

Scaffolding as Teachers' Guidance Role in the Context of Constructivist Learning Approach

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Abstract

This research aims to determine teachers' opinions about guidance roles in the constructivist teaching-learning process, the meanings they place on guidance role and the types of scaffolding they use. Phenomenological design (phenomenology), one of the qualitative research methods, was used in the study, and teacher's guidance role/scaffolding was determined as the phenomenon of the study. The research was conducted with 15 teachers from different branches working in Burdur in the academic year of 2021-2022. A semi-structured interview form developed by the researcher was used as a data collection instrument in the study. The qualitative data obtained in the study were simultaneously coded and classified by two different researchers using descriptive analysis method. The findings revealed that teachers were aware of their guidance roles, but they could not fulfill these roles due to the intense and difficult content of the course, the lack of time and national high-stakes tests, and they saw themselves as leader/guide, manager/administrator and information provider in the teaching-learning process. In addition, teachers preferred operational scaffolding more and they do not prefer strategic scaffolding while using conceptual and metacognitive scaffolding in the teaching-learning process. The results were discussed in line with literature and some suggestions were presented.

Keywords: Constructivist learning approach, Guidance role, Scaffolding, teacher

1. Introduction

There has been a global change in education in the last 20 years. As a consequence of this change, the positivist and behaviorist education approach adopted in the structure and functioning of education systems has been replaced by postmodernist and constructivist education approach. Today, this approach is still in function and the programs in Turkey were

updated within the scope of the studies of curriculum development program in 2017. When the updated curricula are examined, the constructivist approach clearly becomes prominent with the definition “an approach that aims to raise individuals by focusing on student who is responsible for his/her own knowledge acquisition, who can produce information by using it instead of memorizing it and who is an innovative, problem-solving, open to collaboration and self-expressive” (Education Reform Initiative [ERI], 2017a)

The success and effectiveness of curriculums depends on their function in teaching-learning process and the ability of teachers to implement them in their classrooms (Fer, 2009). In fact, Programme for International Student Assessment (PISA) report draws attention to the factors affecting students’ achievement and reveals that teachers’ resistance to change is the most influential factor on students’ learning (Taş, Arıcı, Ozarkan, & Özgürlük, 2016). Therefore, if teachers fail to fulfill their duties in the teaching-learning process, the curriculums based on the constructivist approach will not reflect this understanding in application (Fer, 2009). Thus, the role of teachers is as very important in classrooms where curriculum based on constructivist learning approach is applied (Llewellyn, 2005).

When the studies on the effectiveness of the programs that have been developed based on constructivist learning approach are examined, it is seen that there are problems in teachers’ fulfillment of their roles. For example, when the primary and secondary schools’ science curriculum is examined, it is stated that the teacher will play an active role in guiding him/her while the student investigates, discusses and converts information into product. However, the fact that the content of the course in the program does not match the allocated time poses a risk of not implementing the program as expected (ERI, 2017b). Likewise, on the one hand, it is pointed out that some of the teachers are aware of the new roles put forward by the changes taking place in education and they adopt these roles but their knowledge and skills are insufficient and they need education (Akpınar & Aydın, 2007, Çavaş, 2012; Ören, Ormancı, Babacan, Çiçek, & Koparan, 2010); on the other hand, it is seen that some teachers do not know the roles of teachers in the teaching-learning process (Atila, 2012; Çelik-Şen & Şahin-Taşkın, 2010). However, though the studies conducted on teachers’ understanding of teaching-learning in the last years (*e.g.*, Akyıldız, 2016; Aydın, Tunca, & Alkın Şahin, 2015; Baş, 2014; Engin & Daşdemir, 2015) show that they have a constructivist understanding, it is observed that the teachers could not fulfill their roles due to various reasons (insufficient course time, intensive content, number of students, unsuitable content for student level, national high-stakes tests etc.) (Bümen, Çakar Özkan, & Gögebekcan Yıldız, 2014; Çelikkaya & Kürümlüoğlu, 2018). This is in line with the results of an interview with teachers which reveals that teachers feel insufficient about what they will do while implementing the program because of the change in the curricula, and so, they mostly need to be supported in terms of practice and method (Aktaş Salman, 2017). As seen, it can be said that there are problems regarding the roles that teachers should fulfill in constructivist learning.

In the constructivist learning approach, teacher is not the person who directly presents the knowledge, but the person who guides student in the process of producing knowledge (Lawson, 2010). One of the most important tasks of teacher in teaching-learning process is to help and guide students through the techniques of asking questions so that they can cope with

the problems they face (Alvarado & Herr, 2003). Accordingly, when the roles and responsibilities of teachers are investigated within the framework of constructivist education, the concept of scaffolding stands out in the literature.

In the literature, there is no consensus on the definition of scaffolding. Some authors (*e.g.*, Aukerman, 2007; Köseoğlu & Tümay, 2013; Scruggs & Mastropieri, 1998) treat scaffolding as a metaphor and compare them to physical scaffold (working scaffold) used to build buildings. Some see it as an interactive process between student and teacher, who should actively participate in the learning process (Hogan & Pressley, 1997; Stone, 1998).

The foundations of the scaffolding were laid by Vygotsky's socio-cultural theory and zone of proximal development (Puntambekar & Hübscher, 2005), and it was first defined by Wood, Bruner, and Ross (1976) as "providing the necessary scaffold for individuals to solve problems, to carry out a task or to achieve a goal beyond their capacities". Examining the definitions of scaffolding, van de Pol, Volman, and Beishuizen (2010), by creating a conceptual model, drew attention to the three common characteristics of scaffolding: contingency, fading and transfer of responsibility.

