



A Suggestion on PCT Development in Teacher Education: Pedagogical Thinking Training

Research Article

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ABSTRACT

The purpose of this case study was to investigate how practices based on pedagogical thinking (PT) can be used to develop pedagogical content knowledge (PCK) and skills related to CK in teacher candidates. Activities based on PT model aimed at improving teaching equality during the decision-making process as teachers prepare, plan, and implement their lessons. In this study, specific skills for PCK development were examined. The study group consisted of eight sophomore special education teacher candidates (six females and two males) who were selected using the criteria sampling method. The data of the study consisted of unstructured observation notes, reflection texts, lesson plans, and diaries. Our results showed that PT-based learning applications facilitated the development of PCK in the study group in four main areas: 1) curriculum knowledge, 2) learning objectives analysis, 3) the learning-teaching process, and 4) CK.

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Keywords:

Special education, Content knowledge, Pedagogical content knowledge, Pedagogical thinking.

Introduction

Teaching is a respected profession in Turkish culture and is therefore frequently studied by researchers. It is necessary to focus on teacher training to be able to advance as a society and train individuals who have the skills to respond to the needs of the present. To be a good teacher, one must have pedagogical content knowledge (PCK) (Shulman, 1986). Examination of the literature in this area reveals that scientists working in this field often cite Shulman's work when explaining the types of knowledge that teachers should possess (Aksu, Metin & Konyalıoğlu, 2014; Harr, Eichler, & Renkl, 2014; Park & Oliver, 2008; Veal & MaKinster, 1999). Here we focus on three of the seven knowledge categories developed by Shulman (1987): content knowledge (CK), pedagogic knowledge (PK), and PCK (Mitchell & Fiset, 2016; Shulman, 1987). According to Shulman (1987), a good teacher education program should provide an effective combination of these knowledge dimensions; as such, these knowledge categories overlap with those of the "General Competencies of the

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Teaching Profession” adopted by the Republic of Turkey Ministry of National Education (MoNE, 2017). In particular, competencies in the field of professional knowledge and professional skills point directly to PCK and have been the focal point of many studies conducted in the field of technology (Koh, Chai, & Tsai, 2010), mathematics (Harr, Eichler & Renkl, 2014; Wilkins, 2008), science and physical education (Iserbyt, Ward, and Martens, 2016; Metzler, 2014), and English language (Dincer, Goksu, Takkac, and Yazici, 2013) teaching. In addition, PCK are included in the content of many vocational courses such as teaching principle methods, instructional design and material development, and assessment. The three knowledge categories, PK, CK, and PCK are described in detail below.

CK refers to “what” to teach (Metzler, 2011). For example, for physical education, CK is the knowledge related to tactics, and strategies (Mitchell & Fiset, 2016). PK answers the question of “how” to teach, i.e., the general knowledge of teaching methods (Metzler, 2011), for example, how students should be grouped for teaching and how the students will be moved from one activity to the next (Mitchell & Fiset, 2016).

PCK addresses both the “what” and “how” of teaching. Morrison and Luttenegger (2015) define PCK as “the point of intersection of information about the knowledge that a teacher has on the content, pedagogy, and the learning context (including the child's characteristics)”. This type of knowledge is related to how a particular group of students will be taught special knowledge in a particular framework (Mitchell & Fiset, 2016).

Veal and MaKinster (1999) presented a three-stage PCK classification: general PCK, domain-specific PCK, and topic-specific PCK, based on their literature review. Teachers who have general PCK have a strong understanding of pedagogical concepts; however, in contrast to PK that is discipline-specific (e.g., science or painting), general PCK considers a more specialized knowledge model with specific concepts and strategies. Domain-specific PCK focuses on different domains and subjects that are involved in the discipline (e.g., biology or chemistry in the science discipline). Topic-specific PCK refers to different teaching styles, methods, and approaches used in presenting students the same subject but from the perspective of different disciplines (such as the way that temperature is taught in different forms in physics and chemistry classes).

According to Park and Oliver (2008), *teacher competence* is an important component of the affective dimension of PCK. This component contains motivational beliefs, goal-oriented beliefs, beliefs about interests and values, self-perception, self-efficacy, self-esteem, and beliefs in the control concept. All are related to the teacher’s interests, attitude, and feelings regarding the subject matter, his/her own teaching pathways, and the students’ attitudes while they are learning (Garritz, 2010; Eccles, & Wigfield, 2002).

In searching for sources that contribute to teacher quality problems, it is meaningful to examine the relationship between the teaching profession requirements and the type of teacher training provided by universities (Finn, 2001; Grossman, 2008). One possible issue is that in universities, courses related to content knowledge (CK) and general pedagogical and psychological principles are presented as independent entities. CK and PCK are introduced to pre-service teachers at different times and by lecturers from different departments (Ball, Thames & Rawas, 2017). Although the present teacher-training approach hypothesizes that teacher candidates can automatically combine these two types of information, it can be difficult in practice (Voss et al, 2011). However, when CK and pedagogical knowledge (PK) are introduced in a combined manner during the pre-service teacher training, studies have shown that teacher candidates utilize PK more effectively without any adverse effect on PK (Harr, Eichler and Renkl, 2014). It is known that the emotional support provided by a teacher who knows his/her students and their needs is much more effective than educational support, e.g., specialized practices to improve students’ academic achievement (Hamre & Pianta, 2005). Therefore, it is of vital importance to the successful implementation of CK (Mitchell & Fiset, 2016), and PCK (Shulman, 1986).

The world faces the threat of the deficiency in the number of trainers specialized in educating qualified special education teachers (Brownell, Ross, Colon & McCallum, 2005). Likewise, in our country, problems such as educating teachers in the field of special education, assigning teachers not having received education in the field of special education but attended short training programs instead of qualified teachers, opening departments of special education without meeting the requirements and employing sufficient lecturers, and developing teacher education programs in accord with reactionist and populist approaches (Özyürek, 2008). In this respect, the purpose of our study is providing an opportunity to support teacher education programs in regards to PCK development of special education teachers and supplying high-quality education. In addition, Brownwell et al (2005) examined a wide range of special teacher education programs and stated that those programs have a lot in common with general teacher education, which encompass pedagogically-based information.

Pedagogical thinking (PT) is an important skill that enriches a teacher's PCK. According to the definition of Kansanen (1991), an ideal teacher is not a technician, but an independent individual, who plans his/her work from beginning to end, taking responsibility for the outcomes. Such a teacher can organize his/her daily activities independently and, when asked to explain these actions, s/he can provide pedagogically based explanations. The learning-teaching process occurs in a pre-determined context, based on the teacher's curriculum and societal values. From this perspective, teachers must develop a good understanding of the objectives and targets of the curriculum and the value system behind the curriculum (Kansanen et al, 2000). The daily lives of teachers involve decision-making actions, in which they make choices among different instructional alternatives; PT is the factor that determines the way these decisions are made (Kansanen et al., 2000; Byman & Kansanen 2008).

