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How Case Methods are Used to Examine and Enhance Preservice Teacher Decision-Making? *

Öğretmen Adaylarının Karar-Verme Becerilerini İnceleme ve Geliştirmede Örnek Olay Yöntemleri Nasıl Kullanılır?

Yasemin DEMİRASLAN ÇEVİK **

ABSTRACT: This paper reviews the literature on the use of cases in teacher education to examine and foster preservice teachers' decision making. Twenty studies that were selected according to a set of criteria are organized into four groups based on the manner in which cases were used in the studies. After presenting the common and distinctive features of each group, a comparative examination of the four groups of studies are provided in terms of their theoretical and methodological implications for using cases in teacher education. Finally, the implications of this set of research for teacher education are discussed.

Keywords: teacher decision making, case-based method, preservice teacher training

ÖZ: Bu çalışma, öğretmen adaylarının karar verme becerilerini inceleme ve geliştirmede örnek olayların nasıl kullanıldığı ile ilgili alanyazın taramasını sunmaktadır. Belirlenen ölçütlere göre seçilen 20 çalışma, örnek olayların bu çalışmalardaki kullanım biçimlerine göre dört grupta incelenmiştir. Her bir grubun benzer ve farklı özellikleri sunulduktan sonra gruplar örnek olayların öğretmen eğitiminde kullanımı ile ilgili olarak kuramsal ve metodolojik açıdan karşılaştırılmıştır. Son olarak, çalışmanın öğretmen eğitimi açısından etkileri tartışılmıştır.

Anahtar sözcükler: öğretmenin karar vermesi, örnek olay yöntemi.

1. INTRODUCTION

This paper focuses on reviewing recent research on the use of cases in preparing preservice teachers to make more effective judgments and decisions about teaching. Teacher decision making has been a major research area which has examined teachers' thought processes, reasoning, and instructional decision making (e.g. Leinhardt & Greeno, 1986; Shavelson & Stern, 1981). Several researchers have suggested that teacher education curricula include realistic cases or simulations of classroom situation to enhance preservice teachers' ability to make complex teaching decisions (Shulman, 1992; Sykes & Bird, 1992; Beck, King, & Marshall, 2002; Bruning et al., 2008; Choi & Lee, 2009; Doebler, Roberson, & Ponder, 1998; Santagata & Angelici, 2010).

In this paper, we first briefly summarize major approaches to studying teacher judgment, decision making, and reasoning and the theoretical models that support these approaches. Next we describe relevant prior research on the use of cases to enhance teacher decision making. Finally, we review 20 studies that utilized cases or case methods to examine or improve preservice teachers' reasoning and decision making and compare these studies into four groups in terms of their theoretical and methodological implications for using cases in teacher education.

1.1. Teacher Decision Making

In the field of education, decision making research, specifically understanding teachers' decision making processes, has received considerable interest. Shavelson and Stern (1981) have

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** PhD, Hacettepe University, yasemind@hacettepe.edu.tr

identified decision making as the central feature of the role of the teacher or the basic teaching skill. Similarly, Shulman (1992) defined teaching as a "contextual, local, and situated act demanding subtle judgments and agonizing decisions" (p. 28). According to Shavelson and Stern (1981), research on teachers' interactive decision making illustrated that teachers use their plans as 'mental scripts' or 'images' to guide their interactive teaching, thus these two types of decisions relate to each other. Taken together, these decisions not only affect the success or failure of the activities of the individual classroom, but also are affected by several factors. Based on their review of literature on teachers' judgment and decision making, Shavelson and Stern (1981) identified three groups of factors that, they argued, influence teachers' judgments and decisions. These factors include categories of information or antecedent conditions, teacher characteristics, and teachers' cognitive processes. The first factor incorporates information about students, the nature of instructional task, and the classroom and school environment that inform teachers' decisions. The second factor includes teachers' beliefs about teaching and learning, and their conceptions about a subject matter (i.e., which instructional models and activities they select to teach a subject matter). The third factor, teachers' cognitive processes, is related to how teachers integrate different categories of information (antecedents) and what inferences or judgments they make, based on fact, evidence, or beliefs, about their students. Shavelson and Stern (1981) argued teachers' inferences or judgments, rather than information categories motivate their decisions.

In an early approach to studying teacher decision making, teacher decision making was characterized as an information processing activity in which teachers identify a problem, generate possible courses of actions, identify criteria to evaluate alternatives, and select one alternative that best meets the criteria (Parker, 1984). On the other hand, Shavelson and Stern (1981) conceptualized teachers' interactive decision making as "carrying out a well-established routine" (p. 483). They argued that teachers, on the basis of their prior experiences, develop routines to deal with the complexity of classroom environment. These routines decrease information processing demands on teachers during interactive teaching. They further argued that teachers continuously monitor and interpret pupils' behavior during the instruction in order to decide on what routines they need to follow or if they need to make modifications in their instructional actions or decisions. Shavelson and Stern's (1981) conceptualization of 'routines' in teacher decision making seems to be used to describe only expert or experienced teachers' interactive decision making, because novice teachers generally lack these routines.

