The effect of reflective thinking on the teaching practices of preservice physical education teachers

Fatih Dervent
Marmara University, Turkey

The purpose of this study is to determine the effect of reflective thinking on the professional teaching practices of preservice physical education teachers and to explore their reflective levels. Within the qualitative research paradigm, action research was used to gain a deeper understanding of the reflective experiences of preservice physical education teachers. Data was derived from reflective journals, interviews, and video recordings of micro teaching sessions. The content analysis method was used to analyse the data. Results indicated that at the beginning of their reflection, the participants were at the technical level of the reflective framework; then they started to reflect at both contextual and dialectical levels. Additionally, the reflective thinking framework allowed preservice physical education teachers to focus on their application of their knowledge and enabled them to generate a conscious awareness of their professional development. As a result, preservice physical education teachers displayed professional development in proper planning, time management, and use of school facilities. Furthermore, students' developmental levels and teaching approaches through their experiences and their reflections on these experiences were determined.

Introduction

Reflective thinking – as an active, persistent, and careful consideration of any belief or supposed form of knowledge (Dewey, 1998) – places teachers/students' learning on a constructivist and inquiry-oriented basis. It is the process of making informed and logical decisions (Taggart & Wilson, 1998), while recalling one's own experiences, beliefs, and perceptions (Campbell-Jones & Campbell-Jones, 2002). There has been concern about teacher education, claiming that teachers are trained as technical practitioners who have limited alternatives and lack careful consideration of teaching (Valli, 1997). Even though teacher education is dominated by technical rationality (Schön, 1983) and behaviourist models (Zeichner, 1983), reflective thinking has gained importance in teacher education (Crawford, O'Reilly & Luttrell, 2011; Korthagen, 2001; McCollum, 1997; Rodgers, 2002; Tsangaridou and O'Sullivan, 1994).

Korthagen (2001) stresses the importance of promoting reflection within school-based teacher education programs, since reflective thinking helps to prevent prospective teachers from settling on existing traditional educational patterns in schools. It has been emphasised that reflective practice plays a vital role in the development of professional skills (Ballard, 2006; Tsangaridou & O'Sullivan, 1997; Wallace, 2001).

Huang (2001) suggests that supporting preservice teachers to gain experience and learn from their experiences is the best method. Moreover, the American National Professional Training Standards (NBPTS) suggest that reflective thinking is a necessity for both teachers and students. The NBPTS also stresses that teachers must consider their

practices systematically, so that they may benefit from their experiences (Rodgers, 2002). Tok (2008) suggests that reflective thinking enables one to learn from one's experiences.

Reflective thinking consists of taking conscious, systematic, and deliberate action in the classroom through ongoing inquiry, in which teachers continuously revise their practices via a cyclical process toward high-quality standards of teaching (Cruickshank et al., 1995; Jay & Johnson, 2002; Pollard, 2002; Pollard & Tann, 1995; Posnanski, 2002; Tang, 2002; Wilson & Jan, 1993). Reflection as a systematic meaning-making process (Dewey, 2001) should be elaborated upon in terms of its effectiveness in teaching and learning, thus allowing teachers and students to experience continuous learning (Rodgers, 2002). Lifelong learning is an important element of reflection, which involves perpetual self-analysis and development (Reid & O'Donoghue, 2004; Wenzlaff, 1994).

To encourage reflection among teachers, different methods such as reflective journals (Colton & Sparks-Langer, 1993; Valli, 1997; Zeichner, 1983), reflective interviews (Trumball & Slack, 1991), peer observation conferences (Zeichner & Liston, 1985), and group seminars (Rudney & Guillaume, 1990) have been used, as well as advanced technologies such as digital videos, blogs, and electronic portfolios (Cunningham & Benedetto, 2006; Yang, 2009; Levin & Camp, 2002). By these means, teachers can refer to their own lives and experiences as valuable sources of knowledge they can apply in their own classrooms (Connelly & Clandinin, 1990).

There have been attempts to describe and delineate levels of reflective thinking. Van Manen (1977) defines three levels of reflection: technical, deliberative, and critical rationality. Technical rationality emphasises achieving the curriculum objectives with no consideration of any problems that the classroom, school, or social contexts may pose (Zeichner & Liston, 1987). Deliberative rationality emphasises clarifying the values of the context. At the highest level, critical rationality, social conditions, moral, and ethical values are taken into consideration. Critical rationality involves "a constant critique of domination, of institutions, and of repressive forms of authority" (Van Manen, 1977, pp. 227). Educational decisions are made on the basis of justice, equality, and freedom. According to Gelter (2003), reflection is not only a learning activity, but more importantly an ethical tool that utilises social and personal values.