The teaching process is based on the decision-making skills and actions of the teacher. PT is a decision-making process that affects the entire course of the teacher's preparation, lesson planning, and implementation (Prachagool, Nuangchalerm, Subramaniam, & Dostal, 2016; Kansanen, 2008). PT facilitates PCK, i.e., "how" to teach a topic of a certain field to a group of students (Mitchell & Fisette, 2016). Kansanen et al. (2000) noted that the educational decision-making process of teachers can be conscious or unconscious, as well as intentional or spontaneous. In attempting to fulfill the purposes and targets of the curriculum, PT implementation becomes more purposeful as the teacher gains PCK.

Similarly, special education teachers also need to make decisions on a huge bundle pedagogical issues more frequently in comparison to teachers of other subject areas. It is of high significance to combine subject area knowledge with pedagogical knowledge because teachers teaching special needs students with more than one feature (high and low levels of learning disability, autism, dyslexia, visual and hearing impairment, giftedness) are in need of methods to organize this knowledge. For this reason, this study could support PCK base in two ways. The first one is making decisions on general pedagogical issues and extending their knowledge by virtue of finding out evidence. The second one is discovering ways of bringing together pedagogical knowledge with subject matter knowledge to be used in the curriculum developed for the special education group with low levels of learning difficulty.

In this case study, teacher candidates were presented with PT training exercises designed to improve their PCK for curriculum implementation in the field of special education. In Tukey, PCK studies have been in the areas of science and technology education (Aydn & Boz, 2012). There have been few, if any, studies on PCK application as it relates to special education teacher candidates. The purpose of this study was to answer the following questions:

1. Do PT activities create a difference in the PCK development of teacher candidates, and how?

Method

This study was designed as a case study, which is a qualitative research method. In this study, in an effort to develop PCK, the contributions of various activities of special education teacher candidates targeted towards making PT more intentional/conscious (Fig. 2) were analyzed based on qualitative data. A qualitative study examines a contemporary phenomenon in a real-life context, in which the boundaries between the phenomenon and the context are not fully clear (Merriam & Tisdell, 2015; Yin, 2009; Yıldırım & Şimşek, 2008). Here, various data collection tools were employed, including unstructured observation notes and documentation provided by the teacher candidates (reflection texts, document review) to determine PCK development status.

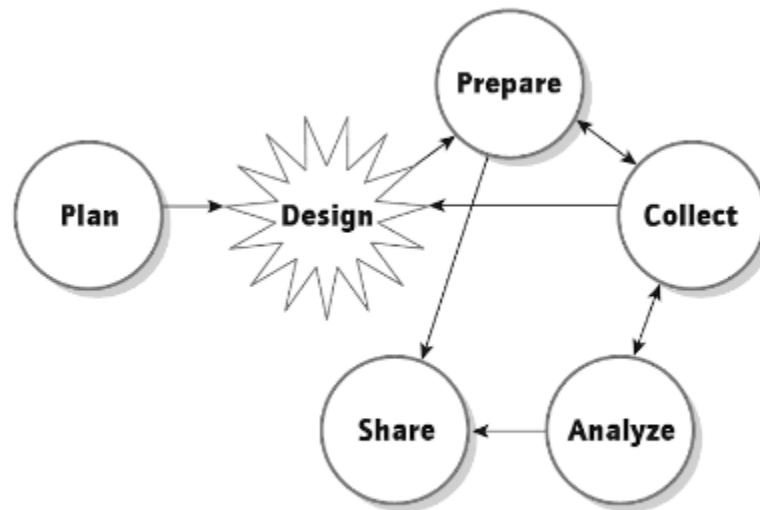


Figure 1. Case Study Process (Yin, 2009)

Prepare: In this process, first of all, the curriculum with the title “Social Adaptation Skills including nutrition, self-care and daily life”, which is included in the special education teaching field, was determined. Secondly, argument production questions and subjects for the pedagogical thinking activities that included understanding the targets, taxonomic definition, planning process, teaching strategies, methods and techniques that are included in the contents of the teaching principles and methods course (see figure 2). The activities of the candidates were run based on the predefined curriculum of the course and the questions. Sample courses were designed for each of the questions on Pedagogical Thinking courses. One of these questions was “Why did the method you employed work?” Based on this question, the pedagogical thinking process of the candidate was made to become conscious and evidence-based (see Fig. 2).

Pedagogical Thinking Training (Application Design)

All PT training applications were run within this course for the purpose of adopting the knowledge and skills that were included in the education principles and methods course. The teaching process is based on the decision-making process and actions of the teacher. PT is a decision-making process that affects the entire course of a teacher’s preparation, planning, and implementation (Prachagool et al, 2016; Kansanen, 2008) and can be conscious or unconscious, as well as intentional or spontaneous. The purpose of the study was to create in the teacher candidates a PT process that is more conscious and intentional. First, a curriculum outline was created for the teacher candidates, as a foundation to be used with their own students in the future. For this case study, a total of 16 lesson plans were examined. Lesson plans were prepared in line with the objectives outlined in the nutrition, self-care, and daily life skills sections of the Social Adaptation Skills Teaching Program. All exercises

were based on the specified learning goals, with a focus on practical studies involving objective analysis and structuring of the learning–teaching process. The learning objective was used as an instrument to analyze the intentionality of the PT process. Arguments were derived based on PT processes (Kansanen et al., 2000) in the form of questions asked to the teacher candidates or challenges to candidate’s responses by the lecturer and/or his/her peers. Teacher candidates then attempted to justify their argument as evidence in the form of a single cause or multiple alternative causes, which was met with further feedback from the group.

A sample PT activity and the resulting arguments and evidence are shown in Fig. 2. Here, the lecturer asked the teacher candidates: *“Why did the method you employed work?”*

Argument: I chose this method because it was suitable for the taxonomic level of lesson objectives. An objective at the taxonomic level necessitates that the student studies in a detailed manner. In addition, determining the knowledge-skill levels and the learning outcomes in the lesson objective also guided me.

Evidence: Although there was information content there, most of it was familiar to the pupils. For this reason, I can convey as much information to my students as I deem necessary.

Negative external evidence 1: If you provide new information all the time, there would be too much information to relate and assimilate, and it would take too much time to interpret it all. The main points may get lost. The “lesson analysis” skill, which is among the lesson objectives, could be lost in the content.

Negative external evidence 2: Before giving the content information to the students, you should perform an objective analysis. If you do not limit the content, and if you do not organize it for the students, you do not facilitate the development of an individual (student) capable of applying the information but, rather, that of a field specialist.