In understanding novice teachers' decision making, researchers have focused on comparing novices' decision performances or processes to those of experts, and results consistently indicated qualitative differences between these two groups of teachers' decision making. It is well established in the literature that novice teachers' beliefs and knowledge structures about teaching are often incomplete and shallow, and strongly influence their perception of new information (Calderhead, 1996; Pajares, 1992). A number of research studies have shown evidence that preservice teachers use their pre-existing beliefs about teaching and learning as a lens to interpret new knowledge and experiences (Calderhead & Robson, 1991; Stuart & Thurlow, 2000). Therefore, preservice teachers, who are weak in reasoning and decision making skills, need scaffolding for improving in these skills (Jonassen & Kim, 2010).

One common goal of researchers studying teacher thinking and decision making has been to provide teacher educators with a collective wisdom of tools, strategies, and experiences that they can utilize to promote preservice teachers' ability to make complex teaching decisions. One common method that has been successfully used in teacher education is the case-based method. The following section of the paper briefly describes the use of case-based methods in teacher education.

1.2. Case-based Methods in Teacher Education

Case-based methods have long been used in teacher education. Several researchers argue that including cases simulating classroom conditions in teacher education curriculum would better prepare student teachers for teaching (Harrington, 1995; Merseth, 1996; Shulman, 1992; Sykes & Bird, 1992). Such researchers argue that cases provide a powerful method to help preservice teachers to experiment and practice making teaching decisions and better understand, encode, and apply the pedagogical values and knowledge of inservice teachers (Harrington, 1995; Lee & Choi, 2008; Merseth, 1996; Schrader et al., 2003; Sykes & Bird, 1992).

Cases have been used for three purposes in teacher education. Doyle (1990) described two purposes: (1) using cases as exemplars to present and demonstrate how theories and principles are applied in practice, and (2) using cases as pedagogical tools, providing experiencing the complexities of teaching, to help students develop analysis, problem solving, and decision making knowledge. Merseth (1996) included a third purpose, enhancing students' self-reflection skills.

Research has demonstrated that cases can improve preservice teachers' ability to apply theory to teaching situations (Kinzer et al., 2001; Koc, 2011), awareness of multiple perspectives and solution alternatives in analyzing a realistic classroom situation (Edwards & Hammer, 2006; Koc, 2011), and (c) sense of self-confidence as professionals (Edmunds, 2007). In addition, preservice teachers perceived cases as an important factor motivating their learning and that they found cases helpful in awareness of potential issues and teaching strategies that they will encounter in their professional lives (Edwards & Hammer, 2006; Koc, 2011; Schrader et al., 2003). These studies have not directly examined preservice teachers' reasoning or decision making, but they provide evidence for the effectiveness of cases on student teachers' learning.

2. METHOD

2.1. Selection of Research Studies

Our particular interest in this paper is review research in which case methods were used to enhance preservice teachers' reasoning, judgment, and decision making. To identify relevant research, we searched EBSCO, ERIC, Education Full Text-Wilson, and Google Scholar) using the these keywords, case-based learning/instruction/teaching, decision making, reasoning, instructional decision making, interactive decision making, pedagogical reasoning, argumentation, problem solving, preservice teachers, student teachers, and teacher education. To focus on current literature, we initially limited the search to studies published between 2000 and 2010, but later expanded the search to include 1990-2000. We reviewed titles and abstracts of hundreds of studies and included only studies that included collected empirical data about case methods used with preservice teachers to enhance reasoning and decision making. The final corpus incorporated 20 studies. Based on Doyle's (1990) and Merseth's (1996) classification of the purposes of cases in teacher education, we organized the studies into four groups depending on the way cases were used in the studies. These groups include preservice teachers: (a) video record and analyze their own teaching practices, (b) analyze exemplar cases that demonstrate or model knowledge and skills of teaching, (c) use cases to solve authentic teaching problems, and (d) write reflective narratives in which they construct and analyze their own cases. Table 1 displays the classification schema for the reviewed studies. Analyzing the studies in the abovementioned four groups would be valuable to illuminate how and what aspects of different types of case use impact preservice teacher reasoning and decision making.

3. FINDINGS

3.1 Group 1: Preservice teachers video record and analyze their own teaching practices

In this group of studies, the cases were video-recordings of preservice teachers' teaching practices in real classrooms. The studies utilized two different approaches to using video. In the first approach (Johnson, 1992; Vancı Osam & Balbay, 2004), participants were videoed while teaching; then used the videos as prompts to recall their teaching decisions and the reasons for those decisions. In the second approach (Rich & Hannafin, 2008, 2009), preservice teachers, used their videos and a set of reflection guidelines to write analyses of their own teaching including the instructional decisions they made, how their perceived decisions differed from the actual ones displayed in the video, and what alternative strategies they might consider in their future teaching. Both Johnson's (1992) findings that preservice teachers' concerns about classroom management and their inability to develop effective strategies to deal with unexpected situations were likely due to their lack of practical experience and Vancı Osam and Balbay (2004) findings are consistent with descriptions of experienced and new teachers. According to Berliner (1986), experience allows expert teachers develop complex mental schemas and routines to predict classroom events more precisely and to make fluid and contextual choices in unusual situations. With less experience, preservice teachers lack the knowledge and developed routines to interpret pupils' behavior to deal with unexpected classroom situations (Shavelson & Stern, 1981).

