

Reflections of Prospective Teachers Regarding Case-Based Learning

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Abstract

The growing interest toward case-based learning for teacher education can be attributed to the inherent potential of cases in terms of providing prospective teachers with opportunities to engage in analyzing and solving realistic teaching cases and to apply what they learned in classes to solve these practical teaching issues. The objective of this research is to determine the perceptions of prospective teachers toward case-based learning in a teaching methods course. Participants of the current study were 38 prospective teachers (17 males and 21 females) attending the third year of a computer education and instructional technology department in Turkey. In the present study, qualitative research methods were utilized to explore prospective teachers' perceptions regarding case based learning. Semi-structured interviews were conducted with participating teacher candidates and to analyze and interpret the data content analysis and concordance method were exploited. The results suggest that in general the cases provided a valued opportunity to engage developing teachers in solving real life problems that tend to occur in actual teaching. The other evidences emerged from the study suggest that cases can help prospective teachers be prepared for their early teaching experiences in real classrooms by improving their understandings of how to respond to actual problems they will encounter in their fields and how to apply what they learned in classes to solve practical teaching issues. Suggestions were made for further research.

Keywords: *Case-based learning; teacher education; problem solving; qualitative analysis.*

Introduction

Professional pedagogical literature records the use of cases in various domains of education such as law, business, medicine, and education (Merseth, 1996; Sykes & Bird, 1992). Case-based learning (CBL), which can be rooted from storytelling to share history, teach morals and illuminate concepts, is the modern way of using narratives developed to provide authentic learning for students. Shulman (1992) states that, "a case has a narrative, a story, a set of events that unfolds over time in a particular place" (p. 21). CBL is deemed to provide opportunities for richer, profound exploration of

concepts and ideas through which learners obtain experience with analyzing ideas and solving problems rather than acquiring abstract knowledge. Blackmon, Hong and Choi (2007) describes the CBL as the catalyst for class discussions and lectures as it is carefully implemented by the teachers and enthusiastically engaged by the students. In CBL environments learners are expected to sort out factual data, apply analytic tools, articulate issues, reflect on their relevant experiences, and draw conclusions (Boehrer & Linsky, 1990). The literature proposes case-based learning as an alternative pedagogy in teacher education and highlights its potential to enhance prospective teachers' higher-order thinking skills and profound comprehension of educational cases (Choi & Lee, 2009; Kim & Hannafin, 2009; Quek, 2010; Wang, 2002; Youngs & Bird, 2010).

Case-based Methods in Teacher Education

Cases and case methods have been used in teacher education for more than thirty years. A relatively common definition of a case is that a case is the context for the representation of knowledge and experience embedded in the description of a real (teaching/learning) situation (Kagan, 1993; Shulman, 1986a, 1986b). Several researchers have suggested that cases representing the simulations of a variety of classroom conditions be included as part of teacher education curriculum in order for prospective teachers to be better prepared for their future profession (Choi & Lee, 2009; Harrington, 1995; Merseth, 1996; Shulman, 1992; Sykes & Bird, 1992). Having prospective teachers interact with real-life classroom cases has been argued to be a powerful method to allow experimentation and practice in making teaching decisions and to help students come to better understand the values, intentions, and actions of inservice teachers in a real classroom context (Baeten, Dochy, & Struyven, 2012; Bowers & Doerr, 2003; Harrington, 1995; Kim & Hannafin, 2009; Merseth, 1996; Schrader et al., 2003; Sykes & Bird, 1992).

