) and after (post-test) the activities in order to find out about the efficiency of the scenario based learning and reflective learning approaches on the academic achievement of the prospective teachers.

The multiple choice academic achievement test is consisted of 35 items in the first stage. However, the test is sent to the experts (N=10) for obtaining their opinions to determine whether the items of the test are appropriate in terms of their content validity or not. Atılgan, Kan and Doğan (2006) claimed that content validity is about to what extent a test covers the desired behaviour that are intended to be measured. They also added that one of the methods of determining content validity is to consult for experts' opinion. Within this context, experts' opinion is obtained to determine the content validity of the test. Besides, the analyses of validity and reliability of the data are done after a pre-application that is carried out to identify whether the data obtained are appropriate in terms of validity and reliability. KR-20 internal consistency reliability of the multiple choice academic achievement test is found as 0.89. Range of the item difficulty indices of the test is between 0.40 and 0.80 and the mean of the item difficulty indices is determined as 0.52. This proves that the difficulty indices of the items in the tests display a normal distribution (Atılgan, Kan & Doğan, 2006). The item discrimination indices of the test is accepted as 0.30 and the items that are below the value of 0.30 are removed from the test. So, the test is finalized with 22 items after it was gone through certain analyses. The items of the test are designed to measure the knowledge and skills of the prospective teachers that are gained during the 12 week course. For scoring, the technique of 1-0 is used. 1 is given to the prospective teachers who answered correctly; 0 is given to the ones who left blank, skipped, answered incorrectly and chose more than one option. Total of the test is assessed over 100 points. The prospective teachers are assessed over 100 points from the test they did before and after the application. The mean of the scores of both tests is formed their actual performance.

Professional Self-Competence Scale

"Self-competence perception scale regarding teaching profession" was developed by Veznedaroğlu and Keser (2005) in order to determine prospective teachers' self-competence perceptions. The scale is composed of 28 items. Besides, the whole scale has positive statements and is 5 point Likert type (while 5 represents "always", 1 represents "never"). In a study of Veznedaroğlu and Keser (2005), the Cronbach's alpha value of the scale was found to be (0.92). In this study, however, the same value is found to be (0.90). From the data obtained it is so clear that the scales in both of the applications have offered reliable results. Some of the statements that are placed in the scale are as follows: "I can determine the learning needs of students", "I can choose effective methods and certain techniques in order to teach skills regarding the subject to be taught", "I can decide which activities should be implemented for which subjects during doing the course", "I can determine students' readiness level", "I can allow individual studies that are appropriate for classroom activities".

Interview Form

Interviews are carried out with both scenario based learning group and reflective learning group in order to determine the efficiency of the applications. The literature is reviewed and experts' opinions (n=5) are taken for the interview form that is prepared by the researchers themselves. The form is composed of 2 items. The first item is "What are your thoughts about the activities carried out throughout the course?" and the second item is "What are the advantages and disadvantages of applications carried out during the course?".

Preparing the Scenarios

The scenarios that would be used in the scenario based learning group are prepared by the researchers. A particular attention is paid by the researchers to get all the scenarios ready by themselves as preparing scenarios require expert knowledge. Additionally, skill based scenarios are used in the research as they are indicated to be somewhat appropriate for professional education (Karaçanta, 2013). Besides, before preparing scenarios a set of interviews are arranged with the prospective teachers who took teaching practice course in the previous terms to determine what sort of classroom problems they observed on their internship days. In other words, the problems observed by the prospective teachers in their internship schools are taken into consideration. Similarly, in the process of preparing scenarios by taking the characteristics of the target group into account, a particular attention is paid to prepare scenarios appropriate for the levels of prospective teachers.

Application

The application for this research lasted for 12 weeks. First of all, an achievement test (pre-test) is implemented to determine whether the knowledge level about teaching practice course of both groups is equal or not. In addition, both groups are implemented with the self-efficacy perception scale for teaching practice at the beginning of the application. The data, on the other hand, that are obtained from the pre-test and professional self-competence scale are analysed and the result showed that both groups are alike in terms of their previous knowledge regarding the course as well as their self-competence perceptions. The applications that lasted 12-week in both groups were carried out by one of the researchers. The main reason why the whole application was carried out within the scope of the "teaching practice" course is that the course is a final year final term course. The prospective teachers take most of their pedagogic courses before taking "teaching practice" course. Thus they find the opportunity of applying their present knowledge before starting their profession. Another reason why this course was preferred by the researchers is that the prospective teachers have the maturity of practicing teaching in a real teaching environment in the final term. Besides, edmodo that is an educational social network was used both in scenario based learning group and reflective group throughout the application. First of all, the researcher opened accounts for each of the group over edmodo and enabled prospective teachers in both groups to be members by entering their course codes into the system. Additionally, the researcher provided 2 hour education for the prospective teachers in both groups regarding the use of edmodo before the application. All the sharings in both of the groups were announced to the prospective teachers over edmodo at desired time. Besides, the researcher gave assignments to the prospective teachers over edmodo and collected them over edmodo again. In addition, the researcher gave feedback regarding the assignments over edmodo. The screen captures concerning edmodo application is given below (Figure 1).