Table 1: The Classification Schema for the Reviewed Studies

Group 1: Preservice teachers video record and analyze their own teaching practices	**Group 2:** Preservice teachers analyze exemplar cases that demonstrate or model knowledge and skills of teaching	**Group 3:** Cases are sources of inquiry through which preservice teachers engage in solving authentic teaching problems	**Group 4:** Cases are reflective narratives in which preservice teachers construct and analyze their own cases
Johnson (1992)	Hughes, Packard, & Pearson (1999)	Bruning et al. (2008)	Beck, King, & Marshall (2002)
Rich & Hannafin (2008)	Kim & Hannafin (2009)	Cherubini (2009)	Hsu (2004)
Rich & Hannafin (2009)		Choi & Lee (2009)	Youngs & Bird (2010)
Vancı Osam & Balbay (2004)		Doebler, Roberson, & Ponder, (1998)	
		Goeke (2008)	
		Greenhow, Dexter, & Hughes (2008)	
		Harrington (1995)	
		Herman (1998)	
		Lee & Choi (2008)	
		Powell (2000)	
		Santagata & Angelici (2010)	
4	**2**	**11**	**3**

Rich and Hannafin's (2008, 2009) studies used video as an instructional tool and showed that student teachers could use multiple sources of evidence, discrepancies between desired and actual teaching behaviors, and the comments of their cooperating teacher and university supervisor, to plan improvements to teaching. However, as the authors indicated, analysis of their own video was not as influential as authority figures' comments on students' decisions to modify their teaching practices. The results are not surprising; King, Wood, and Mines (1990) reported preservice teachers often tend to seek and easily accept the knowledge from more experienced, authority figures to justify their decisions. Rich and Hannafin's results imply video has a potential to scaffold preservice teachers' memories to better recall teaching actions that they might not

have noticed while engaged in the complexity of teaching activity. Future studies should compare the extent to which the presence or absence of expert comments influences students' analyses of their teaching and the instructional decisions they make based on those analyses..

3.2 Group 2: Preservice teachers analyze exemplar cases that demonstrate or model knowledge and skills of teaching

A common purpose of using cases in teacher education is as exemplars of how theories and principles are applied in practice (Doyle, 1990). When used as exemplars, Sykes and Bird (1992) argued that cases model "the desired principle, theory, or instructional technique' as used in multiple classroom settings with different pupils" (p. 480). In group 2 studies, preservice teachers used a web-based case environment combining video of exemplary teaching practices and additional resources designed to enhance their understanding of the complexity of classroom interactions and teachers' interactive decisions. Students carried out case analysis in both studies in which they analyzed exemplary cases and applied what they learned in writing reflective papers or developing technology integrated instructional materials. Both Hughes et al. (1999) and Kim and Hannafin (2009) found that increasing use of cases was related to student progress. While students made progress, Kim and Hannafin noted students' analyses and interpretations of experts' teaching practices were shallow and related to pre-existing beliefs and attitudes.

That preservice teachers, with limited teaching experience, interpret cases using superficial aspects and make only limited progress from short term case-base teaching is consistent with the literature on the development of expertise, a view that Kim and Hannafin (2009) also discuss. Novices lack the well-developed cognitive structures of experts (Lave and Wenger 1991; Leinhardt & Greeno 1986; Perkins & Salomon 1989). Similarly to the general expert-novice findings, there is evidence in the literature that preservice teachers, due to their lack of teaching experiences, are unable to notice significant features of classroom practices and analyze video cases in a superficial manner (van den Berg, 2001). The finding that students make progress over multiple cases is an important result of these two studies. It suggests that more fully incorporating the analysis of cases into teacher education potentially could lead to the development of more expert-like knowledge in graduates of teacher education programs. However, there are obvious structural, technological, cultural, political and practical issues in making such changes and the present research at best suggests that using cases would be facilitative. The limited number of participants, the short term length of the treatment, the limited teacher education content to which the case approach was applied all suggest that many more small studies are necessary to justify the approach. Further research on scaling up the approach across the learning experiences in the variety of teacher education models that currently exist also is necessary.

3.3 Group 3: Cases as sources of inquiry through which preservice teachers engage in solving authentic teaching problems

One common feature of Group 3 studies is that in each study participants were asked to solve, reason, or make decisions about specific teaching and learning issues demonstrated via dilemma based cases. In the three studies comparing the case-method to instructional alternatives the case-based conditions outperformed control group conditions across multiple measures, e.g. identifying reasons for problems, generating solution alternatives, evaluating alternatives from multiple perspectives, making a decision among alternatives and supporting decisions with multiple evidence: theories, expert commentaries in the cases, and personal experiences (Bruning et al., 2008; Choi & Lee, 2009; Santagata & Angelici, 2010). Similarly, in two studies that used a pretest-posttest single-group design, students' improved in making decisions about, solving case problems, considering multiple perspectives, and justifying decisions (Cherubini, 2009; Lee & Choi, 2008). In other studies (Harrington, 1995; Powell, 2000) students made some progress, but still displayed significant weaknesses in the performance after instruction.