To distinguish technical and reflective aspects of teaching, Valli (1990) generated the Four Images of Teaching model: technical rationality, practical decision making, indoctrination, and moral reflection. Technical rationality emphasises measurable performance, in which the teacher's role is delineated by others; it is regarded as non-reflective. The second image, practical decision making, refers to analysing actions within the limits of determined goals. It includes choosing alternative ways to frame problems (Schön, 1983). Practical decision making includes taking responsibility for one's choices and making ethical judgments. The third image, indoctrination, involves a strong moral, ethical, and social belief system about teaching, but in a non-reflective way. Moral reflection is the most desirable and the only appropriate image for teacher education to promote (Valli, 1990). The last image of teaching focuses on the social and moral aspects of teaching.

Valli (1997) specifies that understanding and improving the quality of life of disadvantaged groups, social justice, and equality are the main indicators of this image of teaching.

The current study uses the reflective thinking pyramid of Taggart and Wilson (1998) to assess the levels of reflection of preservice physical education teachers. In line with Van Manen's (1977) levels of reflectivity, Taggart and Wilson (1998) represent three levels of reflective thinking: technical, contextual, and dialectical. The reflective thinking pyramid "builds progressively from a basic general premise to a peak of reflection epitomised by individual autonomy and self-understanding" (Taggart & Wilson, 1998, pp. 41). Taggart and Wilson (1998) suggest when teachers face a problem at the technical level, they form a non-multiple dimension scheme of the problem. All reflections at the technical level are related to the determined educational outcomes and contain applications relating to teaching methods and behaviors. In their practices, while focusing on reaching the determined goals, they ignore alternative solutions, students' understanding, emotions, will, and characteristics. The contextual level can be explained as the level at which teachers make an effort to enlighten the circumstances underlying the problem while they associate their applications with students' development (Taggart, 1996; Collier, 1999). At the highest level of reflective thinking, teachers examine the effect of social conditions and information on students (Ballard, 2006). According to Collier (1999), the dialectical level refers to broad-mindedness and the importance given to ethical, moral, and social issues. Taggart and Wilson (1998) emphasise that the ability to observe an incident in a broad-minded manner is an important indication of reflection at the dialectical level, where teachers are interested in ethical and political conditions relating to their teaching planning and practices. The purpose of this study is to determine the effect of reflective thinking on the professional teaching practices of the preservice physical education teachers and to explore their reflective thinking levels, using reflective strategies such as reflective journal writing, microteaching, and interviews.

Method

Participants

The participants were ten preservice physical education teachers who enrolled in the bachelor program of teacher education in the School of Physical Education and Sport at Marmara University in Istanbul, Turkey. The maximum variation sampling method was used to select the participants. The grade-point averages of the participants who took their school practice course (EGT 406 – Teaching Practice) both at state and private schools were between 67.46 and 80.03. All participants took part in this research voluntarily and were willing to discuss their experiences.

Study design

To obtain the data, action research was preferred, which does not only allow participants to examine their own educational practices (Ferrance, 2000), but also has common characteristics with reflective thinking, such as continuity and problem solving (Schön, 1983; Yıldırım & Şimşek, 2008). Qualitative research is based on the view that reality is

constructed by individuals within the complexity of social interactions (Marshall & Rossman, 1999; Merriam, 1998). Qualitative data was obtained from reflective journals, interviews, and micro teaching sessions. Reflective journals were designed to give the preservice physical education teachers the opportunity to write about their experiences. The participants were expected to write a reflective journal, which was structured with guiding questions on Weeks 4, 5, 6, 8, 9 and 10 of the ten-week reflective framework about their teaching practices and observations. Guiding questions were designed to have the preservice teachers identify the problems they encountered during their teaching experiences, reflect on these problems, and search for possible solutions. The participants were interviewed about their experiences and observations at the practice school on Weeks 3 and 7. They were also video recorded for approximately 15 minutes during their teaching practice. They were interviewed after the video recorded micro lessons so they could evaluate their practices. All of the interviews were made with guiding questions, such as, "What were the strengths of the lesson?" and "What would you change if you had another chance to prepare this lesson?".

The researcher examined the data to code and identify the reflective thinking levels. Data analysis revealed 5 categories and 21 codes. A colleague was then asked to link the 21 codes to the 5 categories and was provided with the lists of the codes and categories. As the colleague placed two codes into different categories than did the researcher, the initial reliability was found to be 90.4%. The reliability was calculated by dividing the number of agreements by total of the number of agreements plus the number of disagreements, and then multiplying by 100 (Miles & Huberman, 1994). At the end, the researcher and his colleague discussed how to create a final list of the codes and categories. Two codes were replaced based on the colleague's analysis; then a final consensus with 100% reliability was reached. To ensure the credibility of findings, triangulation data tools and an audit trail were used (Cresswell, 1994; Merriam, 1998).