The prospective teachers in the scenario based learning group were asked to have discussions and do research in carrying out activities regarding the course. The prospective teachers were only offered the present situation with the scenarios and they were asked to search for the details of the event. Besides, the scenarios were given to the prospective teachers over edmodo in the scenario based learning group a few days before the course. So, the prospective teachers in group joined the course after they read the scenarios. In the course activities, prospective teachers carried out discussions with their peers regarding the problems occurred in scenarios. They conducted research by making use of various databases and sources in order to solve the present problem. In addition, at the end of the research the prospective teachers prepared reports regarding the solution of the problem by dividing themselves into small groups of 3-4. Each group presented their reports in the classroom environment and received immediate feedback and evaluations.

After the reports were presented in the scenario based learning group, the prospective teachers had the opportunity of evaluating both the learning process and themselves and their friends. Thus it is aimed to make the targeted activities more effective. In the reflective learning group, on the other hand, learning writings, which are one of the approaches of developing reflective thinking, were used. Two column writings were preferred in this group.

There are 2 purposes of using two column writings in the reflective learning activities. The first one is to record either learning content or method; the second one is to record students' learning regarding their reactions and reflections (Ünver, 2005). The prospective teachers in the reflective group reported the facts and questions they gained concerning the subject discussed every week. Besides, the prospective teachers asked themselves questions such as "What did I see?", "What did I learn?", "What did I hear?" before starting writing their reflective writings. After these questions, they analysed their educational lives for the answers and created their reports. The prospective teachers also added their reflections about learning into the reports they created. Again, the researcher as being the teacher in the reflective group posed these questions to the prospective teachers respectively: "What are the most important three things that you have learnt in this course?", "What did this course make you decide to do after words?", "What did this course make you give up after words?", "What did this course make you decide to continue?", "Are there still any questions in your mind that keep you busy after this course?", "What are the questions you think that remained unanswered in the course?", "What did you wish to learn in this course?". Besides, not only the researcher but also the prospective teachers posed questions to each other in the course. Finally, the prospective teachers in the reflective learning group were asked to prepare concept maps and lesson plans. So, the prospective teachers had the chance of understanding whether they have enough knowledge about the concepts they prepared with the help of this activity or not as well as seeing the properties of relations between concepts. In the meantime, the researcher provided the prospective teachers in the reflective learning group with negative and positive feedback regularly regarding the reports, lesson plans and concept maps that they prepared. At the end of each application in both groups, face to face interviews were held with the prospective teachers who were volunteers. The interviews that lasted between 10 and 15 minutes were tape recorded. Thus it was aimed to determine the feelings, thoughts and views of both groups concerning the applications.

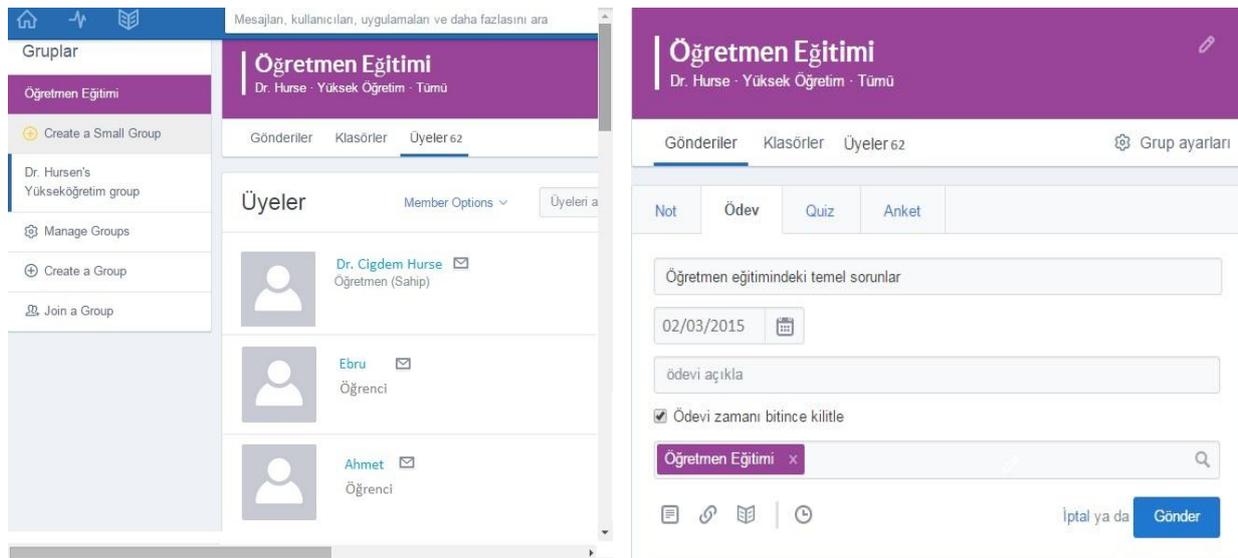


Fig. 1. Edmodo Application

Data Analysis

In the research, the analysis techniques of percentage, mean, standard deviation, independent samples t-test and repeated measures ANOVA were used for analysing the quantitative data. The values obtained at the end of the analysis were interpreted with the

significance level of 0.05. The qualitative data that were by an audio recorder are analysed by the interpretive descriptive analysis technique. In this analysis technique, the data obtained were classified according to their themes and were interpreted by the researchers.