Figure 2. Example of student teacher’s argumentative reasoning in a supervisory discourse setting: Why did the method you used work? (Kansanen et al., 2000, p. 172)

The teacher candidates were asked to share their opinions about the PT process (Fig. 2) when designing and planning each lesson plan, and they received feedback from their mentor and their peers before moving to the next lesson. Sixteen lesson plans were examined throughout the PT training course.

The Study Group

Criteria sampling, a purposeful sampling method, was used to form the study group. The study group consisted of a total of eight sophomore students (six females and two males) in the special education teacher training program. The study took place during the spring semester of the 2017–2018 academic year. The physical environment of the class consisted of four groups of candidates communicating face-to-face. The GPA of the participants ranged from 40–85 points at the beginning of the semester. In determining the Study Group, the following criteria were considered in terms of the viewpoints on the problems about the complex pedagogical structure of the teacher training field of the academicians who were specialists in the field of special education:

- Receiving education in the field of special education teaching, where it is critical to include evidence-based applications among multiple options to define learning barriers and combine knowledge and general pedagogy.
- The teacher candidate that would constitute the Study Group being volunteer
- Granting permission to use visual and audio recording systems
- The presence of at least one person from each Study Group that is created in classes.

Collect (Data Collection Tools)

In this research, data were collected using three methods: Observations, reflection texts, and document review. The data sources of the study are described in detail below.

The data sources of the study are described in detail below.

- Observation records: A total of 20 hour-observation was recorded for 10 weeks 2 hours a day. In the other 4 weeks, the focus was on group discussions on planning skills. Twelve hours of observation notes on in-class studies of teacher candidates was recorded by two teacher educators (one as the researcher). Observations were made during the natural course of lesson instruction.
- Reflective texts consisted of writings that reflected the participants' opinions on their own development during the study process.
- The document review consisted of the lesson plans created by the candidates. Lesson plans were prepared in line with the objectives of *nutrition*, *self-care*, and *daily life skills* of the Social Adaptation Skills Teaching Program. Each candidate who made planning presented his/her work to the group members as oral presentation. S/he was asked to explain why s/he determined the steps in this way based on the evidence? (Who did you use written examination measurement tool? Why did you use the show-do method?).

Analyze (Data Analysis)

The content analysis method was chosen for data collected through observations, reflection texts, and document reviews. Both methods are commonly applied to qualitative research data (Miles & Huberman 1994, Patton, 2014, Yıldırım & Şimşek 2008). A Microsoft Excel program was used to create a checklist (see ek-1) based on lesson plan principles developed from the literature and expert opinion.

When the Content Analysis was made, firstly the teacher observation records and interviews were transcribed. Then, the codes and themes were determined based on these records. For example, the "wear a latch acquisition is included in the daily life skills learning field..." was encoded as "Awareness of the learning field" because the teacher candidate explained which learning field was in the observation record expression. Since this code is a program recognition knowledge, and since it is included in a program in special education field, it was dealt with in the "recognizing the program" sub-theme. This sub-theme was encoded in an inductive manner in the PCK main theme.

Reliability in qualitative studies involves collecting and analyzing data that can be trusted or believed at a high level. Validity, on the other hand, refers to collecting data in such a way that it forms the correct representation. In this context, the following steps were implemented in the case study to satisfy these criteria.

- To ensure validity and reliability, the data of the study were collected in three ways and were examined by two people.
- To ensure transferability in the study, the process was carefully written and the study group and environment were described in detail.
- The details of how the study results may be achieved and evidence regarding implications from the study were presented in detail to enable a better understanding of the process.
- As mentioned above, data were collected in three ways and were examined by two people. The matching rate of the data codes between the two examiners, experts in the field of special education and educational programs, was found to be 83%. In addition, after each step in the process, the in-class work and lesson plans of the candidates were examined.

Findings

In this study, the contribution of the PT activity to the development of PCK was assessed, whereby PCK is a combination of the candidates' PK and CK. Previous studies have emphasized the importance of incorporating pedagogical lessons throughout the student's course of study in the field of teacher training, i.e., over a longer period of time. As such, we examined data obtained through observations, and reflective writings of special education teacher candidates to determine the contribution of focused PT training to PCK development. In the data analysis results, pseudonyms (TC1: Teacher candidate 1 ,...,TC8: Teacher candidate 8) were used for the teacher candidates.

Observation Findings on PCK Development

When the observation notes that were obtained during the course were analyzed, it was concluded that PT-based training supported PCK development of teacher candidates in four main areas: 1) *recognizing the educational curriculum (curriculum knowledge)*, 2) *learning objectives analysis*, 3) *the learning-teaching process*, and 4) *CK*. The themes and codes regarding the pedagogical development process are given in Table 1.

Table 1. Pedagogical Content Knowledge Development Themes and Codes

<i>THEMES</i>	<i>CODES (Development indicators)</i>	<i>f</i>
Curriculum literacy	Defining the general curriculum goals	8
	Awareness of the learning field	6
	Recognizing the objectives	8
Learning objectives analysis	Discriminating between the knowledge dimensions of the learning objective	8
	Discriminating between the skill dimensions of the learning objective	5
	Determining the proper method for learning objectives	4
Learning-teaching process	Including applications that develop skill dimensions	5
	Including materials in lesson presentation	8
Content knowledge	Determining the content dimension on which the learning objective is focused	8
	Defining the basic concepts and principles given in the content	8
	Expressing relationships between the concepts given in the content	5

f: Number of Teachers

From Table 1, there are four main themes and eleven codes identified as being related to PCK development. The codes related to curriculum literacy are as follows: identifying general curriculum goals, awareness of the learning field, and recognizing what class level is appropriate. Learning objective analysis codes included distinguishing the knowledge dimensions of the learning objective, distinguishing the skill dimensions of the learning objective, and determining the appropriate method of learning. The learning-teaching codes included applications for skill dimensions and materials used in lesson presentation. CK theme codes focused on the content dimension, knowing the basic definitions constituting the content, and expressing relationships between the concepts involved.

Observation Findings on Curriculum Literacy Theme. Teacher candidates, had to explain their lesson plans and course applications to their peers; all lesson plans for the course were examined in this way. Thus, through this type of interaction, all of teacher candidates (n=8) were constantly reminded of the goals and lesson objectives, as they created their learning-teaching process plans. *Nearly all of them* (n=6) stated which learning field was associated with the learning objectives. In summary, PT studies contributed to making

students more aware of the overall goals of the curriculum, as the training allowed them to identify more clearly the learning objectives as well as what type of learning takes place when specific content was chosen. Examples of arguments from the observation records are given below.