Procedure

A ten-week reflective framework was designed to integrate the student teaching experience with the teaching practice course (EGT 406). The reflective framework involved strategies such as reflective journals, a microteaching session, discussions about problems, and interviews both at the practice school site and on campus. As part of the student teaching experience, three school site visits were scheduled to observe the preservice physical education teachers. Problem discussion sessions were conducted to encourage preservice teachers to reflect on their experiences. The preservice teachers were asked to identify a problem they had encountered in their student teaching experience. They discussed the problem while interacting and collaborating with their peers. Class discussion was a powerful context in which to promote preservice teachers' reflective thinking, in that not only did they justify and defend their ideas, but also re-interpreted problems and provided alternative solutions (Hatton & Smith, 1995; Jay & Johnson 2002; Kaminski, 2003).

Table 1: Procedure

Week	On campus	At practice school site
1	Presentation on reflective thinking (its definition philosophical background, models, levels) and information about reflective thinking framework	-
2	Providing the guiding questions for the first journal writing	First school visit, first interview
3	Submitting the first week's journal, problem discussion, providing the guiding questions for the second journal writing	-
4	Submitting the second week's journal, problem discussion, providing the guiding questions for the third journal writing	-
5	Submitting the third week's journal, problem discussion	-
6	Problem discussion about the micro-teaching session, providing the guiding questions for the fourth journal writing	Second school visit, micro-teaching session, interview about the micro-teaching session
7	Submitting the fourth week's journal, problem discussion, providing the guiding questions for the fifth journal writing	-
8	Submitting the fifth week's journal, problem discussion, providing the guiding questions for the sixth journal writing	-
9	Submitting the sixth week's journal, problem discussion	-
10	Problem discussion	Third school visit, third interview

Data analysis

Content analysis method, which allows for the generation of themes, categories, and patterns from the data itself (Marshall & Rossman, 1999; Yıldırım & Şimşek, 2008), was used to analyse the qualitative data. Video recorded and audio recorded data, which were later transcribed, and written data were read many times for coding. Content analysis revealed 2 themes, 5 categories, and 21 codes. The analysed data was then levelled as technical, contextual, or dialectical according to the rubric of reflective thinking levels (Taggart & Wilson, 1998). Any comment focused on a specific teaching action was bound at one of the levels of reflective thinking. After determining reflective thinking levels, the frequencies of the codes were counted.

Table 2: Themes and categories of reflective thinking

Theme 1: Designing the teaching process	
Categories	Codes
Planning	Expediency to educational attainment
	Considering the developmental levels of the students
	Regarding the students with special needs
	Considering socio-cultural environment of the school
	Considering the resources of the school
	Using materials
	Time management
Interaction with the students	Regarding the needs and interests of the students
	Motivation
	Appeal to the students
	Information
	Feedback
Principles	Creating a positive atmosphere
	Providing active participation
	Affiliation with real life
	Providing an active life style
Theme 2: Qualities of the reflective thinker	
Categories	Codes
Approaches	Constructive
	Interdisciplinary
	Cooperative
Critical point of view	Self-evaluation
	Critical to the system

Results

Frequencies of codes based on the categories are displayed in Table 3 which shows the participants referred to the code, "Considering the socio-cultural environment of the school," 38 times. They also mostly mentioned "Using materials and time management".

> It caught my attention that girls and boys never come together even when they are playing (P3, Interview 1, Technical level).

> Firstly, I stood between them and held their hands separately, and then I left to give some feedback to another student in order to make them hold each other's hands. Even if they covered their hands with [their] sleeves, they started to hold [each other's] hands. But it's hard to solve that because they learned this habit from their families. If I can't, at the end, I'll talk to their parents (P3, Journal 4, Dialectical level).

Table 3: Frequency of the codes about planning

Planning	
Codes	Frequency
Expediency to educational attainment	16
Considering the developmental levels of the students	38
Regarding the students with special needs	7
Considering the socio-cultural environment of the school	13
Considering the resources of the school	16
Time management	21
Using materials	23

'Motivation' had the highest frequency (39) in the category of interaction with the students.

> I didn't give any detailed instructions about the lesson to motivate them. I know I should have (P7, Journal 1, Technical level).

> For me, it is important to make students know why he/she is doing what he/she is doing in the class. They warm up but why? Is this necessary for them? In the beginning of the lesson I informed them about the effects of warm-up. Now they think that warm-up enables them to jump higher, run faster and also prevents injuries. I must say they are more eager during warm-up (P7, Interview 2, Contextual level).

Table 4: Frequency of the codes about interaction with the students

Interaction with the students	
Codes	Frequency
Regarding the needs and interests of the students	28
Appeal to the students	29
Motivation	39
Information	21
Feedback	24

As can be seen in Table 5, the most cited code was 'Creating a positive atmosphere.' The participants referred to 'Affiliation with real life' 25 times.