4. Results

The results that were reached regarding the aims of the research are given below.

The Findings regarding the Academic Achievement Scores of Scenario Based Learning Group and Reflective Learning Group

The analysis of repeated measures ANOVA was used to determine whether there was a significant difference at academic achievement levels of scenario based learning group and reflective learning group. Before the application, academic achievement test as a pre-test was employed to determine whether the knowledge levels of prospective teachers regarding teaching profession was equal or not. It was discovered that there was no significant difference in the knowledge levels of prospective teachers in both groups (See Table 1). At the end of the application, the repeated measures ANOVA was adopted to find out how efficient the approaches of scenario based learning and reflective learning were over the achievement of prospective teachers as well as to see whether there was a significant difference between the two groups or not. The results of the repeated measures ANOVA are given in Table 2 below.

Table 2. Academic Achievement Score Distributions of Scenario Based Learning Group and Reflective Learning Group

Source of variance	Sum of squares	df	Mean Square	F	P
Intercept					
Group		1	358467.668	4.900	.031
(Experimental/	358467.668	60	844.765		
Control)	844.765	1	172.399	369.124	.000
Error	10343.921		38643.271		
Factor1(Pretest-	38643.271		606.368		
Posttest)	606.368	1	104.689	5.792	.019
Factor1*Group	6281.350	60			
Error					

*Significant at the .05 level of confidence

At the end of the analysis carried out, it was found that there was no significant difference in the pre-test scores of scenario based learning group (M=36.53) and reflective learning group (M=35.73), however; their post-test scores declared a significant difference ($t=2.966$, $p<0.05$). A significant difference was found regarding the achievement levels for the benefit of scenario based learning group when the post-test scores of scenario based learning group (M=76.28, $sd=12.71$) and reflective learning group (M=66.63, $sd=12.88$) were looked at. Besides, the change in the achievement scores of prospective teachers who joined the activities both in scenario based learning group and reflective learning group before and after the application were tested through the repeated measures ANOVA analysis. It is important to point out that the results of the repeated measures ANOVA analysis were also found in favour of scenario based learning group (M=76.28) with a significant difference ($F_{(1-60)}=5.792$, $p<0.05$) when the achievement levels of scenario based learning group and reflective learning group were taken into evaluation. Therefore, this finding of the study proved that the activities of scenario based learning group were more successful than the activities of reflective learning group regarding the achievement levels of the prospective teachers.

The Findings Regarding the Professional Self-Competence Scores of Prospective Teachers in Scenario Based Learning Group and Reflective Learning Group

Independent samples t-test analysis was adopted to determine the professional self-competence perceptions of both scenario based learning group and reflective learning group before

and after the application. In [Table 3](#) below, the professional self-competence perceptions concerning the score distributions of both groups before and after the application are given.

Table 3. The Comparison of Professional Self-Competence Score Means of Prospective Teachers in Scenario Based Learning Group and Reflective Learning Group

	Group	N	Mean	SD	df	T	P
Pre-test	Scenario based learning group	32	3.38	.534	60	.607	.546
	Reflective learning group	30	3.30	.487			
Post-Test	Scenario based learning group	32	3.96	.623	60	.489	.627
	Reflective learning group	30	3.89	.451			

As it can be seen in [Table 3](#) above, there was no significant difference found in the professional self-competence perceptions of scenario based learning group and reflective learning group before and after the application. Although there was no significant difference found for both of the groups, it was found that both of the applications caused a positive increase in the professional self-competence perceptions of the prospective teachers. Before the application, for instance, the prospective teachers indicated that they feel themselves competent at “average” level regarding the statement of “I can prepare teaching activities appropriate for the subject”, however, after the application, both of the groups stated that they feel themselves “very competent” in that sense. Again, the prospective teachers both in scenario based learning group and reflective learning group before the application expressed that they feel themselves competent at “average” level regarding the statement of “I can take precautions whenever students prevent teaching the lesson”. This, nevertheless, changed after the application. The prospective teachers stated that they feel themselves “very competent”. Another example of a similar situation is that the prospective teachers, before the application, expressed that they feel themselves competent at “average” level regarding the statement of “I believe that I have enough knowledge about the techniques of assessment and evaluation”. However, after the application they indicated that they feel themselves “very competent” regarding the same statement. As it can be understood from the findings obtained, both scenario based learning approach and reflective learning approach had a positive impact on the professional self-competence perceptions of the prospective teachers.

The Views of the Prospective Teachers in Scenario Based Learning Group and Reflective Learning Group Regarding the Applications Carried Out

In the research, it is aimed to determine the views regarding the applications carried out in scenario based learning group and reflective learning group. While the views of the prospective teachers regarding the scenario based learning approach were determined on the one hand, on the other hand the prospective teachers’ views regarding the reflective learning approach were determined. Also, the prospective teachers in both groups were asked what they felt and what their emotions and thoughts were concerning the course at the end of the application. The data obtained from the prospective teachers’ views are grouped under four main themes. The themes and the groups that are in those themes are summarized in [Figure 2](#).

