

Investigation of Reflective Teaching Practice Effect on Training Development Skills of The Pre-service Teachers

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Abstract

This study aims to investigate the effect of the reflective teaching practice on the development of teaching skills of the pre-service teachers. This study is designed in the form of action research due to the nature of the case examined. The participants were 32 pre-service teachers at Bayburt University Faculty of Education Department of Elementary Science Education. Observation forms were used to collect the data for study. The qualitative data obtained were analysed using the content analysis method. Data on the distribution of teachers according to their level for teaching skills and statistical analysis frequency (f) and percentage (%) is used. The work of reflective thinking, planning is a course for pre-service teachers participating in this study to contribute to the professional development for the implementation and evaluation. The work done to improve the process of reflective thinking of pre-service teachers is determined to have a level reflecting the start of the insufficient field. Processes that were put forward in the later stages in the development of teaching skills. In this context, experience of pre-service teachers and reflection on these experiences provide that reflective thinking skills development for the planning, implementation and evaluation of a lesson.

Keywords: reflective thinking, skills teaching, pre-service teachers, observation form

1. Introduction

Teaching process of the teachers includes a decision-making process (Quinn et al, 2010). It can be said that expecting an intended result from every action in the teaching process is bound to the quality of this decision-making process. Accordingly, the quality and effectiveness of the decisions made by the teachers necessitates using and bringing about some skills such as making research, problem solving, critical and reflective thinking (Töman and Çimer, 2014a; Töman and Çimer, 2014b; Töman, Çimer and Çimer, 2014). Effectiveness of the decisions directing to both conducting teaching services and solving problems faced with in the teaching process is subjected to transferring knowledge and skills of the teachers into that process (Odabaşı Çimer and Çimer, 2012). According to Parsons and Stephenson (2005) pre-service teachers have difficulty to apply many information they acquired in their pre-service training to solving problems they face to when they started employment. In fact, pre-service teachers should identify, well structure, analyse and think about the solution ways.

Parsons and Stephenson (2005) as well as Korthagen and Wubbes (2008) indicates that the main problem of the teacher training programs is disconnection experienced between theory and practice. Korthagen and Wubbes (2008) maintains that the bond between theory and practice in teacher training can be strengthened by reflective thinking and reflective training that is application of reflective thinking in the teaching process. Schriever (1999), compares the reflective teaching programs with the pre-service teachers in the traditional programs and found out that the pre-service teachers feel less concern about teaching process than others and they think much about teaching and creating alternative solution ways. For this reason it has been stressed that the reflective teaching has a substantial place in the teaching experiences of the pre-service teachers. According to Lee (2005), who determined the main purpose of teacher training programs directed reflective thinking, those programs should encourage the pre-service teachers to reasoning and making reflections in order to find out the negative or positive effects on the students when some learning approaches is used and why some teaching method, technique and materials are used. For this reason the pre-service teachers should use reflective activities not only to acquire new information but also to maintain professional approaches after their graduation.

Calderheads and Gates (1995) specify that a teacher training involving a reflective training program should contain the following main targets:

- To give opportunities to the pre-service teachers to analyze their own applications, to discuss, evaluate and change them and to adapt an analytical approach to training progress.

- To encourage the pre-service teachers to hold responsibilities in their Professional developments and to advance their professional freedom for taking one step.
- To improve their theories directed training programs and to understand a base on principles for class works and to give opportunities to teacher development.
- To take an active role in taking decisions and to be more active in the advancement of teaching in future and to encourage the pre-service teachers to think.
- It can be said that a teacher training program specified by Calderheads and Gates is helpful for both preparing the pre-service teacher to their professions and making them acquired by the wish to develop them and give them skill for their professions.

On this basis, in teacher training programs the courses primarily Special Teaching Methods, School Experience and teaching Practice can be used in order to use the reflective thinking skills in pre-service process (Johns, 2009). In this context the aim of this research is to investigate the effects of the reflective teaching practices on the development of teaching skills of the pre-service teachers which will be helpful for the pre-service teachers to be well prepared to their professions.