> I followed the plan, but I could have made the lesson more entertaining by adapting drills [appropriate] for their age (P5, Interview 1, Technical level).

I just add some music and colourful materials. I am more than happy when they enjoy the lesson. They said, 'We wanna play more, teach more'. I [will] never forget that (P5, Journal 5, Contextual level).

Table 5: Frequency of the codes about principles

Principles	
Codes	Frequency
Creating a positive atmosphere	43
Providing an active life style	18
Providing active participation	18
Affiliation with real life	25

'Constructive' had the highest frequency of occurrence (39) in the category of approaches. The participants cited the codes 'interdisciplinary' 13 times and 'cooperative' 11 times.

You know students, they like competing… They are happy when they win (P10, Journal 2, Technical level).

I made groups of 4-5 students. Each group created a game, presented it to their friends, played together, then responded to questions, and received recommendations. I love it when they interact and share (P10, Interview 3, Dialectical level).

Table 6: Frequency of the codes about approaches

Approaches	
Codes	Frequency
Constructive	24
Interdisciplinary	13
Cooperative	11

'Self-evaluation' had the highest frequency (29) in the category of critical point of view and the code 'related to the system' was cited 16 times.

This course (teaching practice) is definitely important (P6, Interview 1, Technical level).

We should be given the opportunity to teach at different schools. During one semester, I only teach at one school. I teach only on Mondays, so [I have the] same classes, same students, same teacher. We should be assigned to teach at different schools. Thus I can learn by teaching at different socio-cultural environments with different students. I can observe different guiding PE teachers. I'll talk to the dean; I hope I can [get him interested] (P6, Journal 6, Dialectical level).

Table 7: Frequency of the codes about a critical point of view

Critical point of view	
Codes	Frequency
Self-evaluation	29
Critical to the system	16

Discussion

In the beginning of the reflective thinking framework, participants were observed to be focused largely on technical aspects, such as planning, time management, and class activities. The results, obtained by the beginning of the framework, had similarities to Savran's (2008) research carried out with preservice biology teachers. In addition, Ekiz (2006) found preservice primary school teachers referred to technical aspects such as planning, class management, time management, and applications. In his research about preservice mathematics teachers, Kaminski (2003) suggest that most of the preservice teachers reflect at the technical level and they are generally interested in the technical dimension of teaching. In research conducted with physical education teachers, a considerable number of participants reflected at the technical level and it was observed that they mostly considered subjects such as class management to be important in creating a learning-teaching atmosphere and for students' behaviors (McCollum, 1997).

In further stages of the reflective thinking framework, it was observed that participants reflected at the contextual and dialectical levels. The results showed that preservice physical education teachers experienced a process in which their reflective thinking improved through practice. Gaining experience has a great significance for the development of reflective thinking. Taggart and Wilson (1998) state that teachers' lack of sufficient experience is generally reflected at the technical level.

Participants at the contextual level designed their methods and plans by taking into consideration students' characteristics, skill levels, and will. Graham, Holt and Parker (2001) claim that reflective teachers vary their methodology according to ability, characteristics of students, purpose of the lesson, and they modify their activities according to the available equipment, facilities, and classroom size. It was seen that participants made their plans at the dialectical level by considering the interests, needs, and characteristics of their students, giving importance to moral issues, and also focusing on the socio-cultural level and socio-economic subjects that affect the educational atmosphere.

Regarding the problematic conditions, some participants focused on socio-cultural and socio-economic structures and practiced alternative ways for these conditions; they seemed to be able to reflect at the highest level. Another finding indicated that the study group reflected at the dialectical level. They not only focused on physical elements, but also moral values. Valli (1990) states that effective teaching depends on taking moral responsibility and not on having technical skills. Calderhead and Gates (1993) provide an

overview of the moral values that teacher training programs should include. In addition, Burgess (1999) stresses that one of the purposes of reflective teacher education programs is to train teachers with principles of moral subjects. In this context, it can be said that participants showed the moral responsibility required in the teaching profession, by using examples from both daily life and sports.

Results appeared to show that participants improved their reflective thinking. This case indicates that practicing reflective thinking contributed to the development of reflective thinking skills. Ballard (2006) states that journals and interviews used in reflection contribute to the development of the preservice physical education teachers' reflective thinking. Tsangaridou and O'Sullivan (1997) suggest that physical education teachers could be more analytical and reflective through studies such as micro teaching, school observations, and specially prepared questions that improve reflective thinking. In another study, reflective strategies such as video analysis and writing blogs contributed to physical education teachers' professional development (Crawford, O'Reilly & Lutrell, 2011).