There is an extensive body of research in which case methods have been used to study prospective teachers' learning and skill development. The presentation format of the cases varies among the studies involving text, video, and audio formats. In addition, the method of case use differs across the studies. Some studies used written or video cases as instructional tools or resources to help preservice teachers solve a problem or make a decision about a teaching/learning situation (e.g., Bruning et al., 2008; Cherubini, 2009; Choi & Lee, 2009; Doebler, Roberson, & Ponder, 1998; Harrington, 1995; Koç, 2011; Santagata & Angelici, 2010). Other studies utilized cases as exemplars to present and demonstrate how theories and principles are applied in practice (e.g., Hughes, Packard, Pearson, 1999, Kim & Hannafin, 2009). The results of these and other studies have demonstrated that cases can facilitate and improve preservice teachers' (a) ability to apply theoretical knowledge to practical teaching situations (Baeten et al., 2012). Boling, 2007; Bruning et al., 2008; Kinzer et al., 2001; Kim & Hannafin, 2009; Koç, 2011; Koç, Peker, & Osmanoglu, 2009; Mayo, 2004; Moreno & Valdez, 2007), (b) awareness of multiple perspectives and solution alternatives in analyzing a realistic classroom situation (Choi & Lee, 2009; Doebler et al., 1998; Edwards & Hammer, 2006; Harrington, 1995; Hughes et al., 1999; Koç, 2011; Lundeberg & Levin, 2003, Santagata & Angelici, 2010; Youngs & Bird, 2010), and (c) sense of self-confidence as professionals (Edmunds, 2007; Ertmer, Conclin, & Lewandowski, 2001). As an instance from the relevant literature, Kim and Hannafin (2009) exemplify how computer supported case-based learning supported prospective teachers in understanding and gaining experts' knowledge. Generally, prospective teachers reported that the activities are useful and expressed willingness and confidence to use them in the future. They also found the cases and templates useful for them to gain a more concrete idea about the teaching contexts, teachers' role, student characteristics, and educational strategies.

In regard to student perceptions, research showed that prospective teachers perceived cases as an important motivating factor for their learning (Lundeberg, Levin & Harrington, 1999; Koç, 2011) and that they found cases helpful in terms of increasing their awareness of potential issues and teaching strategies that they will likely encounter in their professional lives (Edwards & Hammer, 2006; Joseph, 2002, 2004; Koç, 2011; Lee & Choi, 2008; Moreno & Valdez, 2007; Schrader et al. 2003). To illustrate, in a recent study by Koç (2011), preservice teachers, in small groups, were asked to identify a classroom management issue, create a small video case in which each group member played a role, analyze the case in light of classroom management theories they learned in the course, write a case analysis report, present their analysis to the class, and write an individual reflection paper describing their experiences of the video project. In their reflection papers, students reported that the video project as an authentic learning experience increased their motivation and interest to the course, enhanced their understanding of course content, increased their confidence in their ability to teach, and helped them develop their professional identity as a teacher. Similarly, in an early childhood education class, Lee and Choi (2008) investigated the impact of web-based case instruction on 23 students' understanding of real-life classroom management. Results from an evaluation questionnaire and a focus group indicated that students found the web-based case instruction valuable because it provided an experience in real-life problem solving on classroom management, encouraged understanding of multiple thinking about multiple solution ideas, and making reasoned decisions.

Research on case-based method has focused on the impact of this approach on students' learning outcomes. Students' perceptions of the effectiveness of learning environments influence how they engage in tasks in such environments. Accordingly, as Prosser and Trigwell (1999) pointed out, understanding students' perceptions of a learning environment is essential to better interpret their learning outcomes. We, therefore, aimed at examining the extent to which students' perceptions of case-based method are in accord with our intention that the method is beneficial in improving students' conceptual understanding and effective application of teaching methods in problematic classroom situations. As part of the study, a group of prospective teachers engaged in solving realistic teaching cases that portray problematic situations about inservice teachers' use of teaching methods in real classroom environments. Based on this purpose, the following research questions were directed:

1. What are prospective teachers' perceptions toward the overall effect of case-based learning?
2. What are prospective teachers' views on the effect of case-based learning on their problem solving skills?
3. What are prospective teachers' opinions on the role of case-based learning on improving their understandings toward teaching methods?

Methods

Research Design

In the present study, qualitative research methods were utilized to explore prospective teachers' perceptions regarding CBL. Semi-structured interviews were conducted with participating teacher candidates and to analyze and interpret the data content analysis and concordance method were exploited. The data for the study were collected in February-May 2012.

Implementation

Throughout the process, prospective teachers worked individually to analyze and solve cases related to teaching methods issues such as selecting the most appropriate method or methods for the children with learning and motivation problems. The cases used in instruction consisted of three cases involving typical teaching methods issues selected or adapted from instructional materials designed for preservice teacher training. Each case was examined by three faculty experienced in teaching methods. In the first week, task process including case based learning activities was introduced to prospective teachers and the duration allocated to finish the assignments for each case was determined as three weeks.