Goeke (2008) reported that preservice teachers' initial inaccurate or incomplete conceptions of inclusive education did not change by providing different perspectives via expert commentaries. These findings suggest that the intensity and duration of a case-based treatment probably plays a role in its success. It is not surprising that the relatively short-term instruction described in these studies did not produce teaching experts. Greenhow et al. (2008) work demonstrates the degree of learning and conceptual development that occurs in moving from preservice to experienced teachers. They found that both preservice and experienced teachers could profit from a case-based teaching system on technology integration. However, inservice teachers' provided more detailed and well-developed reasons for their decisions, connected case-specific information, by using their experiences as K-12 teachers, to the general classroom and school level factors affecting technology integration compared to preservice teachers who showed lack of ability in moving beyond the information presented in the case. These results are also in line with studies suggesting that there are qualitative differences between the thinking and decision making of expert and novice teachers (Berliner, 1994, 2001; Leinhardt & Greeno, 1986; Westerman, 1991). Additionally, Doebler et al. (1998) found that preservice teachers' improved their reasoned decisions and solutions to complex teaching problems as they advance in their teacher education program. While these results demonstrate growth in essential teaching skills, follow up research should examine the program features (e.g., courses, field experiences, student teaching, etc.) and individual characteristics related to this growth.

Goeke's (2008) results suggest a further issue in developing teacher expertise. The partial and inaccurate nature of preservice teachers' ideas of teaching, and their tendency to be resistant to change in their conceptions of teaching and to reject new information that contradicts existing belief have been established in the literature (Calderhead, 1996; Kagan, 1992). A number of researchers in teacher education have suggested that understanding the sources of preservice teachers' beliefs about teaching and learning and the effects of these beliefs on their learning would provide teacher educators with valuable information to help them plan further teaching practices in order to overcome or transform these beliefs and thus improve preservice teachers' growth as future professionals (Calderhead & Robson, 1991; Pajares, 1992; Stuart & Thurlow, 2000).

3.4 Group 4: Cases as reflective narratives in which preservice teachers construct and analyze their own cases

J. Shulman (1991) advocated having preservice teachers regularly write cases to encourage reflective inquiry. Use of case writing has continued in the studies reviewed in this paper. Across the three studies in group 4, students demonstrated growth or advanced students performed at a high level. However, in Hsu's (2004) and Youngs and Bird's (2010) studies how students solved the problems in their cases was more emphasized than how they created the cases. Little information was provided about the teaching-learning situations students selected for a case, the contextual factors they included, whether they incorporated their existing beliefs, whose perspectives they considered in their case report (e.g., the teacher, pupils etc.). Future studies should examine students' case creation processes and the features of the cases they create. Such studies may inform the design of scaffolding procedures to support students in creating well-developed coherent cases which later may be used in different courses. If student created cases are to be useful, criteria for evaluating their quality are necessary. In addition, long-term studies covering the preservice teacher experience, that monitor changes in how students create and analyze self-created cases, would provide valuable evidence for both for the utility of this approach and for the design of the learning environments in which cases are used as students' reflective narratives.

4. DISCUSSION and RESULTS

In this section, we discuss the major theoretical significance and methodological features of the research on the use of cases to examine or enhance preservice teachers' reasoning and decision making described above.

4.1 Theoretical Significance

The major set of findings that our review of the 1990-2010 preservice teacher decision making and case-based instruction literature demonstrates is that novice teachers have very limited knowledge and lack the 'rapid strategies' (routines); cases used in teaching help them make some progress, but the process of moving from freshman or junior preservice teacher training to expert teacher is a long one. Students, early in their program, learn less and are more influenced by their pre-existing ideas. But over time, cognitive structures of students begin to change and students near the end of their programs are closer to thinking and making decisions like more experienced teachers. That growth will continue into teaching. This process is similar to the development of expertise in any area and it cannot happen without long study. The other important conclusion is that the different types of the use of cases contribute different components and insights into the growth of expertise (novice to expert) model. The following paragraphs expand on the abovementioned major conclusions of the review.

4.1.1 The Development of Expertise

A consistent message that emerges from findings of these studies is the idea of moving novices to experts. Majority of the studies presented positive impact of cases on the development of preservice teachers' expertise. Hughes et al.'s (1999) study showed that students who used the case environment, incorporating exemplary cases of experienced teachers, in writing their reflective assignments included multiple perspectives to teaching reading and used evidence from cases and other resources to support their claims and interpretations. Two studies (Cherubini, 2009; Lee & Choi, 2008) showed that students improved from pre to posttest on making decisions about and solving case problems related to classroom management. Three studies (Bruning et al., 2008; Choi & Lee, 2009; Santagata & Angelici, 2010) found that case-based instruction, as compared to traditional lecture-based instruction, enhanced students' abilities to generate potential solution alternatives, evaluate those alternatives from multiple perspectives, make a decision among a set of alternatives, and support their decisions with multiple evidence. Additionally, three studies (Beck et al. 2002; Hsu, 2004; Youngs & Bird, 2010) presented evidence of a positive impact of case construction and supportive instructional activities on students' growth in solving case problems, making decisions, and reasoning about a number of teaching-learning issues development. Finally, Doebler et al. (1998) found that preservice teachers' ability to make reasoned decisions and solve complex teaching problems in realistic cases improved as they proceed in their teacher education program. This longer-term growth is also consistent with the novice to expert development.