- TC3... The learning objective of “*attaching a clothespin*” is part of the daily life skills learning area. The achievement is aimed at the overall goal of life skills. I invited the students to practice using clothespins and ropes. I chose this because the overall goal was to raise independent individuals with safety awareness ...
- TC5... the lesson program is aimed at achieving independent life skills for those with mental learning disabilities. The achievement I chose was related to the third field of learning that serves this general goal ... self-care ... the student dries his hands at the end of the process ... the achievement is written for this purpose ... this learning objective is important because independent life is the general target...

Below are examples of feedback from the lecturer for teacher candidates having problems with describing the learning field:

- ... As I mentioned to you, the learning objective of “*putting on a sweater*” is an important daily life skill. It is important that you identify what learning area is being acquired. Here, I see no information stating the learning objective... (from the teacher’s diary).
- ... Even though I say it constantly, there are students who continue to ignore the taxonomic level of the learning objective in that the field of learning is not made clear...

Observation Findings on Learning Objective Analysis Process Theme. The development indicators for the relevant theme are as follows: to distinguish the knowledge dimensions of the learning objective, to distinguish the skill dimensions it contains, to determine the appropriate method for the learning objective. Determining the level of information (n = 8) is a skill that develops faster than the other two dimensions. In addition, there was a relationship between determining the skill dimension of the learning objective (n = 5) and the choice of the appropriate method (n = 4) for the purpose.

Student argument examples are given below:

- TC5... the curriculum is aimed at achieving independence in students with intellectual learning disabilities ... then we need to increase practical studies the learning objective I chose was “*drying hands*” ... there is a knowledge dimension and a skill dimension... If a student attempts “*drying hands*” after mere narration of the objective, the behavior of drying hands does not develop. However, if we think according to the learning objective, then *education with a team* and *drama techniques* would be more effective.

- TC6... “*washing hands*” is a skill that involves the knowledge of washing hands correctly... For this reason, I would definitely use visuals to explain the correct method of washing the hands, followed by practical work to achieve the appropriate skill level. For example, show-and-do and other case study methods would be involved...

Observation Findings on the Learning–Teaching Process Theme. The development indicators for the relevant theme are as follows: to include applications that will develop the skill dimensions, and to include materials in a classroom scene. Nearly all of the teacher candidates (n=5) included applications to develop the skill dimension. Each candidate also used appropriate learning materials (n=8) for meeting the objective:

TC8 ... I would know about the nutritional elements, I would use the materials of the narrative method for the information size of these acquisitions and what these elements were. I would ask students to bring sample photographs or real objects for protein, carbohydrate and oil elements. In addition, I would also ask

them to find out which group the object belonged in the classroom, and I would make them work to improve their mental processes up to the skill levels.

The statements of the lecturer on determining the appropriate dimension of the learning objective and on the candidates, who had problems in determining the proper method for the skill level of the learning objective are as follows:

- ... we cannot ignore the skill dimension of the “*putting on a sweater*” learning objective ... you have to continue with the show-do method or the improvisation technique ... you will have worked only on the information dimension when you use the narration method alone ...

- ... in my opinion, if the teacher candidate correctly analyzes the learning objective and understands the knowledge-skill dimension, it is easier to determine the appropriate method. It took much practice before I could determine the appropriate skill dimension.

Observational Findings on the Content Knowledge Theme Three codes emerged from the CK theme: *determining the content appropriate for the learning objective*, *describing the basic concepts and principles contained in the content*, and *expressing relationships between the concepts*. At the end of the course, all of the candidates (n = 8) could describe the content that the learning objective was based on, as well as the basic definitions included in the content. Regarding the development of relationships between concepts, some students (n = 5) had progressed in this area by the end of the course; however, three students continued to have difficulties.

The development of CK was also evident in the candidates’ ability to fill previous informational gaps and organize the content. At the beginning of the process, the participants who randomly used the preliminary information were found to sequence the content using the concept map or flow chart after PT activities. Examples of the students’ arguments are given below:



- TC3... Operating a latch consists of five steps: *latching, holding the open ends between the thumb and the index finger, pressing the fingers to the ends, and releasing the tips of the latch...*

- TC6... To wash the hands, first of all, s/he should turn on the faucet, take the soap, keep the hands under the water, make a foam with the soap between the hands, put the soap in the appropriate place, rub the hands under the water, and turn off the faucet...

Lecturer’s observation notes:

- ... the candidates did not have full command of the CK when I first gave them the learning objective and provided them with random examples. They presented conclusions rather than concepts, as well as examples of the concept. For example, the student candidates expressed the learning objective “*recognizing food items*” through apples, oranges, meat, etc. ... “*meat gives us strength, oranges protect us from disease...*”. For each learning objective, the candidates were asked to search for and summarize the content as a home task...

- ... A concept map was always extracted for the information contained in each learning objective. The need for this application became clear after analyzing the knowledge and skill dimension of the learning objective ... Students relied on their own prior knowledge and random content at the beginning of the study... but after two applications of using the content map, the habit of doing content research developed...

- ... Prior to planning studies and developing learning-teaching process applications, a teacher must complete his/her CK by analyzing the learning objective ...

Reflection Text Analysis Findings on PCK Development

Teacher candidates were asked to write down their observations and their perceived progress as reflective texts to allow them to understand more fully the impact of PT practices on their PCK development. The findings were examined in two separate sections: PK and CK. The candidates stated that they felt more like a teacher after having practiced with PT with regard to: the development of PK (n = 4), determining proper materials (n = 7), recognizing learning areas (n = 3), determining the target group (n = 6), and making an objective analysis (n = 7). These developments constitute the basic skills required to attain PCK. The following excerpts are from teacher candidates on their own transformation after PT training.

TC3... I found the answers to my questions from before, such as what are the objectives, what sort of progress should be made, and in what sequence...

TC5... objectives express the skills and behaviors we aim to teach the students. Objectives are indicators regarding how to transfer the targeted skill in the most accurate way and they facilitate the decision as to which method and material to use.

TC6: ... I am able to identify the appropriate materials and methods for the learning objective ... for example, if the learning objective is emphasizing the level of interpretation and evaluation, you cannot achieve this using only teacher-directed activities or utilizing only one single activity....

In terms of CK and organization development, candidates stated that they addressed their content deficiencies (n = 8) and organized the content (n = 5).

During the implementation process, the candidates stated that they had the opportunity to evaluate their own CK. Additionally, they felt that PT applications offered opportunities to improve and extend their CK.

TC3: ... First of all, I realized that I should complete the missing points in my CK... I may forget this step over time...However, to repeat and organize CK using a concept map or flow chart in an important step ...