Similar results were obtained in many studies on reflective thinking in fields other than physical education and sports. According to the results revealed in Erginel's (2006) research among preservice English teachers, journals and reflective interaction between preservice teachers were effective in reflective development. She claims that reflective thinking is a natural process. Köksal (2006) stresses that the reflective thinking training program that was implemented improved preservice teachers' reflections relating to their teaching and assessments, and that it made positive contributions to preservice teachers' professional lives. Savran (2008) states that preservice biology teachers made improvements in their reflective thinking skills and consultant services positively contributed to their reflections on their experiences. Lee (2005) emphasises that preservice teachers' reflective thinking levels eventually change. Changes occur in knowledge of the context of practice or the environment (Knowles & Saxton, 2010). These findings appeared to demonstrate that reflective thinking is a skill that can be acquired and developed (Cropley & Hanton, 2011; Knowles et al., 2001) and the knowledge obtained from reflective thinking contributes to teachers' professional development.

Participants' views appeared to show that using reflective thinking strategies helped them learn from their experiences. Loughran (2002) states that, for the sustainability of meaningful reflections, experience cannot help with learning rather reflection on experience is crucial. Knowles et al. (2014) emphasise that reflection transforms experience into learning.

In later stages of this research, participants reflected critically on both their practices and the incidents that happened in their environment. They examined their methods, behaviors, and approaches through reflections on their practices. The findings obtained from the study confirmed the findings of Tsangaridou and O'Sullivan (1994) and McCallum (1997). In both studies, Tsangaridou and O'Sullivan's reflective framework for teaching in physical education (REFTPE) was used. Reflective thinking strategies such as peer assessment, reflective journals and video analysis contributed to the professional

development of preservice physical education teachers and helped them make a reflective analysis of their teaching.

The results showed that participants developed their critical point of view and they were open to cooperating with other participants and researchers during reflective thinking practices; and they appeared to have the three qualifications (broad-mindedness, responsibility, whole-heartedness) identified by Dewey (1998) about reflective thinking. Participants' self-assessment about their practices, then becoming open to criticism and the knowledge acquired from others, are important for their professional development. They appeared to make efforts to make up for their shortcomings in their teaching practice, thereby making professional improvement. Various disciplines develop various solutions to given subjects, and this case supports the concept that an individual can improve through the problems that he or she may face. The National Association for Physical Education and Sports (NASPE) (2009) stresses that physical education teachers should support positive social interaction and pay attention to their students' learning.

Another finding obtained in this study is that participants made an effort to motivate their students to interact through strategies such as asking questions, informing, and giving feedback. They were also observed to guide their students to explore new information and to make them active by giving various tasks. In this context, it can be stated that participants designed their practices based on the constructive approach. The qualification of the participants matches the definition of a constructivist teacher being one who "offers opportunity for the students to explore new knowledge" (Taggart & Wilson, 1998). Akay (2005) emphasises that students learn through their practices. It may be inferred that participants in this research prepared environments for the students in which they could learn on their own. In these environments, the preservice teachers would help students learn by keeping them active, practicing, and having new experiences. It is remarkable that the participants, though not included in the assessment process of the students, demonstrated awareness of the subjects about assessments that match the constructive approach. Because reflective thinking does not refer to the present; the possible future teaching activities of the preservice teachers helps them understand the social and political context surrounding the school (Cruickshank, 1985).

Implications, limitations and recommendations

This study might be considered significant for physical education teacher education – many researchers have emphasised the importance of reflective thinking in teacher education programs – as it helps to facilitate preservice teachers' professional development. However, there are some limitations to this study, among them, the limited research period. Future researchers might design a longitudinal study, observing preservice teachers starting with their teacher education programs and following them through their teaching careers. Herewith, a deeper understanding of the process of changes in their reflections and factors that influence that process can be examined. This study was conducted at only one teacher education program; future research may study preservice teachers from different programs located in different cities to gain a complete picture. In

order to examine cultural factors, teacher education programs from different countries might be included as well.

Acknowledgment

References

Akay, C. (2005). *Ortaöğretim İngilizce dersinde okuma ve yazma becerilerinin kazandırılmasında oluşturmacılık temelli sosyal etkileşim modelinin öğrenciler üzerindeki etkilerinin incelenmesi.* [Examining effects of the social interaction model based on constructivism on students' acquisition of writing and reading skills in English]. Masters thesis, Zonguldak Karaelmas University. http://sbe.karaelmas.edu.tr/mezunlarimiz.asp?isl=tez&no=44

Ballard, K. K. (2006). *Using Van Manen's model to assess levels of reflectivity among preservice physical education teachers.* Doctoral dissertation, Texas A&M University. http://hdl.handle.net/1969.1/4373

Burgess, J. M. C. (1999). *Reflections of student teachers: Comparisons among five models of reflective thought.* Unpublished Doctoral Dissertation, University of North Carolina.