Some studies show little progress along the novice to expert path. Two studies (Rich & Hannafin, 2008, 2009) indicated the effectiveness of a video analysis tool to improve students' future teaching practices. Their results showed the video analysis tool improved students' evaluation of their teaching decisions by increasing their use of multiple sources of evidence and their consideration of alternative strategies. However, when students were provided with comments from authority figures (i.e., their cooperating teacher and university supervisor), they were inclined to more rely on those comments to support their decisions instead of using what they learned from their self-analysis of videos. It is known that preservice teachers, who have limited teaching experiences, often show tendency to easily accept the knowledge from more experienced, authority figures to justify their decisions (King & Kitchener, 1994). Kim and Hannafin (2009) found that, although students' thinking began to develop as they engaged in

analyzing and reflecting on the exemplary video cases, they did not engage in deep analysis of experts' teaching practices and often focused on surface features of the cases. There is evidence in the literature that preservice teachers, due to their lack of teaching experiences, are unable to notice significant features of classroom practices and thus analyze video cases in a superficial manner (Kim & Hannafin, 2009; van den Berg, 2001).

Similarly, four studies (Goeke, 2008; Greenhow et al., 2008; Harrington, 1995; Powell, 2000) showed, although students were able to analyze problems in a case and make a decision, their interpretations of the situations were bounded with their preexisting beliefs and prior experiences, and they had limited ability to support their decisions with evidence from multiple resources. The effects of previous experiences and beliefs on people's interpretation and utilization of evidence in judgment and decision making have been well established in the literature (Newell & Broder, 2008). Other studies revealed difference between novice and experienced teachers' decision making consistent with previous descriptions in the literature. Based on preservice teachers' analyses of their own video cases, two studies (Johnson, 1992; Vancı Osam & Balbay, 2004) concluded that preservice teachers considered multiple factors (i.e., pupil learning and motivation) when making decisions during their teaching practices, but they were mostly concerned about classroom management and were not able to develop effective strategies to deal with unexpected situations. Preservice teachers' inability to deal with and interpret complex classroom interactions was accounted for their limited teaching experiences and their lack of developed cognitive structure for interpreting classroom events (Berliner, 1986, 1994, 2001; Leinhardt & Greeno, 1986; Westerman, 1991). Greenhow et al.'s (2008) study also indicated qualitative differences in thinking and decision making between expert and novice teachers about technology integration case problems.

4.1.2 The Role of Cases in the Growth of Expertise (Novice to Expert) Model

Four types of cases were used to examine preservice teachers' reasoning and decision making: (a) preservice teachers' own teaching practices in the form of videos, (b) realistic teaching cases provided by researchers either in the form of examples or (c) problems, and (d) cases that preservice teachers constructed based on their observation or experiences in their field experiences. Among these, the most common forms of case use in teacher education have been providing preservice teachers with exemplary or problematic cases to help them learn and improve on making teaching decisions (Merseth, 1996; Sykes & Bird, 1992). One possible reason why these forms are more popular, also acknowledged in this review, may be due to their ease of application at any grade levels of teacher education. Real or realistic cases relevant to a number of teaching issues or practices can be integrated in teacher education curriculum and used as instructional tools to help students grow as they moved through in their teacher education program. In contrast, the first and third types of cases require field experiences which typically occur later in preparation programs.

Group 1 studies specifically focused on examining the content and process of preservice teachers' decisions. The research questions that guided these studies included identifying the instructional decisions preservice teachers made, the factors they considered when making these decisions, the reasons underlying their decisions, and the alternative decisions they would contemplate in their future teaching practices. In the second group of studies, exemplary cases were used to examine the extent to which these cases impacted students' understanding of experienced teachers' interactive decisions and their application of expert strategies/decisions to their own work. The basic assumption of such studies is that modeling the knowledge and skills of expert teachers via realistic cases would enhance preservice teachers' understanding and transfer to effective teaching decisions in new situations. Case analyses were used to support students' interaction with the cases and case discussions were utilized to build a shared understanding of case knowledge among the students in the class. In the third group of studies,

decision making has been examined as part of students' problem solving processes. Processes that have been associated with decision making included proposing solution alternatives, choosing among alternative solutions, and justifying the decision with evidence. The assumption underlying the studies was providing students with problematic teaching situations would foster their understanding of complex teaching problems, their ability to identify, assess, and select from multiple solution alternatives, and their competence in providing evidence to support the evaluation of alternatives, thus facilitating the process of making reasoned decisions. The fourth group of studies examined the degree to which case construction as a self-reflection activity enhanced students' analysis, reasoning, and decision making about teaching issues in their own cases. As in the other groups of studies, group 4 studies utilized case discussions and scaffolded problem-solving as a part of the case construction activity in order to focus students on important aspects of the case and to facilitate deeper cognitive and social-cognitive processing.