2. Method

This research that is made to study the effect on the development of teaching skills in the pre-service teachers during the teaching period is designed as action research due to the quality of situation researched. Action research is identified in many ways in literature. Action research is a systematic process in which it is tried to explore how the students can learn in the best way, how they teach and how schools maintains their activities in the teaching surrounding (Mills, 2003). The action research whose mainstay is to solve the problems has been a method which has been referenced by pre-service teachers and researches in recent years directed to remove disconnection between theory and practice. Purpose of this method is to solve a special problem that is appeared in a class or school surrounding or to develop a special application (Mayring, 2000; McMillian, 2004). Concordantly, Taggart ve Wilson (2005) indicates that action research is a method making research on limited persons, units, sections or the institutes. Taggart ve Wilson (2005) compares case study with action research and expresses that the most important difference between them is the role of the researcher in the process. Because the role of the researcher is only an observer or evaluator whereas the researcher who conducts action researches is the person who applies change or interference as well as observer and evaluator.

Action research is a process starting with a problem situation. It must be well planned before data collection involving flexibility in data collection, analysing and reporting. It necessitates regular observances (Langer, 2002; Miller, 2007; Taggart ve Wilson, 2005).

2.1 Respondents of the Study

Participants of the research consists of the academician who lectures in Bayburt University Bayburt Education Faculty Mathematics and Department of Science Education Department and 32 science pre-service teacher. In the research observation form is used for the purpose of data collection.

2.2 Data Collection

The research is formed by three parts: these are special teaching methods I in which there are theory and its practices in spring term of 2015-2016 and special teaching methods II in which the main practices directed to the reflective thinking in the fall term of 2016-2017.

Special teaching methods I is the course that has undeniable importance applying each week 2 hour in theoretical and 2 hour in practicing and lasts 14 weeks along the teaching them. In the first 10 weeks (40 hours) theoretical training was taught by the researcher. In the last four weeks of the term each pre-service teacher was required to plan and give a lesson of 20-25 minutes by assigning different subjects to them from science lesson education programme. Teaching applications of the pre-service teachers have been evaluated by the observance form procured by the researcher during the practice. Courses given by each pre-service teacher was videotaped. On the other hand, the pre-service teachers were requested to keep a diary after the practice and to make self-evaluation by watching the videotaped course and to participate in a semi-structured interview. The course of "Special Teaching Methods II" in the fall term of 2015-2016 academic year which constitutes second section of the research in which the main practices are made is a lesson that is taught every week by 2 hours theoretic and 2 hours practice lasts in total 14 weeks (56 hours). The researcher gave the different subjects in the physical sciences to the pre-service teachers and requested that each pre-service teacher should make teaching two times in the period. 2 teaching practices made by the pre-service teachers have been evaluated by the researcher through observation form. The pre-service teachers kept reflective diary by analysing their videotaped lessons in the end of each practice. Researcher requested the pre-service teachers to keep reflective diary as they did earlier and participate in interviews and make self-evaluation by analysing the videotaped lesson.

2.3 Analyse and Interpretation of the Data

The observation form is developed to determine teaching competence of the pre-service teachers about planning, applying and evaluating courses. By data collecting tool that is prepared as a draft the views of the researcher was taken about the related 5 subjects. In this way observation form is reorganized by taking spelling and narration deficiencies into consideration. After necessary corrections have been made the space observation form is reexamined by experts corrections have been made according to their recommendations and it is made in final form. In the ultimate form 30 competence statements have been placed directed to determine inclass competence of the teachers. Six of them is for planning teaching activities, 19 of them is related to the practice of teaching activities and five of them is related to the evaluation of teaching process. Against of each competence statement a reply section in triple graduated is settled as “insufficient”, “good”, “very good”. Frequence (f) and percentage (%) is used in statistical analyse of data in relation with the distribution of the levels for the teaching skills of the pre-service teachers.

3. Findings

In this research by which we try to examine the effect of the reflective thinking on teaching skills of science teachers by three different practices, the findings obtained from the analyse of the data collected from the observation form is as follows:

3.1 Findings Obtained Intended for the First Practice of the Pre-service Teachers

The findings that obtained from the observation form related to the first practice of pre-service teachers are as follows. It is tried to reveal the general situation of 32 pre-service teachers intended for the teaching process while the findings are presented.