During the ten-week intervention that took place between March 19th and May 25th, prospective teachers studied on the cases adorned with instructional tasks such as deciding on the most appropriate method/s for the pupils with learning and motivation problems. Prospective teachers were asked to review and analyze each case, generate alternative solutions to the problem, evaluate the alternatives, come up with decisions, and generate an explanation justifying their decision/s.

Cases

In the first case, a nine-year experienced computer education teacher, who generally exploits drill and practice and lecturing, seeks for solutions to enhance active participation into the course. He then tries to implement discussion, brainstorming, and group work but encounters with class controlling problems. The second case focuses on a computer education environment with restricted technological facilities. The goal of the teacher is to utilize constructivist teaching philosophy and encourages her students to collaboratively work on the tasks and do out-of-class research. She provides the students some online information and communication platforms in order to sustain the interaction among the students. However, there have been some problems with organizing the groups and some students get lost in Internet and navigate through other sites which are not related to the course goals. The teacher feels as her attempts failed. The last case elaborates on a made up learning environment in which a seven year experienced computer education teachers fails in determining the correct method for assessment of learners` performances. The theme of the course is organizing and grouping electronic files according to their extensions. The case tries to make prospective teachers pay attention to the mismatch of the in-class activity and selected assessment method. All of the case solutions are evaluated within the perspective of the questions below:

1. Did the prospective teachers clearly indicate the problem provided in the cases and did they define the strong and weak aspects of the problem situation?
2. Are the proposed solutions of the prospective teachers adequate for realistically solving the given problem?
3. Are the proposed solutions of the prospective teachers feasible and compatible to the targeted teaching method?
4. Did the prospective students cite any resources while proposing solutions to the problems?
5. Is there any rationale for the proposed solutions?

6. What are the strong and weak aspects of the proposed solutions?
7. What would be the potential benefits and pitfalls if the proposed solutions were implemented into the problem situation?

Participants

Participants of the current study were 38 prospective teachers (17 males and 21 females) attending the third year of a computer education and instructional technology department in Turkey. Age of the participants ranged from 20 to 23 years. They were enrolled in the third grade Teaching Methods II course in spring 2012.

Data Collection Instruments

Semi-structured interview forms developed by the researchers were used to collect the data of the study. Experts' opinions were received for the validation of the instrument. Considering these opinions, the final version was prepared after necessary corrections and rewording. The final version of the interview form consists of four questions as two main and two sub questions. The questions in the form inquire on the participants' opinions about the significance of case-based learning in the process of learning teaching methods.

Data Collection and Analysis

This qualitative study followed the content analysis approach to elaborate on the interview data and participants' solutions to the cases. Content analysis is considered as an appropriate way for analyses of themes in which no theoretical aspect is available in qualitative research (Yildirim & Şimşek, 2006). Before the interviews, consent forms for their volunteer participation were signed. Gathered data were analyzed through determining the themes and relating the data with those themes. In this regard, perceptions of prospective teachers regarding their experiences on case-based learning were explored.

The findings obtained via the examination of the interviews were presented as frequency distributions. Then, the prospective teachers' views were interpreted. To maintain the reliability of the study, following the application, the interview-coding keys and the interview transcriptions were read by three independent researchers, who discussed the subjects they "agreed" and "disagreed" on. Necessary adjustments were made accordingly. For the purpose of calculating the reliability of the study, the reliability formula suggested by Miles and Huberman (1994, p. 64) was used, which revealed a reliability value of 98 percent.

Findings

While direct quotations were used regarding the prospective teachers' views, the participants' names were kept secret and coded. For the direct quotations from the participants within the framework of the main theme determined, the prospective teachers were coded as Sn. In line with the research

questions and findings obtained on the interviews held with the students in the process of the collection of the research data, themes were determined and presented.

The prospective teachers' perceptions toward the overall effect of case based learning

The most crystallized theme occurred as the impact of the case-based learning activities on the participants' understandings toward the concept of teaching and teacher roles. All the prospective teachers interviewed in the study agreed that case studies helped them to gain a teaching sense from various aspects. The findings explaining the participants' perceptions on their case-based learning experience as would-be teachers are presented in Table 1.