In all the groups, researchers assumed that deeper cognitive engagement with the cases would enhance learning and the ability to transfer that learning to future teaching situations. Different contributions across the four groups of studies can be interpreted as their focus on different aspects of the complex cognitive structure that is expert teacher decision making. To illustrate, analyzing others' cases (group 2 and 3) produces the ability to identify strengths and weaknesses, and analyzing one's own teaching (group 1), could be thought about as taking the analytic skills from group 2 and 3 studies and applying them to one's own teaching. If the group 4 studies involved students observing others teach and select aspects of that teaching to make into a case, then it focuses on the skill, knowledge etc. involved in selected teaching incidents that are important to think about. Whether the studies in the four methods are good or bad or inbetween doesn't change the idea that different components of expert teaching skill are the goals of the different types. Accordingly, each approach, with its somewhat different set of questions and emphasis, contributes to the overall novice to expert story.

4.2 Methodological Significance

Comparative examination of studies suggests that the effectiveness of cases and case methods on preservice teachers' ability to develop and apply complex teaching skills is contingent upon a set of factors related to how case-based instruction is designed and implemented. Two important factors include the extent to which case-based instruction incorporates supplemental instructional activities such as case discussion and reflective writings to support students' engagement with or processing of cases and the degree to which students experienced an intense enough treatment. In terms of the first factor, effective studies that used cases as exemplars and realistic teaching problem situations also integrated case discussions and case analyses to improve students' interaction with both cases and their classmates. This increased processing appears to enhance students' deep engagement and subsequent learning. Rather than simply showing preservice teachers what expert teachers do or what effective classroom decisions look like, such interactive learning experiences are more likely to result in students' development of reasoning and decision making about teaching issues. The general point is that instruction must engage students' thinking (cognitive processes) about relevant aspects of the content in order to help students make changes in their cognitive (and perhaps motivational) structures.

As for the second factor, the intensity of treatment, the present results support the generalization from the expert-novice literature that for considerable growth in students' learning and decision making to occur, students need to be engaged in practicing multiple realistic teaching decisions in case-based instruction over an extended period of time. While how long a treatment is required to produce effects is not clear, the results of the review suggest that students improved more in identifying various teaching problems in cases, considering and interpreting multiple perspectives when generating solution alternatives, and reflecting upon their decisions in

studies involving a semester-long instruction with case-based approaches than shorter term ones. Accordingly, a substantial amount of time needs to be devoted to authentic case-based activities if they are to produce change on students' learning and decision making. However, it should be noted that this implication is drawn from diverse studies with different students topics, procedures, etc., thus, there is a need to confirm the pattern of growth inferred here with research that traces that growth more directly. Discussion/results should be written here, and above mentioned principles need to be taken into consideration.

4.3 Future Research Suggestions and Implications for Teacher Education

Different forms of case use have been described in the literature. Each case method has been used to help preservice teachers gain a specific set of skills and knowledge regarding learning how to teach. However, our review has suggested research has not sufficiently compared different types of case methods. Furthermore, a few studies reviewed in this paper compared case-based instruction with traditional instruction, but none of them compared different forms of case use in terms of their relative effectiveness on students' reasoning, decision making, or problem solving. Future studies should compare different case methods to explicate the factors or conditions under which each case method is more successful. Such factors may include student characteristics and knowledge and skills to be taught.

The results suggested that the studies reviewed in this paper have given inadequate attention to the examination of the potential impact of individual differences and task characteristics on students' learning and decision making in case-based instruction. The majority of studies focused on examining the cognitive effects of case-based approaches without considering the motivational, personal, and task related factors that can influence students' learning and skill development. There is evidence in the literature suggesting that decision making is situational; task characteristics, environmental conditions, and person characteristics influence how people make decisions (Weber & Johnson, 2009; Payne, Bettman, & Johnson, 1993; Fischhoff, 2010). To that end, future studies should examine both cognitive and motivational mechanisms underlying students' learning and development with studying real life teaching cases and how these mechanisms are interacted with the characteristics of tasks students are engaged in as they learn with cases.

Additionally, one can argue that the success of a case method depends on, among many other factors, the design and development of cases. Some of the design considerations in regards with case development include identifying the purpose of a case, deciding on the content and contextual details it will contain, selecting a presentation format, and organizing the sequence of cases, if multiple cases are to be presented. Among the studies reviewed in this paper, in which exemplary or dilemma-based cases were used, the majority failed to describe the design and development of cases. It was not also clear in these studies whether existing cases were used or new cases were developed according to the particular content or student characteristics. Future research should focus on the design of quality cases and examine the impact of different design features on the success of cases or case methods. The development of quality cases, specifically when using technology to create more interactive cases, requires considerable time, resources, collaboration among several actors including teacher educators, instructional designers, and students. Teacher education faculty may play a leadership role in the coordination of procedures and activities that would take place during the process and facilitate the communication among multiple stakeholders.