Table 1. The Findings That Are Obtained Intended For the First Practices of The Pre-Service Teachers

Teaching-Learning Processes		Articles Related to the Teaching-Learning Process	Levels					
			1		2		3	
		f	%	f	%	f	%	
of Planning Learning Activities	Informing students about targets	28	88	4	12	0	0	
	Making subject gradation accordingly	6	19	26	81	0	0	
	Determining which sources to be used related with the subject	29	91	3	9	0	0	
	Accordance of context with teaching principles	29	91	3	9	0	0	
	Regulating learning environment (class, board, equipment, student and personal preparations).	29	91	3	9	0	0	
	Reaching targets in determined times.	23	72	9	28	0	0	
	To use Turkish good.	6	19	26	81	0	0	
	Choosing examples expressing essence of the matter	6	19	26	81	0	0	
	Emphasizing, using clear and lucid statements.	12	37	20	63	0	0	
	Practice of Teaching Activities	Using body language efficiently.	26	81	6	19	0	0
Using gestures and facial expressions efficiently		23	72	9	28	0	0	
Providing student participation		5	16	27	84	0	0	
Providing a democratic learning environment		27	84	5	16	0	0	
Using suitable equipments related with subject		26	81	6	19	0	0	
Using suitable teaching methods related with subject.		26	81	6	19	0	0	
Giving examples from daily life related with subject.		16	50	16	50	0	0	
Presentation in accordance with teaching principles (from concrete to abstract, from plain to complex).		29	91	3	9	0	0	
Keeping attention along the course.		18	56	14	44	0	0	
To communicate with students efficiently.		18	56	14	44	0	0	
Posing questions suitably.		17	53	15	47	0	0	
Posing question timely.		17	53	15	47	0	0	
Teaching-Learning Processes	Encouraging students to pose questions and give answers.	19	59	13	41	0	0	
	Consolidation of the answers given by the students.	22	69	10	31	0	0	
	Commanding subject.	8	25	24	75	0	0	
	Creating alternative solutions for the problems.	26	81	6	19	0	0	
			Levels					
			1	2	3			
		f	%	f	%	f	%	
of Evaluation Learning Process	Summerizing the lesson or let the students summarize.	30	94	2	6	0	0	
	Controlling whether reaching the targets or not.	16	50	16	50	0	0	
	Teaching lesson in direction of determined plan.	14	44	18	56	0	0	
	Using the traditional measuring evaluation methods efficiently.	22	69	10	31	0	0	
	Using alternative measuring evaluation methods effectively.	22	69	10	31	0	0	

1-Insufficient 2-Good 3- Very good

When the findings gained from the observations for planning teaching-learning processes of pre-service teachers are investigated it was found out that they are good (81%) only at the 'subject graduation' related with planning of teaching-learning. In the other articles directed planning the students are found as 'insufficient' in high rate. On the other hand, it was found out that they are in 'good' level at 'Providing student participation (84%), Using Turkish good (81%), 'Choosing examples for the core of subject (81%), 'commanding the subject (75%), Emphasizing, using clear and lucid statements (63%). Except for these articles in the other points intended for practising of teaching-learning process the great majority of the pre-service teachers were found as 'insufficient'.

On the other hand, when the science pre-service teachers are observed related to evaluation of teaching-learning evaluation the great majority of the students in all articles except for 'teaching lesson in direction of determined plan' were found out as 'insufficient'.

When the findings gained from the observations that made for the pre-service teachers (Table 1) it was found out that pre-service teachers were not in 'very well' level in planning, practising and evaluating teaching-learning process.

3.2 Findings Gained for the Second Practice of Pre-service Teachers

The findings gained from the observation form in relation with second practices of the pre-service teachers are as follow. It has been tried to reveal the general situation of 32 pre-service teachers participated in the research beside the findings.