Table 1. Prospective Teachers' Perceptions toward the Role of Case-Based Learning Activities on their Instructional Improvement

Themes	f
Learning/experiencing to think as a real teacher/teacher thinking	17
Conceptions about teaching profession	13
Required teaching skill	9
Linking theory to practice	8

Regarding the first sub-theme of "*learning/experiencing to think as a real teacher/teacher thinking*", most of the participant teachers agreed that case studies helped them to enhance an empathy with the teachers in the cases. Besides, they have also expressed the joy of thinking as an active teacher. To exemplify, S₁ stated that:

"What made me very happy and excited about the cases was to think as a real teacher. Cases provided us to involve in an atmosphere of being a teacher and gave me the chance to observe myself as a teacher. I put myself into the teacher's position in the cases and thought what would I do if I had such a problem in my class" (S3).

"I loved the way each case handle very different situations and contexts. I have never felt myself as such close to my occupation before, though I have attending this department for these years. I had the chance to observe relations between the theoretical and practical knowledge" (S5).

With respect to the second theme focusing on participants' views related to teaching profession, S₁ and S₅ pointed out that;

"I didn't know teaching could be such complicated before studying with cases. I used to consider teaching as a very easy job. I can determine teaching mistakes easier now" (S1).

"Cases changed my opinions on being a teacher. Cases made me to understand the need for change and dynamism in teaching" (S13).

Some of the prospective teachers also mentioned about the positive effect of case studies on their realizing of the required teaching skills to cope with challenges that may emerge in actual teaching. S₁₁ postulates that case studies envisaged them that applying teaching methods needs some skills in order to accomplish, by saying;

"I experienced what kind of competencies I should possess as a teacher in the process of implementing a method or technique" (S11).

There has been many views' underlining the effect of case-based activities on improving their understandings of teaching theory and actual teaching conditions. To exemplify;

"Cases linked my theoretical knowledge and teaching method with actual learning scenarios" (S34).

Considering the findings presented above, it can be claimed that case studies provided prospective teachers with different point of views and improved their understanding of instructional profession. One of the most frequently mentioned opinion is that CBL contributed them in realizing their own learning needs and familiarize with learner psychology from the teacher's perspective. Additionally, ideas mentioned above imply that analyzing target situation also helped them to understand the importance of classroom context, assessment and teacher competencies.

Prospective teachers' opinions on the effect of case-based learning on their problem solving skills.

The second theme emerged from the data is observed as the students' agreement on mentioning about the effect of CBL activities on improving their problem solving skills. Participants' opinions on the positive effect of case-based learning on their problem solving skills are presented in Table 2.

Table 2. The opinions of Prospective Teachers Regarding the Impact of Case-Based Learning on their Improvement in Problem Solving

Theme	f
Improving in problem solving skills	11
Improving in defining the teaching related problem(s)	8
Improving in comprehending problem situation	7
Improving in realizing problem solving steps	5
Improving in thinking in a critical way	3

The first sub-theme as *Improving in problem solving skills* can be considered as a general picture of the following sub-themes. From a broad perspective, a consensus was attained among the participants' expressions toward the role of CBL on improving their problem solving and critical thinking skills. Some of the quotations related to the issue are as follows:

"Case activities raised my consciousness toward the potential problems in a class and the ways that I can use to solve them. I tried to propose solutions by exploring the reasons of the problem" (S12).

"By means of the cases, I realized that there is not only one single solution for a specific problem. Moreover, a single method/technique (solution) may not be enough to cover all aspects of the problem" (S8).

"Cases made me drawn the implication that I cannot solve all problems by using the some formula. There are other issues to take care of .." (S17).

"Cases improved my problem solving skills toward the problems I may face in the future. I understood that I should generate alternative solution to educational problems" (S23).

In addition to the aforementioned opinions about the role of CBL on improving participants' problem solving skills, the findings indicated that the prospective teachers gained a perspective of critical thinking toward the analyzing and handling the educational problems. Correspondingly, these findings address the fact that the main traits of CBL are derived from problem based learning activities. It is apparent that the cases offer learners opportunities to practice the comprehension and elaborating on educational problems. To sum up, participants' perceptions claim that the use of case studies in the preparation of teachers is promising in terms of providing problem solving practice.