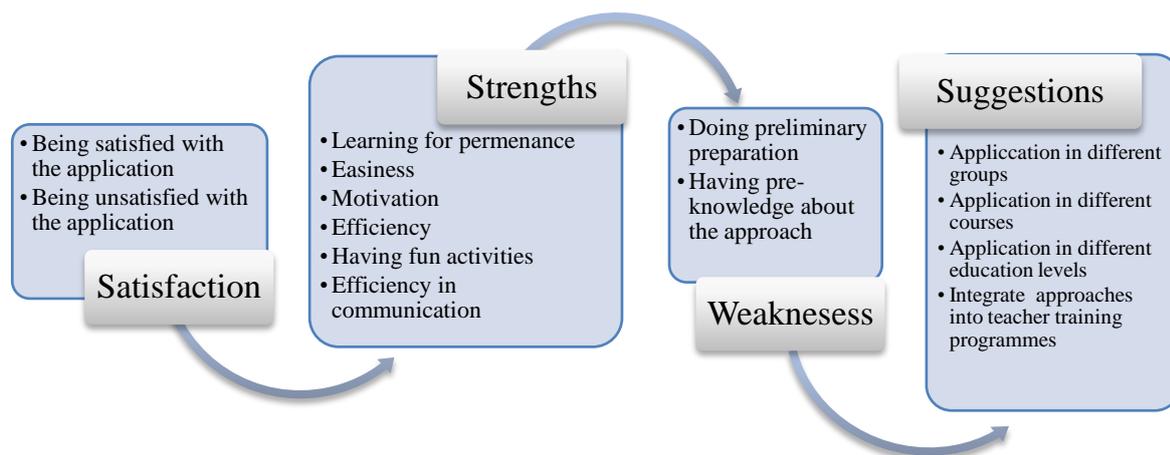


Fig. 2. The views of the prospective teachers regarding the application

As it is seen in [Figure 2](#), the prospective teachers who joined the study expressed their views regarding the applications they took part. The views of the prospective teachers are grouped in four different themes. They are: “satisfaction regarding the application”, “strengths of the applications”, “weaknesses of the applications” and “recommendations of prospective teachers regarding the applications”. Again, the themes that are mentioned above are classified within themselves.

The prospective teachers in the scenario based learning group stated that they were extremely satisfied with the applications. They emphasised that these applications eased their learning of many abstract subjects. One of the prospective teachers who joined the scenario based learning applications stated her satisfaction with these words: “...I clearly caught the chance of understanding how I can perform teaching with the scenario based learning applications. Those applications provided me with a different viewpoint. I am so glad that I am part of it”. Another prospective teacher declared his views saying that “...I strongly believe that these applications will be remarkably useful for my future profession. I wish we had the same chance of doing our rest of the courses with real life experiences as we did in this course”. Another prospective teacher stated her satisfaction with these: “...I had the opportunity of encountering a number of different activities in this course. I had fears of teaching what I have learnt to my students. However, now I feel confident about using scenario based learning applications in my profession which will ease conveying my knowledge to my students. I am hopeful that I will be useful for my students in the future”. In this regard, it can be concluded from the views of the prospective teachers above that they are satisfied with the applications. Majority of the prospective teachers who joined reflective learning applications, on the other hand, stated that they are also happy with the applications. The words of one of the prospective teachers from the reflective learning group revealed that she is satisfied with the applications. She says: “...with these application I felt myself valuable since I was quite active in the course and my views were treated respectfully”. Another prospective teacher said “...I felt myself as a real teacher...I was given new point of views and my horizon was widened through the reflective learning applications”. Only few of the prospective teachers who joined reflective learning applications declared that they had some difficulties at the beginning and felt uneasy about the approach because they had never encountered such an approach before. One of them said: “...it was my first experience with such an approach and I had fears regarding the course” so he confessed that he had certain difficulties in adapting himself into the course. Similarly, another prospective teacher said: “...I felt very desperate when I first came across with the reflective learning applications and did not know what to do”. Again, a prospective teacher from the reflective learning group said: “...I could not understand the logic of the reflective learning applications at the beginning”. The views of the prospective teachers so far have shown that they had fears regarding the reflective learning applications at the beginning; however, it is believed that this was because the prospective teachers had never come across such reflective learning activities before.