Table 2. Findings Obtained Related With The Second Practice of Pre-Service Teachers

Teaching-Learning Practices	Articles related to teaching – Learning Process	Levels						
		1		2		3		
		f	%	f	%	f	%	
of Planning Learning Activities	Informing students about targets	20	63	8	25	4	12	
	Making subject gradation accordingly	4	13	18	56	10	31	
	Determining which sources to be used related with the subject	22	69	6	19	4	12	
	Accordance of context with teaching principles	12	38	18	56	2	6	
	Regulating learning environment (class, board, equipment, student and personal preparations).	4	12	20	63	8	25	
	Reaching targets in determined times.	2	6	20	63	10	31	
	To use Turkish good.	2	6	24	75	6	19	
	Choosing examples expressing essence of the matter	3	10	18	56	11	34	
	Emphasizing, using clear and lucid statements.	8	25	20	63	4	12	
	Using body language efficiently.	20	63	10	31	2	6	
	Using gestures and facial expressions efficiently	19	60	11	34	2	6	
	Providing student participation	2	6	19	60	11	34	
	Providing a democratic learning environment	11	34	18	56	3	10	
	Using suitable equipments related with subject	11	34	17	54	4	12	
	Using suitable teaching methods related with subject.	13	40	17	54	2	6	
Practice of Learning Activities	Giving examples from daily life related with subject.	2	6	18	56	12	38	
	Presentation in accordance with teaching principles (from concrete to abstract, from plain to complex).	6	19	18	56	8	25	
	Keeping attention along the course.	2	6	23	72	7	22	
	Teaching-Learning Practices	Articles related to teaching – Learning Process	Levels					
			1		2		3	
			f	%	f	%	f	%
	of Practice Learning Activities	To communicate with students efficiently.	12	38	16	50	4	12
		Posing questions suitably.	5	16	18	56	9	28
		Posing question timely.	4	12	18	56	10	32
		Encouraging students to pose questions and give answers.	14	44	11	34	7	22
		Consolidation of the answers given by the students.	14	44	16	50	2	6
		Commanding subject.	3	9	19	59	10	32
		Creating alternative solutions for the problems.	19	59	12	38	1	3
		Summerizing the lesson or let the students summarize.	19	59	11	34	2	7
		Controlling whether reaching the targets or not.	3	9	24	75	5	16
Teaching lesson in direction of determined plan.		3	9	23	72	6	19	
Using the traditional measuring evaluation methods efficiently.		13	40	17	53	2	7	
Using alternative measuring evaluation methods effectively.		19	59	11	34	2	7	
Evaluation Learning Process								

1-Insufficient, 2-Good, 3-Very good

When the findings related to planning teaching-learning of the pre-service teachers are investigated they are mostly found in good level by this means that accordance of context with learning principles (56%), in accordance with subject gradation (56%), regulating the learning environment (class, board, equipment, student and personal preparation (63%)

and reaching targets in determined times (63%). On the other hand, in relation with planning which sources will be used with the related subject (69%) and informing students of targets” (63%) they have been found out “insufficient.

In relation with practice of teaching-learning process the pre-service teachers were found as ‘insufficient’ as follows using body language efficiently (60%), using gestures and facial expressions efficiently (60%) and creating alternative solutions for the problems. In other points related to practice of teaching-learning process the pre-service teachers are mostly at ‘good’ level. When the science pre-service teachers are observed related with teaching-learning evaluation they are found as ‘insufficient’ mostly summarizing a subject to the class or let the subject summarized by the students (59%) and using alternative measuring evaluating methods efficiently (59%). On the other hand, the pre-service teachers were mostly found in ‘good’ level in controlling whether reaching determined targets or not (75%), teaching lesson in determined plan (72%) and using traditional measuring evaluating methods effectively (53%). When the findings gained from observations directed to pre-service teachers are investigated (Table 2) it was found out that the pre-service teachers are found as ‘good’ in the stages both planning teaching-learning process and evaluation stages.

3.3 Findings Obtained Related with the Third Practice of Pre-service Teachers

The findings gained from the observation form in relation with second practices of the pre-service teachers are as follows. It has been tried to reveal the general situation of 32 pre-service teachers participated in the research beside the findings.