Prospective teachers' opinions on the role of case-based learning on improving their understandings toward teaching methods

A set of concrete evidence was obtained from the gathered data that participants perceived case-based activities as a favourable instrument to enhance their understandings toward the concept of teaching methods. Most of the participant teachers agreed that case studies helped them to improve in teaching methods. Some of the examples related to the issues are presented in Table 3.

Table 3. The opinions of Prospective Teachers Regarding the Impact of Case-Based Learning on their Improvement in Teaching Methods

Themes	f
Importance of methods in teaching	15
Contextual issues affecting the success of method/contextual issues that need to be considered when using methods	7
Using multiple methods/ knowledge about multiple methods	6
Perceived learning needs on teaching methods	3
Perceived improved competence	2

Participated prospective teachers have provided many valuable themes regarding the effect of CBL activities on their comprehension of teaching methods. Briefly, participants showed an agreement on the positive role of case based learning on realizing the importance of the teaching methods and internalizing them. Some of the quotations explaining the first sub-theme are as follows;

"Although I have been told about teaching methods several times for the last three years, I have never valued them before I have worked with cases. Cases forced me to delve into the importance of methods and use them to solve the given problems" (S11).

"I thought having a teaching methods course is nonsense before studying with cases. Cases made me realize that methods are the guides to find the correct way to solve a learning problem" (S23).

"Cases made me notice that teaching methods are not just words and they can shape the instruction. I also realize that all ingredients and steps of the methods should be implemented carefully in line with conditions" (S27).

The shared message from the prospective teachers' opinions mentioned above is that CBL process helped them to concrete the concepts such as theory, approach, technique, strategy. Most of the

prospective teachers reported similar views and supported the idea that CBL had a positive effect on them to realize the importance of the teaching methods.

Regarding the second sub-theme of "*contextual issues affecting the success of method/contextual issues that need to be considered when using methods*", many students underlined the importance of the context and referred to the contextual issues that should be taken into account. Some of the quotations related to the issue are as follows;

"Cases helped me to adapt teaching methods in different contexts and generate solutions. Before implementing a method, a teacher should take various issues in account such as the classroom conditions, learners' pre-learning levels, materials, course length" (S33).

"I realized that all the issues related to the course including students, teachers, facilities, age, and gender have the potential to affect the selected teaching method" (S21).

"I drawn out that before implementing the method or technique, we should think about its compatibility to the problem we have encountered" (S34).

"My main implication from the case studies is that you cannot use any method/technique in any classes or conditions. Cases taught me under what conditions teaching methods work or not" (S7).

"Cases improved my understanding of how best I can modify the teaching methods according to the special conditions of my classes" (S29).

The above mentioned ideas imply that participants are affected from the case-based activity process to draw the idea that each classroom requires to plan, select, and implement teaching methods in relation to its context and conditions. The excerpts also indicate the participants' perceived learnings on how to implement teaching methods in different contexts having different features as in the example of the student saying "*cases helped me when and under what circumstances I should use teaching methods*". Hence, we can conclude that the reflections of the participants on this issue claim a positive role on attaining the agreement on the fact that adaption of teaching methods is inevitable in accordance with the realities of the context.

With respect to the third sub-theme about "*using multiple methods/ knowledge about multiple methods*", prospective teachers generated various ideas on the mental change they have experienced through the case-based activities. Underlining the elaborated traits of teaching methods, some of the excerpts are presented below;

"Before the case activities, I was not so aware that different teaching methods have different traits and capabilities to respond to learning case" (S6).

"Before working with the cases, I used to think that a few outstanding teaching methods would be enough for us to survive in my target station as a teacher. But now, I know it was a wrong thought" (S37).

"I learnt a lot about the teaching methods; I noticed that my student may get bored when I do not enrich my teaching with different methods" (S1).

The following sub-theme is on the role of CBL activities to make participants realize their perceived learning needs on teaching methods. In general, many students referred to the effect of studying with cases on their realizations toward the need to learn about teaching methods. Some of the ideas of the prospective teachers are given below;

"Before studying with cases, I thought I know teaching methods then I realized that it is not enough to know them literally, what matters is to implement them in a critical and versatile way" (S16).