Another theme that is emerged from the views of the prospective teachers is that the strengths and weaknesses of the applications. The prospective teachers in both groups evaluated the strengths and weaknesses of the applications they took part in. Therefore, the data that were collected from the prospective teachers' views revealed that they have common opinions over the strengths of the applications. The prospective teachers stated that both scenario based learning activities and reflective learning activities provide permanence and easiness in teaching in learning. Likewise, the prospective teachers in both groups stressed that the applications motivated and amused them throughout the course. One of the prospective teachers said: "...in the courses I discovered that learning and teaching are much quicker with the scenario based learning approach". In a very similar way, another prospective teacher from the reflective learning group said: "...I did not expect that there would be a lot of fun in this course. The course was full of fun and was effective, too". Besides, the prospective teachers from both of the groups stated that everybody was active and there was an effective interaction among them throughout the course". One of the prospective teachers from the scenario based learning group explained what had been said above with these words: "...we all participated actively in the class and listened to each other ...we gave answers to each other's comments and we criticised each other on the basis of mutual respect...for the things that I did not understand the teacher was there ready to answer immediately". Another teacher from the reflective learning group this time explained the situation he was in with these words: "...the reflective learning applications seemed to me different at the beginning and I had hesitations about what to do; however, I got rid of all the hesitation by help of my teacher...at every stage that I was locked the teacher gave me effective explanations...also, we worked collaboratively with each other, we helped each other and finally we produced good things". Another prospective teacher who joined the reflective learning applications said: "...I learnt how to handle with problematic student behaviour that I may come across during performing teaching during my future career". As it can be understood from the words of the prospective teachers, they share similar views regarding the strengths of the applications.

When the weaknesses of the applications of both scenario based learning group and reflective learning group are examined, it is found that the teachers in both of the groups are in agreement that the teachers who joined the scenario based learning applications do not have any deficiencies regarding the application. One of the prospective teachers from the scenario based learning group said: "...the applications were excellent...nothing was missed out and I learnt many useful things". Nonetheless, only few of the teachers who joined the reflective learning applications claimed that the reflective learning applications required a well organised preparation regarding the course. Otherwise, they believed that this approach would not be effective. It is also added that experts are needed for the reflective learning applications to be performed properly. One of the teachers who joined the reflective learning applications expressed his thoughts with these words: "...the reflective learning applications are important from the learning point of view, I believe; however, for these applications to be effective, we should be knowledgeable about them like experts". Therefore, it can be concluded that findings of the study indicate that prospective teachers found scenario based learning applications easier and more concrete.

Lastly, the prospective teachers made recommendations regarding the applications they participated in. They indicated that both scenario based learning applications and reflective learning applications should take place in different courses, also. One of the prospective teachers in the reflective learning group put forward his recommendation with these words: "...my teaching experience has become much more efficient with the reflective learning applications. I had the chance of looking at this course with a different viewpoint. I think this application should be in our other courses". Another teacher from scenario based learning group this time in a very similar way said. "...new things are taught to us with different scenarios and this helps us not to forget them... I suppose I will not forget them easily...I wish we had these applications in other courses as well". Again, some prospective teachers in the scenario based learning group recommended that these applications should not only be arranged for prospective teachers, they should also be arranged for students at other educational levels and for different disciplines. One of the prospective teachers, for instance, presented her recommendation with these words: "...the scenario based learning applications motivated us and we had lots of fun while we were learning...therefore, applications like these should also be arranged for students at other educational levels. Student groups at lower educational levels will learn better and will have fun while learning". The prospective teachers who

took part in the reflective learning applications, on the other hand, recommended that reflective applications can be conveyed to teachers through in-service training. Also, the prospective teachers in both groups arrived at a consensus that these approaches should be integrated into the teacher training programmes. While one of the prospective teachers who presented her views said: "...the scenario based application that I participated in made my education more qualified...I believe all curricula should be designed according to these approaches", another prospective teacher said: "...it will be very useful to have reflective learning applications in other courses". In conclusion, the findings of the study indicated that the applications in both groups are efficient.

5. Discussion and conclusion

In this research, it is aimed to determine the impact of academic achievement and professional self-competence perceptions of the prospective teachers of scenario based learning approach and reflective learning approach. At the end of the applications, which lasted 12 weeks, it is found that the academic achievement levels of the prospective teachers in the scenario based learning group demonstrated more increase than the prospective teachers in the reflective learning group. Therefore, this result shows that the scenario based learning approach is more efficient for the academic achievement levels of the prospective teachers. Also, a similar result is reached through the interviews that were conducted with the prospective teachers. The prospective teachers in the scenario based learning group pointed out that they learn more easily with that approach. They also added that the knowledge they get is more permanent. Besides, at the end of the literature review it is found that the scenario based learning approach created a positive impact on the achievement of the learners and also it offered permanence in learning (Özsevgeç & Kocadağ, 2013; Ersoy & Başer, 2011). Gossman et al. (2007) in their study emphasised that real life scenarios are a good way for learners to conduct effective learning. Again, the prospective teachers in the scenario based learning group stated that they could easily convey what they learn with this approach into their professional lives. Sorin (2013) in his research got similar findings. Sorin (2013), in his research pointed out that the applications of scenario based learning is like a bridge between theory and practice in teacher education. Thus what Sorin (2013) argues coincides with the findings of this research.