Table 3. Findings Obtained Related With The Third Practice of Pre-Service Teachers

Teaching-Learning Processes		Articles related to Teaching-Learning Process		Levels					
				1		2		3	
				f	%	f	%	f	%
Learning		Informing students about targets		12	38	17	53	3	9
		Making subject gradation accordingly		4	13	10	31	18	56
		Determining which sources to be used related with the subject		12	38	17	53	3	9
Planning Activities		Accordance of context with teaching principles		4	13	22	69	6	18
		Regulating learning environment (class, board, equipment, student and personal preparations).		2	6	18	56	12	38
		Reaching targets in determined times.		4	13	18	56	10	31
Teaching-Learning Processes		Articles related to Teaching-Learning Process		Levels					
				f	%	f	%	f	%
Evaluation of learning Process	Practicing Learning Activities	To use Turkish good.		2	6	16	50	14	44
		Choosing examples expressing essence of the matter		3	9	7	22	22	69
		Emphasizing, using clear and lucid statements.		2	6	14	44	16	50
		Using body language efficiently.		8	25	18	56	6	19
		Using gestures and facial expressions efficiently		8	25	18	56	6	19
		Providing student participation		2	6	14	44	16	50
		Providing a democratic learning environment		4	13	20	62	8	25
		Using suitable equipments related with subject		8	25	10	31	14	44
		Using suitable teaching methods related with subject.		8	25	14	44	10	31
		Giving examples from daily life related with subject.		3	9	10	31	19	60
		Presentation in accordance with teaching principles (from concrete to abstract, from plain to complex).		2	6	12	38	18	56
		Keeping attention along the course.		4	13	11	34	17	53
		To communicate with students efficiently.		3	9	19	60	10	31
		Posing questions suitably.		2	6	18	56	12	38
		Posing question timely.		2	6	18	56	12	38
		Encouraging students to pose questions and give answers.		8	25	16	50	8	25
		Consolidation of the answers given by the students.		8	25	14	44	10	31
		Commanding subject.		6	19	8	25	18	56
		Creating alternative solutions for the problems.		12	38	16	50	4	12
		Summerizing the lesson or let the students summarize.		18	56	12	38	2	6
Controlling whether reaching the targets or not.		2	6	18	56	12	38		
Teaching lesson in direction of determined plan.		3	9	16	50	13	41		
Using the traditional measuring evaluation methods efficiently.		3	9	23	72	6	19		
Using alternative measuring evaluation methods effectively.		10	31	14	44	8	25		

1-Insufficient, 2-Good, 3-Very Good

When the findings gained from the observations intended planning teaching-learning processes of the pre-service teachers are investigated we found out that they were mostly in 'good' level at the points such as informing students about targets (53%), determining which sources to be used about subjects (53%), regulating the learning environment (56%), reaching the targets in determined times (56%) and concordance of context with teaching principles (69%). On the other hand, they were in 'very good' level in the point of making subject degradation conveniently (56%) in the frame of planning.

They were found mostly in 'very good' level related with practices of teaching-learning process of the pre-service teachers in the points such as choosing examples that are conveniently states the core of the subject (69%), giving examples from daily lives related with the subject (60%), presenting the learning principles conveniently (from concrete to abstract, from plain to complex) (56%), commanding the subject (56%), keeping interest up all along the class (53%), emphasizing, using clear and understandable statements (50%), procuring the student participation (50%), using convenient equipment related with the subjects (44%). They were mostly found in 'good' level in the other points related with practicing teaching-learning process.

When the science pre-service teachers are observed in order to evaluate teaching-learning process they were mostly found in 'good' level in the points such as using the traditional measuring evaluating methods efficiently (72%), controlling whether reaching the determined targets or not (56%), teaching a lesson in the direction of plan (50%) and using the alternative measuring evaluating methods effectively (44%). On the other hand, they were mostly found 'insufficient' in summarizing the lesson and let the lesson summarized by the students. When the findings gained from the observations that made for the science pre-service teachers are examined (Table 3) they are mostly found in 'good' level in the stages such as planning teaching-learning process by the pre-service teachers as well as in the practicing and evaluation stages.