"I loved case studies much because I learnt how I can use the teaching methods when I have a problem in the class and what kind of problems I may encounter" (S18).

"Cases studies clearly tested the validity of learning on teaching methods in real-like environment" (S27).

"What I know about the teaching methods before studying on cases was just their definitions. But cases made me correspond them profoundly and I learnt how to use them" (S35).

"I thought I utilize all teaching methods while working as a teacher before studying with cases. Cases led me to see what probable hinders and pitfalls that I can face with while implementing teaching methods" (S13).

"I knew about teaching methods before but I didn't know about the details of their implementation" (S9).

The examination of the prospective teachers' opinions above posit that they give credit to the CBL activities and promote it due to its facilitating effect on their discovery of the need for blending the methods & techniques in problematic situations in teaching. Correspondingly, the participants declared that CBL helped them to understand the importance of the readiness of the learners and the creativity to select teaching methods. Considering the findings presented above, it can be claimed that case-based activities improved prospective teachers in various aspects related to teaching methods and their implementation.

The concepts mentioned by the prospective teachers related to teaching methods are given in Table 4.

Table 4. Methods and Techniques Mentioned by the Prospective Teachers

Theme	f
Constructivism	7
Collaborative learning	4
Discussion	4
Project based learning	3
Learner-centered approaches	4
Drill & practice	3
Role-play	3
Lecturing	3
Presentation	2
Teacher-centered	2
Question-answer	2
Discovery based learning	2
Quantum learning	1

The list above indicates that the process in which prospective teachers studied on teaching methods in the whilst of case-based studies made them refer to many teaching philosophies and methods. That is to say, learners attached these methods with the outcomes of case-based learning activities. The constructive effect of case based activities on the learners' improvement in teaching methods can be tracked with the quotations provided below;

"Before studying on cases, I thought drill&practice and lecturing would be enough to keep education. But then I exposed to facts that there have been many unqiue methods and techniques" (S18).

"I used to think that there are many teaching methods but nobody use them, cases helped me to locate them at appropriate places in my mind" (S24).

"While working (studying) on the third case. I was much more competent to evaluate the performance the teacher in using the teaching method" (S11) .

"Before this activitiy, teaching methods were just concepts and words former. Cases helped me much to make them concrete" (S4).

"I have noticed that I don`t know some of the teaching methods mentioned in the cases..".

"Before these activities, I only know about the advantages and limitations of the teaching method. Cases helped us to internalize them" (S26).

"I realized that more than one teaching method should be integrated into a class and learner-centered methods are more effective in general" (S31).

Given quotes may infer that implementing case-based activities into a teaching methods course help learners in acquiring them and made them competent in knowing about the general traits of the teaching methods as the course content. Besides, as the prospective problem solvers in their future work environments, cases seem to improve learners in formulating strategies to analyze the situation and generate possible solutions with their background knowledge on teaching methods.

Conclusion and Suggestions

The research in teacher development attempts to elicit effective use of case methods in novel and versatile ways. Cases are deemed as effective learning tools that bridge the gap between theory and practice (Flynn & Klein, 2001), facilitate the application of knowledge in authentic problem solving (Choi & Lee, 2009) and construct sophisticated tacit knowledge and expertise that is challenging to deliver via traditional and didactic instruction (Wang, 2002). As a respond to the research in this perspective, the current study targetted to purport the perceptions of prospective teachers toward the implementation of case-based learning in a teaching methods course. As the main inference of the data collected, all of the prospective teachers participated in the study agreed that studying on the cases based on contemporary or realistic problems makes subject matter more relevant and concrete.

The results of the study showed prospective teachers perceived cases as valuable in terms of providing them with such opportunities as experiencing to think as a real teacher and applying theoretical knowledge to practical situations, as well as improving their understanding and conceptions of teaching profession. The results are in line with the existing research on students' perceptions regarding the impact of case-based method on their learning and professional development (Edwards & Hammer, 2006; Joseph, 2002, 2004; Koç, 2011; Lee & Choi, 2008; Moreno & Valdez, 2007; Russell,

2001; Schrader et al., 2003). The previous research on using cases for developing learning posit that case-based learning experiences matches the idea of immersion in, and reflection on, authentic classroom experiences. In line with the findings of the current research, Russell (2001) reports that most of the teacher candidates, who followed the 'practice-before-theory' approach, do possess positive perceptions about the case-based teacher training programs.