Calderhead, J. & Gates, P. (1993). Introduction. In J. Calterhead & P. Gates (Eds), *Conceptualizing reflection in teacher development.* (2-3). London: The Falmer Press.

Campbell-Jones, B. & Campbell-Jones, F. (2002). Educating African-American children: Credibility at a crossroads. *Educational Horizons, 80*(3), 133-139. http://www.jstor.org/stable/42927113

Collier, S. T. (1999). Characteristics of reflective thought during the student teaching experience. *Journal of Teacher Education, 50*(3)173-181. http://dx.doi.org/10.1177/002248719905000303

Colton, A. B. & Sparks-Langer, G. M. (1993). A conceptual framework to guide the development of teacher reflection and decision making. *Journal of Teacher Education, 44*(1) 45-54. http://dx.doi.org/10.1177/0022487193044001007

Connelly, F. M. & Clandinin, D. J. (1990). Stories of experience and narrative inquiry. *Educational Researcher, 19*(5), 2-14. http://dx.doi.org/10.3102/0013189X019005002

Cresswell, J. W. (1994). *Research design: Qualitative and quantitative approaches.* Thousand Oaks, CA: SAGE.

Cresswell, J. W. (1997). *Qualitative inquiry and research design: Choosing among five approaches.* Thousand Oaks, CA: SAGE.

Cropley, B. & Hanton, S. (2011). The role of reflective practice in applied sport psychology: Contemporary issues for professional practice. In S. Hanton & S. D. Mellalieu (Eds), *Professional practice in sport psychology: A review* (pp.307-336). London: Routledge.

Crawford, S., O'Reilly, R. & Luttrell, S. (2011). Assessing the effects of integrating the reflective framework for teaching in physical education (RFTPE) on the teaching and learning of undergraduate sport studies and physical education students. *Reflective Practice,* 13(1), 115-129. http://dx.doi.org/10.1080/14623943.2011.626025

Cruickshank, D. R. (1985). Uses and benefits of reflective teaching. *Phi Delta Kappan, 66*(10), 704-706. http://www.jstor.org/stable/20387492

Cunningham, A. & Benedetto, S. (2006). Using digital video tools to promote reflective practice. http://www.aace.org/conf/site/pt3/paper_3008_619.pdf

Dewey, J. (1998). *How we think?* Boston, MA: Houghton Mifflin (First Published in 1910).

Dewey, J. (2001). *Democracy and education.* Pennsylvania: A Penn State Electronic Classics Series Publication (First Published in 1916). http://www.naturalthinker.net/trl/texts/Dewey,John/Dewey,_John_-_Democracy_And_Education.pdf

Ekiz, D. (2006). Self-observation and peer-observation: Reflective diaries of primary student-teachers. *Elementary Education Online, 5*(1), 45-57. http://ilkogretim-online.org.tr/vol5say1/v5s1m5.PDF

Erginel, S. Ş. (2006). *Developing reflective teachers: A study on perception and improvement of reflection in preservice teacher education.*Unpublished Doctoral Dissertation, Middle East Technical University. https://etd.lib.metu.edu.tr/upload/12607298/index.pdf

Ferrance, E. (2000). *Action research.* New York: LAB Brown University. http://www.brown.edu/academics/education-alliance/sites/brown.edu.academics.education-alliance/files/publications/act_research.pdf

Gelter, H. (2003). Why is reflective thinking uncommon. *Reflective Practice,* 4(3), 337-344. http://dx.doi.org/10.1080/1462394032000112237

Graham, G., Holt, S. A. & Parker, M. (2001). *Children moving: A reflective approach to teaching physical education.* California: Mayfield Publishing Company.

Hatton, N. (1996). Changing initial teacher education: Limitations to innovation in the United States, Australia and the United Kingdom. *Australian Journal of Teacher Education,* 21(2), 49-61. http://dx.doi.org/10.14221/ajte.1996v21n2.5

Hinton, P. R. (2004). *Statistics explained.* London: Routledge.

Huang, H. (2001). Professional development through reflection: A study of preservice teachers' reflective practice. *International Electronic Journal for Leadership in Learning,* 5(6). http://iejll.synergiesprairies.ca/iejll/index.php/ijll/article/view/499

Jay, J. K. & Johnson, K. L. (2002). Capturing complexity: A typology of reflective practice for teacher education. *Teaching and Teacher Education*, 18(1), 73-85. http://dx.doi.org/10.1016/S0742-051X(01)00051-8

Kaminski, E. (2003). Promoting preservice teacher education students' reflective practice in mathematics. *Asia-Pacific Journal of Teacher Education,* 31(1), 21-32. http://dx.doi.org/10.1080/13598660301619

Knowles, Z. & Saxton, J. (2010). Needs analysis and reflective practice: Two important components of case studies. *Sport and Exercise Scientist, 25,* 23. http://connection.ebscohost.com/c/articles/52980755/needs-analysis-reflective-practice-two-important-components-case-studies

Knowles, Z., Gilbourne, D., Cropley, B. & Dugdill, L. (2014). Reflecting on reflection and journeys. In Z. Knowles, D. Gilbourne, B. Cropley & L. Dugdill (Eds), *Reflective practice in the sport and exercise sciences.* (3-14). New York: Routledge.