Another finding of the research shows that there is a considerable increase in the professional self-competence perceptions of the prospective teachers in the scenario based learning approach and reflective learning approach. This finding created a significant impact on the professional self-competence perceptions of the prospective teachers of both scenario based learning approach and reflective learning approach. Veznedaroğlu and Keser (2005) reached similar findings in their study. In their study that was carried out with prospective teachers, Veznedaroğlu and Keser (2005) found that the scenario based learning applications increased the self-competence perceptions of prospective teachers regarding their teaching profession. Within this context, the study of Veznedaroğlu and Keser (2005) supports the findings of the current study. Again, Yetik, Akyuz and Keser (2012) emphasised that the scenario based learning environments help developing prospective teachers' problem solving skills. They also added that this approach has a very important place in teacher education. In a very similar vein, Köksal and Demirel (2008) in their studies revealed that reflective learning activities provided positive contributions to the planning, application and evaluation processes of the prospective teachers. Besides, Tok (2008) expressed that reflective activities are effective for the attitudes and performances of the prospective teachers regarding their teaching profession. In fact, they stressed the importance of reflective learning approach in teacher education. Again, Selmo and Orsenigo (2014) in their studies stated that reflective applications are a good learning tool in teacher education and they believed that such applications are quite useful for teachers.

At the end of the 12-week applications, the views of the prospective teachers in both groups regarding the applications are also taken. At the end of the applications, the prospective teachers in the scenario based learning group stated that conveying knowledge through the scenarios in teaching practice course is considerably effective. They also added that they would be very happy to use this approach in their professional lives. Likewise, most of the prospective teachers from the reflective learning group stated that they were satisfied with the reflective learning applications. Again, the prospective teachers from the reflective learning group said that they felt themselves as real teachers. They also added that they gained certain ways of handling with problematic student

behaviour through the reflective learning approach. Duban and Yelken (2010) by claiming that reflective learning in teacher education contributes to establishing a bridge between cognitive knowledge and an application, support the prospective teachers who were happy with the reflective learning applications. However, only few of the prospective teachers from the reflective learning group stated that they had some difficulties in adapting themselves into these applications when they first came across with them. Wongwanich, Sakolrak and Piromsombat (2014) reached similar results in their studies with teachers. The teachers in the study that was carried out in Thailand by Wongwanich and his friends pointed out that they found reflective learning applications “unpleasant”. Another study that was conducted in 2001 and lasted 6 weeks with 20 prospective teachers revealed that the reflective applications did not contribute to the improvement of the reflection of prospective teachers. Nonetheless, in this study the prospective teachers experienced some problems only at the beginning of the reflective learning applications. After some time, these problems disappeared, however. Therefore, within this context the results of the study indicated that there is a need for doing a well thought and well organized plan at the beginning of the applications. Also, there is a necessity to direct the learners regarding the applications.

6. Recommendations

The first reactions to the reflective learning applications of the learners and the reasons for these reactions should be researched with more details in the future studies of reflective learning. Besides, the results of the future studies regarding reflective learning applications should be compared to the results obtained from this current study. Again, it is recommended that researchers can have the applications of scenario based learning and reflective learning in other pedagogic courses apart from the teaching practice course. Along with all these, it is recommended that such research can also be carried out for teachers teaching at different levels of education in the future and parallel to this, educational in-service programmes are recommended to be organised.

References

- Atılgan et al., 2006 – Atılgan, H., Kan, A., & Doğan, N. (2006). Eğitimde ölçme ve değerlendirme. Ankara: Anı Yayıncılık.
- Aydemir et al., 2014 – Aydemir, H., Duran, M., Kapıdere, M., Kaleci, D., & Aksoy, N.D. (2014). Self-efficacy of teacher candidates intended teaching profession. *Procedia – Social and Behavioral Sciences*, 152, 161-166.
- Baeten et al., 2013 – Baeten, M., Struyven, K., & Dochy, F. (2013). Student-centred teaching methods: Can they optimise students’ approaches to learning in professional higher education?. *Studies in Educational Evaluation*, 39, 14-22.
- Beausaert et al., 2013 – Beausaert, S.A.J., Segers, M. S. R., & Wiltink, D.P.A. (2013). The influence of teachers’ teaching approaches on students’ learning approaches: the student perspective. *Educational Research*, 55(1), 1-15.
- Canniford, Fox-Young, 2014 – Canniford, L.J., & Fox-Young, S. (2014). Learning and assessing competence in reflective practice: Student evaluation of the relative value of aspects of an integrated, interactive reflective practice syllabus. *Collegian*, 267, 1-7.
- Colomer et al., 2013 – Colomer, J., Pallisera, M., Fullana, J., Burriel, M.P., & Fernandez, R. (2013). Reflective learning in higher education: A comparative analysis. *Procedia – Social and Behavioral Sciences*, 93, 364-370.
- Donche, Van Petefem, 2011 – Donche, V., & Van Petefem, P. (2011). Teacher educators’ conceptions of learning to teach and related teaching strategies. *Research Papers in Education*, 26(2), 207-222.
- Duban, Yelken, 2010 – Duban, N., & Yelken, T.Y. (2010). Öğretmen adaylarının yansıtıcı düşünme eğilimleri ve yansıtıcı öğretmen özellikleriyle ilgili görüşleri. *Ç.Ü. Sosyal Bilimler Enstitüsü Dergisi*, 19(2), 343-360.
- Ellis et al., 2009 – Ellis, R.A., Hughes, J., Weyers, M., & Riding, P. (2009). University teacher approaches to design and teaching and concepts of learning technologies. *Teaching and Teacher Education*, 25, 109-117.