The ultimate goal of teacher educators is to help preservice teachers transfer what they learned in their teacher education courses into their K-12 classrooms. Therefore, the major concern regarding the use of cases or case methods in teacher education with the purpose of enhancing students' reasoning and decision making is to identify the extent to which preservice teachers apply teaching decisions and reasoning skills they gained by working with cases to their

real teaching environments. Such a concern can be addressed by examining long-term effects of case use on students' learning with cases. Studies reviewed in this paper were relatively short-term and none explicated whether case based instruction was a regular part of teacher education curriculum. Examining the long-term impact of cases requires a systematic integration of cases in the curriculum and ongoing monitoring and analysis of the effects of cases on students' knowledge and skill development. However, organizing a curriculum around cases may not be a feasible approach for many reasons. First, there would need to be quality cases for each subject matter, topic, and knowledge and skills to be taught. Second, the development of such a variety of cases requires considerable time, effort, and resources. Third, case-based instruction may not be effective in teaching some type of skills or improving the learning of students with specific characteristics. Future research should examine what knowledge and skills are better taught with cases and in which situations cases are more disadvantageous compared to other instructional approaches.

Additionally, two case methods that were used in some studies reviewed in this paper seem to be promising to foster preservice teachers' reasoning and decision making skills. The first method is preservice teachers' use of a video analysis tool (VAT) to examine their own teaching decisions. The second method is having preservice teachers' construct cases describing their perceptions of effective teaching practices and instructional decisions or problematic situations for which they generate solutions, choose among them, and justify their decisions. By analyzing and reflecting on their own teaching videos in a safe environment and in a personalized way, preservice teachers can pinpoint their instructional decisions that they might not be aware of during teaching, observe the impact of their decisions on pupils' learning and classroom organization, develop on their ability to interpret complex classroom interactions, and gain insights about the possible modifications to improve their future teaching practices. Nevertheless, preservice teachers need training and practice to learn how to use the VAT to examine their videos by manipulating different scenes, commenting on them, and exploring their teaching from multiple perspectives. Teacher educators may support students in their development of skills on learning how to use the tool in an interactive manner. For instance, instructors can provide demonstrations of using the tool to examine a sample video and schedule laboratory hours to allow students to practice the tool use. In addition to video self-analysis, case construction can be used to encourage students' reflective inquiry, reasoning, and decision making. Because constructing a case is a demanding activity, preservice teachers need training or experience regarding different forms of cases and scaffolding that would facilitate their construction of effective cases. Exposing preservice teachers to multiple types of cases before case writing activity potentially would help them be familiar with the structure of cases which then would lead their improvement in creating effective cases. Without such early exposure or training, preservice teachers may not grasp the process of constructing cases. Similar to the VAT, the case construction method can be integrated into teacher education courses and the effectiveness of these methods can be examined in relation with curriculum goals, student characteristics, and their performance outcomes on a number of teaching skills and knowledge including reasoning and decision making.

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Uzun Özet

Eğitimde karar verme araştırmaları, özellikle öğretmenlerin karar verme süreçlerinin incelenmesi ilgi çeken bir çalışma alanı olmuştur. Birçok araştırmacı, karar vermeyi öğretmenlerin temel rollerinden biri olduğunu, öğretmenlerin öğretimsel süreçlerinde sürekli olarak kısa ya da uzun süreli kararlar verdiklerini (örn; ders içeriğinin düzenlenmesi, öğretim biçimi, sınıf yönetimi vb) ifade etmiştir. Bu kararlar sınıf etkinliklerinin başarısını etkilediği gibi öğrencilerin ilgi ve ihtiyaçları, müfredat gereklilikleri ve öğretmen özellikleri gibi birçok faktör de bu kararları etkilemektedir (Shavelson & Stern, 1981; Shulman, 1992).

Öğretmenlerin karar vermesi ile ilgili yapılan birçok çalışmada; a) öğretmenlerin karar verme süreçlerinin daha çok 'kural-tabanlı veya planlanmış davranışlar' biçiminde tanımlanabileceği, b) deneyimli öğretmenlerin davranış ve kararlarını yönlendiren çok sayıda kural, plan ve strateji repertuarına sahip oldukları, c) deneyimli öğretmenlerin karar verirken öğrencilerinin özelliklerini dikkate aldıkları fakat öğretmen adaylarının bu konudaki yetersiz algılarından dolayı buna dikkat etmedikleri, d) öğretmenlerin kararları arasında sınıf yönetimi ile ilgili kararların en fazla sayıda olduğu, e) sınıf yönetimi ile ilgili sorunlarda deneyimli öğretmenlerin tipik stratejiler kullanırken öğretmen adaylarının genel stratejiler kullandığı ortaya konulmuştur (Calderhead, 1996; Pajares, 1992; Shavelson & Stern, 1981; Stuart & Thurlow, 2000).