TC4: ... I realized that I needed to work on "*knowing the nutrient items*" first in the learning objective of this knowledge ... The knowledge dimension of the learning objective already gives us information on what subjects we should have learned... If I have inadequate knowledge, how can I have full command in the learning-teaching process?

TC7... I knew in the past that I had to have detailed CK of the subject matter of the learning objective. I thought that my information could meet the objectives... However, I found that I needed to review before presenting the material to my students.

Document Analysis Findings on PCK Development

The lesson plans prepared by the candidates were examined to determine the contributions of PT activities to teacher candidates' PCK. Planning is an important theme in PK, and is covered in detail through document analysis. A total of 16 lesson plans were studied by the teacher candidates. Each candidate presented his/her lesson plan to the friends in the group for 20 minutes in oral way, and explained the decisions s/he made in the plan with their justifications. The lesson plans were evaluated in terms of the lesson objectives, content, learning-teaching process, and measurement and evaluation. The planning development process of the candidates is presented in Table 2.

Table 2. Planning Process Development indicators of the Candidates

Parts of the Lesson Plan	Development Level	TC1		TC2		TC3		TC4		TC5		TC6		TC7		TC8		Total	
		pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post	Pre	Post
Objectives	Fits the level of student	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	8	8
	Target audience explained	-	*	-	*	*	*	*	*	-	*	-	*	-	*	-	*	2	8
	Measurable and observable	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	8	8
Content	Ranking according to interest and priority	*	*	*	*	*	*	*	*	*	*	*	*	-	*	*	*	7	8
	Consistent in targets	*	*	*	*	*	*	*	*	*	*	*	*	-	*	*	*	7	8
	Relation with real life	*	*	*	*	-	*	*	*	-	-	-	-	-	*	*	*	4	6
Teaching activities	Student is active	*	*	-	*	*	*	*	*	-	*	-	*	-	*	-	*	3	8
	Method and technique fitness	*	*	-	*	*	*	*	*	-	-	-	*	-	*	-	*	3	7
	Material use	*	*	-	*	-	*	*	*	-	*	-	*	-	*	*	*	3	8
Evaluation activities	Same level with objective	-	-	-	*	*	*	-	*	-	-	-	*	-	*	*	*	2	6
	To evaluate knowledge	*	-	*	-	-	-	*	-	*	*	*	-	*	*	*	-	7	2
	To evaluate performance	-	-	-	*	*	*	-	*	-	-	-	*	-	-	*	-	2	4

*Yes

An examination of the lesson plans of the teacher candidates revealed that all (n = 8) participants took the appropriateness of the student level and the target group into consideration. In addition, selected lesson objectives were found to be achievable (Table 2). However, in the first evaluation, it was seen that the candidates did not explain and consider the characteristics of the target group special education student group (n=6), only few of them explained (n=2); and in the last application, it was also seen that all of them considered the characteristics of the target group and made explanations (n=8). The reason why they did not do this in the preliminary practice is that their readiness levels were low, and the working time was not sufficient. The lecturer participated in the group work as well, and guided the candidates to question the decisions they had made for each step in planning. In these activities, the candidates re-examined the characteristics of the target audience (severe mental retardation, autism, visual impairment, etc.), and organized their plans according to peer and lecturer evaluations. As special education target groups have very different characteristics, it is important to consider these in the planning stage.

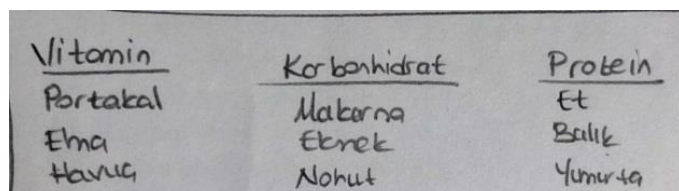
Sample lesson plans showing the teacher candidates' progression are given below (Table 3).

Table 3. Concordance between the Lesson Objectives and Target Audience in Lesson Plan Samples

Teacher Candidate	Selected lesson objective	Selected target audience
TC 4	Knowing nutrient elements.	Visually impaired elementary school students in Grade 4 ... visually impaired people with a visual acuity angle of not more than 20 degrees are considered to be visually impaired. They explore/know the external world through touch or audio stimuli.
TC 3	Operating a latch	Grade 1 students with severe mental disability. These individuals need more intense special education and lifelong support services, including the teaching of self-care skills in all life areas.

When the lesson plans were examined, it was seen that all of the candidates (n=8) cared for the content being consistent with the objectives at the end of the process, and listed the contents according to the relevance and priority. Only 4 of the teacher candidates paid attention to the real life connection in the first evaluation. The same candidates could organize the contents in line with the target. The other half completed this process later. The reason for this may be due to the skills of candidates in focusing on the content knowledge and in determining learning outcomes took much time. However, after they analyzed the learning outcomes, it was seen that all candidates (n=8) paid attention to be consistent with the targets. Plan statement examples are given below regarding content information:

TC2...I added three everyday examples for proteins, vitamins, and carbohydrates concepts. The main task of carbohydrates is to provide energy to the body; vitamins prevent the cell from being damaged and protect the body from disease; and proteins are responsible for cell production...



TC4... The steps of "putting on a sweater" are as follows: holding the back of the sweater on the shoulders; turning the bottom part of the sweater such that it faces towards the person; holding the sides of the bottom part of the sweater with the thumbs inside, with the bottom part stacked in the palms; passing the head through the bottom part of the sweater; passing the head through the sweater collar; and pulling the sweater down...

When the teaching-learning activities are planned, the most difficult parts for the candidates were the “student activity” parts. At the beginning of the process, very few of the candidates (n=3) included the activities in which their students were active; however, after the study, all of the students (n=8) were inclined towards the applications in which the students were active. In addition, this awareness led them to choose the proper method for their targets, and to use the materials in the planning process (n=8). The reason for the development might be that the teacher candidate was directed that the acquisition was not mere knowledge, but was learning outcomes in the skill dimension. This is reflected in the processes of the students. Two students had active learning-teaching activities. Sample activities are described below.

TC8... Concept cards introducing the three nutritional elements are presented to the class, as well as cards containing nutrient samples. Carbohydrates, fats, vitamins, and proteins are introduced to the students, and students are asked to match the cards. This process is done by all students.

Here, it was concluded that assessment efforts were directly related to determining the knowledge-skill dimension of the learning objective. Candidates who were capable of identifying the skill dimension of the learning objective were also able to determine the appropriate measurement instrument for the level of the learning objective (n = 5). Those that focused on the content preferred traditional measurement tools.. Half of the participants used performance-based condition settings (n = 4); a very few (n = 2) preferred question-and-answer techniques. Two candidates did not include an assessment in their plans. Organizing evaluation activities was the most difficult planning stage for the candidates. One of the reasons for this was that they had not received the assessment course, and did not have prior knowledge on the subject. It was observed that more work was needed for evaluation activities.