Errington, 2011 – Errington, E.P. (2011). Mission possible: Using near-world scenarios to prepare graduates for the professions. *International Journal of Teaching and Learning in Higher Education*, 23(1), 84-91.

Ersoy, Başer, 2011 – Ersoy, E., & Başer, N. (2011). The effect on retention of applied scenarios in the problem-based learning method. *Eğitim Fakültesi Dergisi*, 24(2), 355-366.

Fatemipour, 2013 – Fatemipour, H. (2013). The efficiency of the tools used for reflective teaching in ESL contexts. *Procedia – Social and Behavioral Sciences*, 93, 1398-1403.

Fraenkel, Wallen, 2006 – Fraenkel, R.J., & Wallen, E.N. (2006). How to design and evaluate research in education. New York: McGraw-Hill.

Galea, 2012 – Galea, S. (2012). Reflecting reflective practice. *Educational Philosophy and Theory: Incorporating ACCESS*, 44(3), 245-258.

Gossman et al., 2007 – Gossman, P., Stewart, T., Jaspers, M., & Chapman, B. (2007). Integrating web-delivered problem-based learning scenarios to the curriculum. *Active Learning in Higher Education*, 8(2), 139-153.

Hammond, 2006 – Hammond, L.D. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education*, 57(10), 1-15.

Hançer, 2006 – Hançer, A.H. (2006). Enhancing learning through constructivist approach in science education. *International Journal of Environmental and Science Education*, 1(2), 181-188.

Jake, 2011 – Jake, K. (2011). Overhauling technical handouts for active student participation: a model for improving lecture efficiency and increasing attendance. *International Journal of Teaching and Learning in Higher Education*, 23(1), 98-108.

Jay, Johnson, 2002 – Jay, J. K., & Johnson, K. L. (2002). Capturing complexity: a typology of reflective practice for teacher education. *Teaching and Teacher Education*, 18, 73-85.

Karaçanta, 2013 – Karaçanta, H. (2013). Senaryo temelli öğrenme. Sevil Büyükalın Filiz (Ed.), *Öğrenme-öğretme kuram ve yaklaşımları* (pp. 372-386). Ankara: Pegem A Akademi.

Kılıç, 2004 – Kılıç, E. (2004). Status and importance of situated learning theory in education. *Gazi Eğitim Fakültesi Dergisi*, 24(3), 307-320.

Kilpatrick et al., 1997 – Kilpatrick, C., Hart, L., Najee-ullah, D., & Mitchem, P. (1997). Reflective Teaching Practice by University Faculty: Rationale and Case Study in Computer Science. *Frontiers in Education Conference, 1997. 27th Annual Conference. Teaching and Learning in an Era of Change. Proceedings*, 3.

Kleinsasser, 2014 – Kleinsasser, R.C. (2014). Teacher efficacy in teaching and teacher education. *Teaching and Teacher Education*, 44, 168-179.

Koong et al., 2014 – Koong, C.S., Yang, T.I., Wu, C.C., Li, H.T., & Tseng, C.C. (2014). An investigation into effectiveness of different reflective learning strategies for learning operational software. *Computers & Education*, 72, 167-186.

Kossai, Piget, 2014 – Kossai, M., & Piget, P. (2014). Adoption of information and communication technology and firm profitability: Empirical evidence from Tunisian SMEs. *Journal of High Technology Management Research*, 25, 9-20.

Köksal, Demirel, 2008 – Köksal, N., & Demirel, Ö. (2008). The contributions of reflective thinking to pre-service teachers' teaching practice. *Hacettepe University Journal of Education*, 34, 189-203.

Liou, 2001 – Liou, H.C. (2001). Reflective practice in a pre-service teacher education program for high school English teachers in Taiwan, ROC. *System*, 29, 197-208.

Loughran, 2009 – Loughran, J. (2009). Is teaching a discipline? Implications for teaching and teacher education. *Teachers and Teaching: theory and practice*, 15(2), 189-203.

Mariappan et al., 2004 – Mariappan, J., Shih, A., & Schrader, P.G. (2004). Use of scenario-based learning approach in teaching statics. *Proceedings of the 2004 American Society for Engineering Education Annual Conference and Exposition. American Society for Engineering Education*.

Meldrum, 2011 – Meldrum, K. (2011). Preparing pre-service physical education teachers for uncertain future(s): a scenario-based learning case study from Australia. *Physical Education and Sport Pedagogy*, 16(2), 133-144.

Özçınar, 2015 – Özçınar, H. (2015). Mapping teacher education domain: A document co-citation analysis from 1992 to 2012. *Teaching and Teacher Education*, 47, 42-61.

Özseveç, Kocadağ, 2013 – Özseveç, L.C., & Kocadağ, Y. (2013). The effects of scenario based learning approach to overcome the students' misconceptions about inheritance. *H. U. Journal of Education*, 28(3), 83-96.