4. Discussion and Conclusion

According to Dewey (1998) education is a process that lasts lifelong. When this is taking into consideration it must be accepted beforehand that the effect of an information that has been transferred into students in their whatever period will be continued lifelong. This situation is accordant with the expressions of the positive interactions between the teacher and students and they must be interested in their learning closely. It can be said that in bringing about positive class atmosphere the methods of the teachers which are capable of making students active with methods, techniques, materials and evaluation methods as well as the approachment of taking the students into centre. On the other hand, it is considered that the feedbacks that teachers give to students in the practice process are effective. It can be said that while the pre-service teachers are giving feedbacks to the students they make efforts to involve them into the practice process as well. The pre-service teachers tried to motivate the students to reach the information by posing questions and encouraging them to express their own views. This approach of the teachers that aims to take the student into the centre encourage the students to be interrogative and motivate them participating in the course actively (Birmingham, 2004). Wilson and Jan (1993) the interrogative thinking makes possible the reflection of the students own thinking. In this way the thinking and learning skills of the students are developed. It is considered that this result stem from the discussions that are made by pre-service teacher and teaching staff after each practice, form keeping reflective diary, from self-evaluation and from the interviews. In this way, the pre-service teachers have the possibility to review the teaching applications and make reflections intended for their practices.

Keeping reflective diary and making self-assessment effects positively the skills of the science pre-service teachers to determine the negations they experienced as well as their deficiencies and problems they faced. By the reflective practices that are realized in time the pre-service teachers has gained experiences and took the teaching values into account such as lesson targets, time management, subject acquisition and subject gradation. The reflective diary and self-assessments has created awareness in the pre-service teachers in order to remove the deficiencies and directed them to make efforts to realize the things that have to be done. On the other hand, giving feedbacks to the pre-service teachers directed to the reflections in reflective diary and self-assessments makes it possible for them to practice in advanced teachings applications. This case makes clear that it has an effect on every steps of reflective applications of the teachers and development of their own skills. On the other hand, the relective diary together with micro teaching, self-assessment and interviews have been used as being supplementary for each other. These are effective points in development of teaching skills in the pre-service teachers.

Improvement in the reflective thinking skills has created awareness in the pre-service teachers about their professional development for the next teaching practices. The pre-service teachers has found their lesson plans, teaching approaches, methods, tecniques, materials and assesment methods sufficient at the beginning of reflective practices. As the reflective practises increase the pre-service teachers saw that the above-mentioned points are insufficient and created alternatives. In the last steps of the reflective practices they made original inferences and made educational generalizations. Accordingly,

the development in their reflective thinking skills has made contribution to their professional developments.

It is seen that the pre-service teachers ensure meaning learning by motivating the students to participate actively in the lesson and in the proceeded steps of the practice process. They are also successful as well in motivating the students for the lesson by planning and applying interesting activities. The pre-service teachers used various methods and materials such as posing questions, giving feedbacks in the practice stage in order to make students active. On the other hand, science pre-service teachers made efforts to use traditional and alternative evaluation methods that are convenient to reflective approach in the evaluation process of teaching practices in special teaching material courses.

5. Recommendations

The pre-service teachers should be provided with opportunities for seeing themselves as real teachers in the scope of teacher training programs. The pre-service teachers should be equipped with more experiences in the points such as teaching methods, teaching materials, assessment methods, interactions with students and their effects on the students while they are watching videotapes that are taped with their own lesson practices. Reflective diaries, self-evaluations and interviews may be effective in their usage of reflective thinking skills on these experiences. In this way the pre-service teachers can use their reflective skills in presenting effective learning environments for their own students. It is considered that the practices of keeping reflective diary and making self-assessment will be effective on the reflective thinking skills and learning of the students since the early class levels. Students in the light of these practices may be trained as being responsible for their learnings as being active individuals. Reflective thinking skills acquired by the science pre-service teachers participating in applications to improve reflective thinking, can transfer their experiences to their own students when they have become teachers. A research to be made in this field will give information about the productivity of reflective thinking studies and the reflection of the students. In the scope of this research different activities such as concept maps, peer assessments and concerted learning may be added to the steps in the process of developing teaching skills of the pre-service teachers.

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