Sample statements are as follows.

TC6... I prepared an assessment rubric that included the learning objective “washing the hands - personal care”, a practice that includes hand-washing ...

TC7... Food illustrations are shown to the students and questions are asked about the nutrient-value of the food ... in this way, I can perform both repetition and evaluation through question and answer ...

Candidates who were able to distinguish the knowledge and skill dimensions of the learning objective in the measurement-evaluation step were able, easily, to identify and prepare the measurement tool suitable for the target. However, these findings also revealed the need for further study regarding awareness of the skill dimension in determining the performance indicators of the skill ... (from the lecturer’s notes) ...

Results & Discussion

Learning to teach is a very complex process (Loughran, 2006). To prepare teachers with high PCK levels, we should develop a deeper understanding of the teacher candidates’ needs (what they need in relation to classroom practices) (Nilsson, 2006). The purpose of the present study was to examine advancement in PCK levels and the planning skills of teacher candidates generated by the PT training course. Four main areas emerged from our data analysis: 1) curriculum knowledge, 2) learning objectives analysis, 3) the learning-teaching process, and 4) CK.

According to the first theme, course practices made it possible for teacher candidates to get to know a sample *special education curriculum*. Defining general objectives, identifying the learning field, and recognizing the objectives are skills that emerge as part of this theme. These skills are important components of PCK. When designing instruction, decisions are made based on the curriculum, which requires PT skills. (Salminen & Annevirta, 2016, Kansanen, 2008). Curriculum knowledge is a qualification that needs to be acquired in the course of teacher training. In addition, by doing so, curriculum literacy might be extended to other areas in

that special education teachers need to be knowledgeable about specific disorder, specialized education, basic content and pedagogical knowledge

The results of earlier Turkish studies indicated that teachers do not have an adequate understanding of the teaching program and that they encounter problems as a result of their knowledge deficiencies (Tekbiryık & Akdeniz, 2008, Şimşek, 2017, Kaymakçı, 2015).

Previous studies have shown that pre-service teachers cannot differentiate between PK and PCK because they do not have the benefit of teaching real students in an actual classroom setting (Koh, Chai, & Tsai, 2010; Lee & Tsai 2010). Turkish teacher education studies have also revealed that teacher training programs tend to emphasize the transfer of CK to the teacher candidates, as opposed to teaching specific methods of how to implement CK in the classroom (Güneş, 2012; Yeşilpınar, 2016; Şahin & Kartal, 2013). In this study, we observed that PT training improved the skills of the teacher candidates regarding *learning objective analysis and learning-teaching process applications*. Similar to the present study, Ayubi, El Takach and Rawas (2017) prepared a training program to develop the PCK of chemistry teachers. The researchers reported that the teachers moved away from a behavioral approach and initiated a more constructivist perspective, with the use of active teaching strategies.

Development in *learning objective analysis and learning-teaching process applications* is positively influenced by direct *planning skills*. During the planning process, the teacher candidate who can distinguish the taxonomic dimensions of the learning objective can also identify the appropriate teaching methods. Teachers are responsible for determining the instructional methods; these methods should provide students with skills, responsibility, and a learning awareness as well as CK, which requires PT (Prachagool et al, 2016; Kansanen, 2008). When deciding on an instructional strategy or method, a teacher may choose random lesson objectives based on his/her experience or to stimulate students' attention (Şimşek, 2017), as opposed to fulfilling the instructional objectives. However, a teacher must find a balance between efforts to stimulate the attention of students and satisfying the curriculum requirements of the educational program (Ainley, Pratt & Hansen, 2006); otherwise, mistakes can be made. The participants in the present study who did not demonstrate awareness of the skill dimensions of the learning objective had difficulties in deciding on the proper measuring tool. Calik and Aytar (2013) also stated that teacher candidates need experience in using different assessment techniques. According to these researchers, teacher candidates cannot establish a relationship between CK and PCK when they do not have the opportunity to prepare and implement their own lesson plans. Because the skills are complex actions that involve knowledge and performance (Haladayna, 1997), performance-based process evaluation in situation-settings (Kutlu, Doğan & Karakaya, 2017) is required.

Our study results also showed that PT training improved teacher candidates' CK. In their reflection texts, candidates emphasized that they had developed a better awareness with regard to addressing their lack of CK, e.g., determining the difficulty level of the content that the learning objective focuses on, defining and describing the basic concepts and principals involved in the content, and expressing the relationships between the concepts given in the content. In parallel with these developments, when the lesson plan findings were examined, it was observed that teacher candidates sequenced their plans carefully based on the subject titles and learning objective/s and included samples that addressed real-life scenarios. Area knowledge and specific PK in designing and implementing a teaching task is important in all disciplines. The teacher should have the necessary pedagogical skills and a knowledge of the pedagogical content, in addition to having deep FK (Shulman, 1986: Toluk-Uçar, 2011).

Iserbyt, Ward, and Martens (2016) investigated relationships between CK and PCK in physical education teachers and how they affected students' learning. They showed that the CK of teachers had a

positive influence on teachers' "learning patterns" and on students' "learning levels", which supports the results of our study. Harr, Eichler and Renkl (2014) examined the effects of general PCK on mathematics teacher candidates; given two types of information, they found that teacher candidates were more likely to use different dimensions of general pedagogical/psychological knowledge. Furthermore, the presentation of two types of knowledge as a whole did not have an adverse effect on PCK application. On the other hand, Morrison and Luttenegger (2015) pointed out an important difference between primary and secondary school teachers. Primary school teachers (unlike the branch teachers in secondary schools) must teach a wide range of content and skills. Although there are predefined objective standards, primary school teachers are not specialists of specific content. For this reason, they show similarities to the participants of the present study in terms of CK.

One of the surprising results of the present study was that the teacher candidates who had high participation levels in intra-classroom activities had high PCK levels, despite having relatively low theoretical knowledge levels. When in-class applications are considered, the element that creates the difference between a "field expert" and "a teacher who is an expert in his/her profession" is PCK (Cochran, DeRuiter, & King, 1993). Taken together, the information from the literature and the findings of this study suggest that pedagogy classes in teacher training be constructed in such a way as to enable candidates to apply their knowledge in an actual classroom setting. Thus, the incorporation of PT training in teacher education programs contributes to better adaptation of teaching candidates to the teaching profession, as indicated by the positive relationships between development of general PK, the experiences of teachers and teacher candidates, and their professional satisfaction (Blömeke, Hoth, Döhrmann, Busse, Kaiser, & König, 2015; Kleickmann, Richter, Kunter, Elsner, Besser, Krauss, & Baumert, 2013).