Polat, Odabaşı, 2008 – Polat, C., & Odabaşı, H. (2008). Bilgi toplumunda yaşamboyu öğrenmenin anahtarı: Bilgi okuryazarlığı. Retrieved from <http://eprints.rclis.org/12661/1/37.pdf>

Potts, Schlichting, 2011 – Potts, A., & Schlichting, K.A. (2011). Developing Professional forums that support thoughtful discussion, reflection, and social action: One faculty's commitment to social justice and culturally responsive practice. *International Journal of Teaching and Learning in Higher Education*, 23(1), 11-19.

Richardson, 2005 – Richardson, J.T.E. (2005). Students' approaches to learning and teachers' approaches to teaching in higher education. *Educational Psychology*, 25(6), 673-680.

Rushton, Lahlafi, 2013 – Rushton, D., & Lahlafi, A. (2013). Development, implementation and impact of active and reflective learning initiatives to improve web searching skills of international business students at Sheffield Hallam University, UK. *Procedia – Social and Behavioral Sciences*, 93, 885-894.

Ryan, Ryan, 2012 – Ryan, M., & Ryan, M. (2012). Theorising a model for teaching and assessing reflective learning in higher education. *Higher Education Research & Development*, 32(2), 244-257.

Schlichter, Danylchenko, 2014 – Schlichter, B.R., & Danylchenko, L. (2014). Measuring ICT usage quality for information society building. *Government Information Quarterly*, 31, 170-184.

Schelfhout et al., 2006 – Schelfhout, W., Dochy, F., Janssens, S., Struyven, K. Gielen, S., & Sierens, E. (2006). Educating for learning-focused teaching in teacher training: The need to link learning content with practice experiences within an inductive approach. *Teaching and Teacher Education*, 22, 874-897.

Schneider, Synteta, 2005 – Schneider, D.K., & Synteta, P. (2005). Conception and implementation of rich pedagogical scenarios through collaborative portal sites. Retrieved from <http://tecfa.unige.ch/proj/seed/catalog/docs/schneider-icool-final.pdf>

Seidel et al., 2013 – Seidel, T., Blomberg, G., & Renkl, A. (2013). Instructional strategies for using video in teacher education. *Teaching and Teacher Education*, 34, 56-65.

Selmo, Orsenigo, 2014 – Selmo, L., & Orsenigo, J. (2014). Learning and sharing through reflective practice in teacher education in Italy. *Procedia – Social and Behavioral Sciences*, 116, 1925-1929.

Sheridan, Kelly, 2012 – Sheridan, K.M., & Kelly, M.A. (2012). Teaching early childhood education students through interactive scenario-based course design. *Journal of Early Childhood Teacher Education*, 33(1), 73-84.

Skaalvik, Skaalvik, 2010 – Skaalvik, E.M., & Skaalvik, S. (2010). Teacher self-efficacy and teacher burnout: A study of relations. *Teaching and Teacher Education*, 26, 1059-1069.

Sorin, 2013 – Sorin, R. (2013). Scenario-based learning: Transforming tertiary teaching and learning. Retrieved from <http://researchonline.jcu.edu.au/30512/3/30512%20Sorin%202013.pdf>

Tok, 2008 – Tok, Ş. (2008). The impact of reflective thinking activities on student teachers' attitudes toward teaching profession, performance and reflections. *Education and Science*, 33(149), 104-117.

Ünver, 2005 – Ünver, G. (2005). Yansıtıcı düşünme. Özcan Demirel (Ed.), *Eğitimde yeni yönelimler* (pp. 137-148). Ankara: Pegem A Yayıncılık.

Veznedaroğlu, Keser, 2005 – Veznedaroğlu, H.M., & Keser, H. (2005). Senaryo temelli öğrenmenin öğretmen adaylarının öğretmenlik mesleğine yönelik tutum ve öz yeterlik algısına etkisi. Ankara Üniversitesi, Yüksek Lisans Tezi.

Vieluf et al., 2013 – Vieluf, S., Kunter, M., Fons J.R. van de Vijver (2013). Teacher self-efficacy in cross-national perspective. *Teaching and Teacher Education*, 35, 92-103.

[Wongwanich et al., 2014](#) – Wongwanich, S., Sakolrak, S., & Piromsombat, C. (2014). Needs for Thai Teachers to become a reflective teacher: Mixed methods needs assessment research. *Procedia – Social and Behavioral Sciences*, 116, 1645-1650.

[Yarnall et al., 2007](#) – Yarnall, L., Toyama, Y., Gong, B., Ayers, C., & Ostrander, J. (2007). Adapting Scenario-based Curriculum Materials to Community College Technical Courses. *Community College Journal of Research and Practice*, 31(7), 583-601.

[Yasin et al., 2012](#) – Yasin, R.M., Rahman, S., & Ahmad, A.R. (2012). Framework for reflective learning using portfolios in pre-service teacher training. *Procedia – Social and Behavioral Sciences*, 46, 3837-3841.

[Yetik et al., 2012](#) – Yetik, S.S., Akyuz, H.I., & Keser, H. (2012). Preservice teachers' perceptions about their problem solving skills in the scenario based blended learning environment. *Turkish Online Journal of Distance Education*, 13(2), 7.