The results of the present study imply that cases reflecting the complexity of real classroom situations allowed prospective teachers experience, to some extent, real teaching, tie theoretical knowledge to practical situations, and develop an insight regarding necessary skills and knowledge that they will likely need in future workplace environments. According to Jonassen and Hernandez-Serrano (2002), cases could "function as a substitute for direct experience, which novice problem solvers do not possess" (p. 69). Although experiences gained through cases may not compensate with the value of direct, personal experiences, case-based instruction provides learners with resources to get insights about the situations where personal experiencing may be risky or hard to get. Prospective teachers generally do not experience real teaching until their last year in the teacher education program. Cases, therefore, can help prospective teachers be prepared for their early teaching experiences in real classrooms by improving their understandings of how to respond to actual problems they will encounter in their fields and how to apply what they learned in classes to solve practical teaching issues. To illustrate, one of the current challenges experienced by most prospective teachers is the disparity between the theories of classroom management exposed to in pre-service, and the practices in complex and ill-structured classroom situations (Quek, 2010). As maintained by Loughran (2002), this research suggests that cases may contribute learning environments by providing learners with the chance to observe theory in practice by developing their critical thinking abilities.

The results of the current study also revealed that prospective teachers found cases influential in improving their problem solving and critical thinking skills. Similar findings were reported in other studies (Jonassen & Hernandez-Serrano, 2002; Lee & Choi, 2008; Lundeberg & Scheurman, 1997; Schrader et al., 2003). There is an extensive body of research evidence in favor of the positive impact of case-based instruction on students' skill development (Baeten et al., 2012; Choi & Lee, 2009; Doebler et al., 1998; Edwards & Hammer, 2006; Harrington, 1995; Hughes et al., 1999; Koç, 2011; Lundeberg & Levin, 2003, Santagata & Angelici, 2010). As an instructional strategy, case-based instruction provides an authentic context in which learners acquire problem solving and decision making skills through engaging in the knowledge and experience of others embedded in cases (Cannon-Bowers & Bowers, 2008; Jonassen & Hernandez-Serrano, 2002; Jonassen, 2000; Kolodner, 2006; Leake, 1996). Similarly, case-based approach, in Cannon-Bowers and Bowers' (2008) accounts, can be considered as a tool used to create synthetic experience to "support learning by augmenting, replacing, creating, or managing a learner's actual experience with the world" (p.318).

Additionally, the results of the study showed that prospective teachers found cases helpful in improving their understanding of teaching methods. Prospective teachers expressed, by studying cases, they better understand the importance of methods in teaching and contextual issues that need to be considered when using methods. As stated in the literature, ill-structured domains such as teaching do not have pre-specified set of rules and essential information that can be fully presented to learners. Prospective teachers, therefore, develop better understanding of different teaching methods through the exposure to multiple contexts and perspectives, not by providing them with pre-packaged prescriptions related to the application of methods (Spiro & DeSchryver, 2009). Furthermore, the results of the current study imply that asking prospective teachers to reflect on their thought

processes helped them better understand their decision making and reasoning related to the application of a variety of teaching methods in different classroom contexts.

To sum up, the current study underscored the importance of cases as a pedagogy which helps prospective teachers improve higher-order thinking ability and achieve deeper understanding of the curriculum content. An issue that was not addressed in this study was the effect of using cases on the content based improvements of the prospective teachers depending on their case solutions. Thus, it is recommended that further research be undertaken in this issue. According to Barab and Dodge (2008), class discussions focusing on eliciting students' experiences and allowing them to share those experiences with each other can be used to design rich learning environments which facilitate students' knowledge, understanding, and motivation. Additionally, it is the scaffolding process including timely, constructive feedback, and guidance that ensures students' learning and embodiment in a case-based learning context (Barab & Dodge, 2008; Kolodner & Guzdial, 2000). Therefore, the researchers are suggested to focus on the interactional aspects of the case studies such as expert and peerfeedback during the conventional and online discussions. Another limitation of this study need to be acknowledged is the medium of the instruction. What is now needed is research to be conducted on the effectiveness of cases through online and blended environments.

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