Recommendations

This study targeted to evaluate the contributions of the evidence-based pedagogical decisions of teachers candidates on PCK development. In this way, readers will have idea on evidence-based applications in pedagogical decision-making processes in preparation for the teaching. In addition, there will be awareness on the most difficult points and their reasons in the acquisition of pedagogical content knowledge of the candidates. The findings of the present study provide ideas on how pedagogical content knowledge of teacher candidates develop. Parallel to these results, some suggestions were also made.

The pedagogical activities of teacher candidates for a sample curriculum related to their own fields provided insight to them about how they reflected what they learned. For this reason, it may be recommended to provide teacher candidates with the skills to read and understand the existing curriculum in their fields and give information on the targets, contents, learning-teaching processes, and measurement and evaluation steps.

In the teacher training step in the "first time home" course, and in the planning skills on their fields, candidates based their decisions, how to direct them to the questions to understand in detail. The teacher candidates were asked to provide evidence-based educational decisions, the method or technique they chose, and why they chose the measurement tools at each stage. The teaching that was based on structuring information on evidence and pedagogical thinking enabled them to acquire content and pedagogical information on their fields. Because special education is an area in which it is expected from the teachers to bring a wide range of theoretical knowledge and pedagogy-based knowledge on multiple learning disabilities together. For this reason, it may be recommended that evidence-based pedagogical thinking is applied in all pedagogy courses and in learning. In addition, studies should be furthered in order to support teachers in PCK, PC, and CK areas as stated by Shulman.

The pedagogical knowledge fields that are expected from special education teacher candidates were defined in general, and their complex structures were discussed in the literature. It may be recommended to

include studies that will organize the pedagogical thinking processes with evidence-based practices and enable candidates to produce arguments to contribute to the development of these qualifications and definitions on special education.

GENİŞLETİLMİŞ ÖZET

Öğretmen Eğitiminde PCK Geliştirme Üzerine Bir Öneri: Pedagojik Düşünme Eğitimi

Giriş

Ülkeler nitelikli öğretmen yeterliliklerini edindirmek için özel eğitim öğretmenlerinin karmaşık bilgi tabanına ve uygulama becerisine sahip olmalarını beklemektedir (Brownwell et al.). İyi bir öğretmen olabilmek için öğretmenin Pedagojik İçerik Bilgisi (PİB) ne sahip olması önemlidir (Shulman, 1986). Ulusal ve uluslararası alan yazın incelendiğinde, bu alanda çalışan bilim insanları, öğretmenlerin sahip olması gereken bilgi türlerini açıklarken sıklıkla Shulman'ın çalışmalarına işaret ettikleri gözlemlenmektedir. Bu araştırma Shulman (1987) tarafından sunulan ve öğretmenin bilgi tabanında olması gereken temel bileşenler üzerine odaklanmaktadır (Mitchell & Fisette, 2016; Shulman, 1987). Bunlar: Pedagojik içerik bilgisi, pedagoji bilgisi, program bilgisi ve içerik bilgisi olarak sıralanabilir. Shulman'a (1987) göre iyi bir öğretmen eğitimi programı bu bilgi boyutlarının güçlü bir kombinasyonunu içermelidir. Bu bilgi tipleri karmaşık bir çok konuyu içinde barındırır ve öğretmenin pedagojik düşünme sürecini etkiler. Çünkü PT, bu bilgi boyutlarını eğitimsel karar alma sürecine aktarmayı içerir. Kansanen'in (1991) tanımına göre, ideal bir öğretmen çalışmalarını baştan sona planlayan ve çıktılarının sorumluluğunu alan bağımsız bir bireydir. Öğretmenlerin bu sorumlulukları, farklı öğretim alternatifleri arasında seçim yaptıkları karar verme eylemlerini içerir. PT, bu kararları kanıtlara-bilgiye dayandırma sürecidir (Kansanen ve diğerleri, 2000; Byman ve Kansanen 2008). Özel eğitim öğretmenliği spesifik bir çok alanı içinde barındırdığından pedagojik karar alma sürecine yönelik düzenlemelere diğer alanlara göre daha fazla ihtiyaç duymaktadır. Çünkü özel eğitim öğretmenlerinden hem belli bir engel üzerine bilgi sahibi olmaları hem de özelleştirilmiş eğitim, temel içerik bilgisi ve pedagojik bilgiye sahip olmaları beklenir.

Çalışmanın Amacı

Bu çalışmanın amacı, pedagojik düşünme sürecini bilinçli hale getirmeye yönelik kanıt üretmeye dayalı pedagojik düşünme etkinliklerinin; özel eğitim öğretmen adaylarının PİB ve içerik bilgi düzeyini geliştirme sürecini izlemek ve tartışmaktır.

Yöntem

Bu çalışma, nitel bir araştırma yöntemi olan bir vaka çalışması olarak tasarlanmıştır. Bu çalışmada, PİB'in geliştirilmesi amacıyla, pedagojik düşünme sürecini bilinçli hale getirmeyi amaçlayan çeşitli etkinliklerinin katkıları nitel verilere dayanılarak analiz edilmiştir. Nitel bir çalışma, çağdaş bir fenomeni, fenomen ile bağlam arasındaki sınırların tam olarak net olmadığı, gerçek hayattaki bir bağlamda inceler (Merriam & Tisdell, 2015; Yin, 2009; Yıldırım ve Şimşek, 2008). PİB geliştirme durumunu belirlemek için yapılandırılmamış gözlem ve dökümanlar (yansıtma yazıları ve ders planları) olmak üzere çeşitli veri toplama araçları kullanılmıştır.

Tartışma

Öğretmeyi öğrenmek oldukça karmaşık bir süreçtir (Loughran, 2006). Pedagojik içerik bilgisi gelişmiş öğretmenler yetiştirebilmek için; öğretim elemanlarının öğretmen adaylarının sınıf-içi uygulamalara ilişkin olarak nelere ihtiyaç duydukları ile ilgili derin bir kavrayış geliştirmesi gerekmektedir (Nilsson, 2006). Bu fikirden yola çıkarak nitel bir çalışma olarak planlanan bu araştırmanın amacı PT etkinliklerinin öğretmen adaylarının içerik, program, pedagoji bilgisi gelişiminde meydana getirdiği gelişimleri incelemektir. Pedagojik düşünme etkinliklerine dayalı ders yürütme çalışmaları ilk olarak öğretmen adayının alanına ait örnek bir **öğretim programını tanımasını** sağlamıştır. *Genel hedefleri tanımlama, öğrenme alanını ifade etme, kazanımları tanıma bu tema içerisinde ortaya çıkan kodlardır.* Bu kodlar PİB içerisinde yer alan önemli bileşenlerdir. Öğretmeyi planlarken alınan kararlarda öğretim programı göz önünde bulundurulmalıdır ve pedagojik

düşünme gerektirir (Salminen & Annevirta, 2016; Kansenen, 2008). Bu kararların kanıtlara dayandırılması (bilimsel bilgi ve örnek olaylar) PT etkinliklerinin temelini oluşturur. Öğretim programını tanıma öğretmen yetiştirilme sürecinde kazandırılmaya ihtiyaç duyulan bir yeterliliklerdir. Ayrıca bu yolla müfredat okur yazarlığı geliştirilen özel eğitim öğretmen adayları edindikleri beceriyi özelleştirilmiş alanlara da aktarabilirler.