Öğretmen adaylarının karar verme süreçlerinin incelendiği çalışmalarda genel eğilim, acemi öğretmenlerin (öğretmen adayları) karar verme süreç ve becerilerini uzman öğretmenlerinkiyle karşılaştırmak olmuştur. Bu çalışmalar tutarlı bir biçimde her iki öğretmen grubunun karar vermelerinin niteliksel olarak farklı olduğunu ortaya koymuştur. Uzman-acemi öğretmen karşılaştırması yapılan çalışmalarda uzmanlığın alan bilgisi konusunda geniş bilgi yapılarının, sınıf bilgisinin ve problem çözme ve karar verme stratejilerinin (hızlı ve otomatik stratejiler) gelişmesini gerektirdiği ortaya konulmuştur. Çalışmalar, uzmanların farklı öğrenme-öğretme durumları hakkındaki karar verme süreçlerinde geçmiş deneyimlerinden getirdikleri daha karmaşık ve gelişmiş bilgi yapılarını kullandıklarını göstermiştir. Acemilerin ise sınırlı deneyim, pratik ya da pedagojik içerik bilgilerinden dolayı sınıf etkinliklerinin yüzeysel özelliklerine odaklandıkları belirlenmiştir. Ayrıca uzmanların deneyim sayesinde daha karmaşık zihinsel yapılar oluşturabildikleri ve bu yapılar sayesinde sınıf içi, beklenmedik olayları tahmin etmede veya bu olaylarla mücadele etmede başarılı oldukları, acemilerin ise rutinlerden yoksun oldukları için öğrencilerin davranışlarını yorumlama ve beklenmedik olaylara karşı etkili tepkiler gösterme konularında (örn. Sınıf yönetimi konusunda) başarısız oldukları ortaya konulmuştur. Yapılan birçok çalışmada araştırmacıların ortak görüşü, öğretmen adaylarının karmaşık karar verme becerilerini geliştirmeleri için farklı yöntem, araç ve stratejilerle desteklenmeleri gerektiği yönündedir (Shulman, 1992; Sykes & Bird, 1992).

Bu çalışma, öğretmen adaylarının karar verme becerilerini inceleme ve geliştirmede örnek olayların nasıl kullanıldığı ile ilgili alanyazın taramasını sunmaktadır. Belirlenen ölçütlere göre seçilen 20 çalışma, örnek olayların bu çalışmalardaki kullanım biçimlerine göre dört grupta incelenmiştir. Her bir grubun benzer ve farklı özellikleri sunulduktan sonra gruplar örnek olayların öğretmen eğitiminde kullanımı ile ilgili olarak kuramsal ve metodolojik açıdan karşılaştırılmıştır. Son olarak, çalışmanın öğretmen eğitimi açısından etkileri tartışılmıştır.

Öğretmen adaylarının karar verme becerilerini artırmaya dönük olarak uygulanan öğretim yöntem ya da stratejilerinin denendiği ve değerlendirildiği çalışmalarda öğretmen adaylarına gerçek sınıf ortamlarında gerçekleşebilecek ve ilerde meslek yaşamlarında karşılaşabilecekleri olay ya da durumlar örnek olaylar şeklinde sunulmakta ve örnek olayda belirtilen problem durumunu tanımlamaları, alternatif çözüm stratejileri geliştirmeleri, alternatifler arasından seçim yapmaları ve kararlarını nedenleriyle birlikte açıklamaları beklenmektedir. Bu tür çalışmalar öğretmen adaylarının, özellikle öğretmenlik eğitiminin ilk yıllarında olanların, karar verme becerilerinin düşük olduğunu, karar vermede genellikle kendi eğitim

yaşantılarından getirdikleri inançları referans aldıklarını, bu inançların değişime dirençli olduğunu, kararlarının nedenlerini belirtirken ifade ettikleri argümanların ise çok basit ve yüzeysel olduğunu ortaya koymuştur. Diğer taraftan, bazı çalışmalar, öğretmen adaylarına gerçek sınıf yaşamı ile ilgili problemler sunmanın ve karar verme ile ilgili deneyim kazanmalarını sağlamanın karar verme ve muhakeme yapma becerilerinin gelişmesinde etkili olduğunu göstermiştir. Bu olumlu etkilerin, öğretim yönteminin uzun süreli kullanımına (örn. 1 öğretim yılı) ve öğretmen adaylarına destek sağlanmasına bağlı olduğu dikkati çekmektedir. Öğretmen adayları sınırlı öğretmenlik deneyimine sahip oldukları için, problem çözme veya karar verme sürecinde desteklenmelidir. Bu destekler, problem veya durumla ilgili farklı bakış açılarının sunulması, bu bakış açılarının değerlendirilmesinde ve diğer problem çözme süreçlerinde geribildirim sağlanması, problemle ilgili önemli noktalara dikkati çekilmesi vb şeklinde sağlanabilir.

Günümüze kadar öğretmen adaylarının karar verme süreç ve becerileri ile olarak önemli araştırmalar yapılmış ve önemli sonuçlar elde edilmiştir. Fakat son yıllarda konu ile ilgili araştırmaların sayısında düşüş olduğu görülmektedir. Temel bir öğretmenlik becerisi olarak nitelendirilen karar verme konusunda daha çok araştırma yapılması gerekliliği doğmaktadır. Öğretmen adaylarının karar verme becerilerini artırmak için uygulanan yöntemlerin etkisinin incelendiği birçok çalışmanın kısa süreli çalışmalar olduğu dikkati çekmektedir. Her ne kadar kısa süreli çalışmalar yöntem etkililiği konusunda bir fikir verse de çok boyutlu bir beceri olan karar vermenin gelişimini izlemek ve yöntemlerin etkililiğini belirleyen faktörleri ortaya koymak için uzun süreli çalışmalara ihtiyaç vardır.

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