Knowles, Z., Gilbourne, D., Borrie, A. & Nevill, A. (2001). Developing the reflective sports coach: A study exploring the processes of reflection within a higher education coaching programme. *Reflective Practice, 2*(2)*,* 185-207. http://dx.doi.org/10.1080/14623940123820

Korthagen, F. (2001). *Linking practice and theory: The pedagogy of realistic teacher education.* New Jersey: Routledge.

Köksal, N. (2006). *Yansıtıcı düşünmenin öğretmen adaylarının öğretmenlik uygulamalarına katkıları.* [The contributions of reflective thinking to preservice teachers' teaching practice] Unpublished Doctoral Dissertation, Hacettepe University. http://www.efdergi.hacettepe.edu.tr/200834NECLA%20KÖKSAL.pdf

Lee, H.-J. (2005). Understanding and assessing preservice teachers' reflective thinking. *Teaching and Teacher Education, 21*, 699-715. http://dx.doi.org/10.1016/j.tate.2005.05.007

Leech, N. L. & Onwuegbuzie, A. J. (2010). Guidelines for conducting and reporting mixed research in the field of counseling and beyond. *Journal of Counseling & Development, 88*(1), 61-69. http://dx.doi.org/10.1002/j.1556-6678.2010.tb00151.x

Levin, B. B. & Camp, J. S. (2002). Reflection as the foundation for e-portfolios. Proceedings Society for Information Technology & Teacher Education International Conference. http://www.aace.org/conf/site/pt3/paper_3008_455.pdf

Loughran, J. J. (2002). Effective reflective practice in search of meaning in learning about teaching. *Journal of Teacher Education, 53*(1), 33-43. http://dx.doi.org/10.1177/0022487102053001004

Marshall, C. & Rossman, G. B. (1999). *Designing qualitative research.* Thousand Oaks, CA: SAGE.

McCollum, S. (1997). *Insights into the process of guiding reflection during an early field experience of preservice teachers.* Unpublished Doctoral Dissertation, Virginia Polytechnic and State University. http://scholar.lib.vt.edu/theses/available/etd-302283039731191/

Merriam, S. B. (1998). *Qualitative research and case study applications in education: Revised and expanded from case study research in education.* San Francisco: Jossey-Bass Publishers.

Miles, M. B. & Huberman, A. M. (1994). *Qualitative data analysis.* Thousand Oaks, CA: SAGE.

NASPE (2009). *National standards for beginning physical education teachers.* National Association for Sport and Physical Education.

Pollard, A. (2002). *Readings for reflective teaching.* New York: Continuum Books.

Pollard, A. & Tann, S. (1995). *Reflective teaching in the primary school.* London: Redwood Books.

Posnanski, T. J. (2002). Professional development programs for elementary science teachers: An analysis of teacher self-efficacy beliefs and a professional development model. *Journal of Science Teacher Education, 13*(2), 189-220. http://dx.doi.org/10.1023/A:1016517100186

Posner, G.J. (2005). *Field experience: A guide to reflective teaching.* White Plains, NY: Longman.

Reid, A. & O'Donoghue, M. (2004). Revisiting enquiry-based teacher education in neo-liberal times. *Teaching and Teacher Education, 20*(6), 559-570. http://dx.doi.org/10.1016/j.tate.2004.06.002

Rodgers, C. (2002). Defining reflection: Another look at John Dewey and reflective thinking. *Teachers College Record,* 104(4) 842-866. http://www.tcrecord.org/content.asp?contentid=10890

Rudney, G. L. & Guillaume, A. M. (1990). Reflective teaching for student teachers. *The Teacher Educator,* 25(3), 13-20. http://dx.doi.org/10.1080/08878738909554961

Savran, A. G. (2008). *Professional development of preservice biology teachers through reflective thinking.* Unpublished Doctoral Dissertation, Middle East University.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action.* USA: Basic Books.

Scott, D. & Morrison, M. (2005). *Key ideas in educational research.* Great Britain: Continuum Books.

Sparks-Langer, G. M., Simmons, J. M., Pasch, M., Colton, A. & Starko, A. (1990). Reflective pedagogical thinking: How can we promote it and measure it? *Journal of Teacher Education,* 41(4), 23-32. http://dx.doi.org/10.1177/002248719004100504

Taggart, G. L. (1996). *Reflective thinking: A guide for training preservice and inservice practitioners.* Unpublished Doctoral Dissertation, Kansas State University.