Öğretmen adaylarının henüz sınıf içinde öğrenciler ile öğretim deneyimleri olmadığından pedagojik bilgi ve pedagojik içerik bilgisi arasında ayırım yapamadıkları daha önceki çalışmalarda ortaya konmuştur (Koh, Chai, & Tsai, 2010; Lee & Tsai 2010). Ülkemizde öğretmen yetiştirme ile ilişkili araştırma sonuçlarına baktığımızda öğretmen yetiştiren kurumlarda sınıf içi uygulamalardan daha çok içerik bilgisinin öğretmen adayına aktarılmasına dayalı eğitimler yapıldığı gözlenmektedir (Güneş, 2012; Yeşilpınar,2016; Şahin & Kartal, 2013; Doğan, 2005). Ancak bu çalışmada uygulanan pedagojik düşünme eğitimi öğretmen adayının **kazanım analizi ve öğrenme-öğretme süreci uygulamalarına yönelik becerilerini** geliştirdiği gözlemlenmiştir. Bu iki alandaki gelişim doğrudan **planlama becerilerini** de olumlu yönde etkilenmiştir. Planlama becerisi içerisinde kazanımın taksonomik boyutunu ayırt edebilen öğretmen adayı uygun öğretim yöntemlerini belirleyebilmiştir. Öğretmenler öğretim yöntemlerini belirlemekten sorumludur ve bu yöntemler öğrencilerine içerik bilgisi yanında beceri, sorumluluk, öğrenme farkındalığı da kazandırmalıdır; ki bu durum pedagojik düşünme gerektirir (Jaenet & Tiana, 2016; Kansenen, 2008). Öğretmen strateji, yöntem ve teknik belirlemede, öğretim kazanımlarını göz önünde bulundurmaya yerine sadece öğrencilerin ilgisini çekmek için (Şimşek, 2017) ya da kendi tecrübelerine dayalı olarak rastgele kazanımlar belirleyebilmektedirler (Jaenet & Tiana, 2016). Oysa öğretmen, öğrenci dikkatini çekme ve öğretim programı kazanımlarına bağlı kalma konusunda dengeyi sağlamalıdır (Ainley, Pratt & Hansen, 2006). Aksi takdirde öğrenme öğretme sürecini planlama ve uygulama hataları ortaya çıkabilir. Bu çalışmanın katılımcılarından kazanımın beceri boyutunu fark edemeyenlerin uygun ölçme aracına karar vermekte zorlanmışlardır. Calik ve Aytar (2013) da çalışmaları sonucunda öğretmen adaylarının ölçme-değerlendirme teknikleri ile ilgili uygulama yapmaya ihtiyaçları olduğunu vurgulamışlardır. Bu araştırmacılara göre öğretmen adayların yeteri kadar kendi ders planlarını hazırlama ve uygulama fırsatı bulamadıklarında PİB ile İB arasında ilişki kurmamaktadırlar.

Kursun öğretmen adayının içerik bilgisini de geliştirdiği ortaya konmuştur. Adaylar içerik ile **eksikliklerini tamamlama ve düzenleme** farkındalıklarının oluştuğunu yansıtan yazılarında vurgulamışlardır. Çalışmamızın sonuçlarını destekleyecek biçimde Iserbyt, Ward, ve Martens (2016) öğretmenlerin içerik bilgisinin öğretmenlerin PİB'nı uygulama şekillerinin ve öğrencilerin öğrenme düzeyleri üzerinde olumlu etkisi olduğunu göstermişlerdir. Harr, Eichler ve Renkl (2014), genel psikolojik/pedagojik bilgi ve pedagojik içerik bilgisinin birlikte sunulmasının matematik öğretmeni adayları üzerindeki etkisini incelemiştir. Araştırmacılar iki tip bilgi birlikte sunulduğunda, öğretmen adaylarının genel psikolojik/pedagojik bilginin farklı boyutlarını daha çok işe koştuklarını bulmuşlardır. Üstelik iki tip bilginin bir bütün halinde sunulması PİB nin uygulanmasını olumsuz etkilememiştir. Diğer taraftan Morrison ve Luttenegger (2015), ilkökul ve orta öğretim öğretmenleri arasındaki önemli bir farka dikkat çekmektedir. İlkokul öğretmenleri (orta öğretimdeki branş öğretmenlerinden farklı olarak), çok çeşitli içerik ve beceriyi öğretmek zorundadırlar. Her ne kadar belirlenmiş kazanımlar standartlar olsa da ilkökul öğretmenleri spesifik bir içeriğin uzmanı değildirler. Dolayısı ile içerik bilgileri bakımından ilkökul öğretmenleri bu çalışmanın katılımcılarına benzerlik göstermektedirler.

Pedagojik düşünme etkinliklerine dayalı dersin öğretmen adaylarının **öğretmenlik mesleğini benimsemelerine katkıda bulunduğu** sonucuna da ulaşılmıştır. Ders içerik örneklerinin okullarda uygulanan öğretim programına dayalı olması adayların kuram ve uygulamayı birleştirmesine sonuç olarak mesleğini tanımasına katkı sağlamış olabilir. Daha önce yapılan araştırmalarda benzer şekilde öğretmen adaylarının ve öğretmenlerin deneyimlerinde ki artış ile genel pedagojik bilgileri ve mesleki doyumları

arasında olumlu bir ilişki olduğunu ortaya koymuştur (Blömeke, Hoth, Döhrmann, Busse, Kaiser, & König, 2015; Kleickmann, Richter, Kunter, Elsner, Besser, Krauss, & Baumert, 2013).

Annex-1. Teacher plan assessment checklist

Parts of the Lesson Plan	Development Level	Yes	No	Comments
Objectives	Fits the level of student			
	Target audience explained			
	Measurable and observable			
Content	Ranking according to interest and priority			
	Consistent in targets			
	Relation with real life			
Teaching activities	Student is active			
	Method and technique fitness			
	Material use			
Evaluation activities	Same level with objective			
	To evaluate knowledge			
	To evaluate performance			

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