Taggart, G. L.& Wilson, A. P. (1998). *Promoting reflective thinking in teachers: 44 action strategies.* California: Corwin Press.

Tang, C. (2002). Reflective diaries as a means of facilitating and assessing reflection. (retrieved on 15 July 2009) http://www.tcd.ie/Nursing_Midwifery/ assets/director-staff-edu dev/pdf/ReflectiveDiaries-CatherineTang.pdf

Tok, Ş. (2008). Fen bilgisi dersinde yansıtıcı düşünme etkinliklerinin öğrencilerin akademik başarılarına ve fen bilgisi dersine yönelik tutumlarına etkisi. [The effects of reflective thinking activities in science course on academic achievements and attitudes toward science] *İlköğretim Online,* 7(3) 557-568. http://dergipark.ulakbim.gov.tr/ilkonline/article/view/5000038215/5000037072

Tsangaridou, N. & O'Sullivan, M. (1995). Using pedagogical reflective strategies to enhance reflection among preservice physical education teachers. *Journal of Teaching in Physical Education,* 14(1) 13-33. http://journals.humankinetics.com/jtpe-back-issues/jtpevolume14issue1october/usingpedagogicalreflectivestrategiestoenhancereflectionamongpreservicephysicaleducationteachers

Tsangaridou, N. & O'Sullivan, M. (1997). The role of reflection in shaping physical education teachers' educational values and practices. *Journal of Teaching in Physical Education,* 17(1), 2-25. http://journals.humankinetics.com/jtpe-back-issues/JTPEVolume17Issue1October/TheRoleofReflectioninShapingPhysicalEducationTeachersEducationalValuesandPractices

Trumbull, D. & Slack, M. J. (1991). Learning to ask, listen, and analyze: Using structured interviewing assignments to develop reflection in preservice science teachers. *International Journal of Science Education,* 13(2), 129-142. http://dx.doi.org/10.1080/0950069910130201

Valli, L. (1990). Teaching as moral reflection: Thoughts on the liberal preperation of teachers. In *Proceedings of the National Forum of the Association of Liberal Arts Colleges for Teacher Education.* http://www.eric.ed.gov/PDFS/ED344853.pdf

Valli, L. (1997). Listening to other voices: A description of teacher reflection in the United States. *Peabody Journal of Education,* 72(1), 67-88. http://dx.doi.org/10.1207/s15327930pje7201_4

Van Manen, M. (1977). Linking ways of knowing with ways of being practical. *Curriculum Inquiry,* 6(3), 205-228. http://dx.doi.org/10.1080/03626784.1977.11075533

Wallace, M. (2001). *Training foreign language teachers: A reflective approach.* Cambridge: Cambridge University Press.

Wenzlaff, T. (1994). Training the student to be a reflective practitioner. *Education,* 115(2), 278-288. http://connection.ebscohost.com/c/articles/9502235044/training-student-be-reflective-practitioner

Wilson J. & Wing Jan, L. (1993). *Thinking for themselves: Developing strategies for reflective learning.* Australia: Eleanor Curtain Publishing.

Yang, S. H. (2009). Using blogs to enhance critical reflection and community of practice. *Educational Technology and Society,* 12(2), 11-21. http://www.ifets.info/journals/12_2/2.pdf

Yaman, F. (2008). *İlköğretim altıncı sınıf öğrencilerine madde ve ısı konusunda fen ve teknoloji dersi hedeflerinin kazandırılmasında işbirlikli öğrenme kuramının etkisi.* Unpublished Masters thesis, Gazi University.

Yıldırım, A. & Şimşek, H. (2008). *Sosyal bilimlerde nitel araştırma yöntemleri.* Ankara: Seçkin Yayıncılık.

Zeichner, K. M. (1983). Alternative paradigms of teacher education. *Journal of Teacher Education,* 34(3), 3-9. http://dx.doi.org/10.1177/002248718303400302

Zeichner, K. M. & Liston, D. (1985). Varieties of discourse in supervisory conferences. *Teaching and Teacher Education,* 1(2), 155-174. http://dx.doi.org/10.1016/0742-051X(85)90013-7

Zeichner, K. M. & Liston, D. P. (1987). Teaching student teachers to reflect. *Harvard Educational Review,* 57(1), 23-49. http://dx.doi.org/10.17763/haer.57.1.j18v7162275t1w3w

Dr Fatih Dervent is a member of faculty at Marmara University, School of Physical Education and Sport in Istanbul. He teaches classes in physical education teacher education. His primary research interest is in content knowledge and reflective thinking in physical education. He is a co-investigator in the *Learning to Teach Physical Education* research program at the Ohio State University.
Email: fatih.dervent@marmara.edu.tr