Contingency is the first characteristic which is mostly related to responsiveness, tailored, adjusted, differentiated, standardized or calibrated scaffold. The current level of student's performance is crucial for teacher's scaffold that should be at the same or slightly above the level of the student. A teacher acts contingently when he/she adapts scaffold in one way or another to a (group of) student(s). Diagnostic strategy is a tool for contingency. The determination of student's level is important to provide contingent scaffold. Thus, the scaffold can be adapted to the student's level of learning. A great number of researchers have pointed out to the importance of diagnosis regarding scaffolding and diagnosis strategies involve dynamic assessment, formative assessment, online diagnosis or monitoring and checking students' understanding. Fading or gradual withdrawal of the scaffolding is the second common characteristic. Student's level of competence and development determine the rate of fading. The scaffold fades when the level and/or the amount of teacher's scaffold diminish over time. The third common characteristic, transfer of responsibility, is greatly related to fading of the scaffolding. Responsibility for the performance of a task is gradually transferred to the learner via contingent fading. In this review, responsibility can broadly refer to students' cognitive or metacognitive activities or to students' affect. The responsibility for learning can be transferred with increasing learner control.

When the classification of the scaffolding is checked, it is seen that there are many different classifications. For example, Hogan and Pressley (1997) divide scaffolding into five as modeling of desired behaviors, offering explanations, inviting student participation, verifying and clarifying student understandings, and inviting students to contribute clues. Tharp and Gallimore (1988), on the other hand, divide them into six as modeling, contingency management, feeding back, instructing, questioning, and cognitive structuring. van de Pol et al. (2010), who consider scaffolding as a strategy, distinguish scaffolding as goals and methods. While handling scaffolding goals in three groups as metacognitive, cognitive and affect, they discuss scaffolding methods in six as feeding back, hints, instructing, explaining,

modeling, and questioning. Hannafin, Hill, and Land (1999) divide scaffolding into four as conceptual, procedural, metacognitive and strategic.

As can be seen, although there is no consensus on the theoretical framework of the scaffolding in the literature, the studies show that they positively affect many learning products of students in the teaching-learning process. To exemplify, they have positive effect on students' cognitive learning products such as encouraging cognitive development (Yurdakul, 2004), building high knowledge structures (Byrnes, 2001), academic achievements (Hmelo-Silver, Duncan, & Chinn, 2007), metacognitive skills (Azevedo & Hadwin, 2005; Molenaar, van Boxtel, & Slegers, 2010; Veenman, Kok, & Blöte, 2005) and conceptual learning (Lee & Butler, 2003). Furthermore, it can be said that scaffolding is effective on learning products such as students' attitudes towards the course besides affective learning (Çakar, 2013; Hmelo-Silver et al., 2007).

Despite the high number of studies abroad related to the importance and use of scaffolding in constructivist learning approach (e.g., Bowles, Radford, & Bakopoulo of 2018; Cheng, Lin, Lin, & Cheng, 2017; Choo, 2007; Holton & Clarke, 2006), there are few studies in Turkey. Also, when these studies are examined, it can be said that there are deficiencies in the theoretical framework of the scaffolding, and there is no consensus on the definition and types. Most of the studies were administered in computer assisted instruction or instructional technology (e.g., Köroğlu, 2009; Ozan, 2013; Şendurur, 2012; Yıldız, 2012) and they aimed at examining scaffolding types (e.g., Bay et al., 2010; Doğanay & Güzel Yüce, 2010). On the other hand, the studies (e.g., Arı et al., 2017; Bay et al., 2010; Yıldız, 2012) were mostly conducted with prospective teachers. In this context, it is highly possible to say that the studies about scaffolding in the Turkish literature are insufficient and there are deficiencies in the theoretical framework. Thus, this study is intended to contribute to the literature.

The guiding role of teacher has once again gained importance with the following statement in 2023 Education Vision (Ministry of National Education [MoNE], 2018) published by the MoNE:

The natural learning ecosystem is maintained as long as teachers and other adults are guided through methods that trigger feeling, thinking and doing rather than transferring knowledge. The teacher does not direct or tail, but rather uses his/her guidance and mastery skills (p. 21).

Therefore, in order to successfully implement the curricula carried out within the scope of the reform studies by the MoNE, teachers are expected to have professional knowledge and skills for the constructivist learning approach, be aware of their roles in the teaching-learning process and fulfill these roles. It is crucial to determine the opinions of teachers about their roles and whether they use scaffolding or not. To this end, the aim of this study is to determine the views of teachers about their roles in constructivist learning environments. Also, it is aimed to determine the meaning teachers attribute to constructivist learning environments and the types of scaffolding they use.

2. Method

2.1 Research Design

This study was conducted on the basis of phenomenology pattern, one of the qualitative research methods. Phenomenology is a design focusing on cases that individuals are aware of but do not have a detailed understanding of, and it tries to reveal how they make sense of these cases (Yıldırım & Şimşek, 2013). Also, in this design, there are in-depth interviews with individuals directly experiencing the focused phenomenon (Patton, 2014). The phenomenon of this study, which was conducted with phenomenology design, was determined as the teacher's guidance role/scaffolding. The experiences and perceptions of the participants about this case were the subject of the research. According to Creswell (2013, 2016), the type of problem that is appropriate for the phenomenology pattern is to describe the essence of a phenomenon. Since the experiences of the participants in this study were seen as the focal point, the phenomenology was considered to be the appropriate design for this study.

2.2 Participants

The participants of the study were Turkish, mathematics, science and social studies teachers who worked in the secondary schools in the city center of Burdur in academic year of 2021-2022. Convenience sampling was used in the selection of the participants. With this sampling method, the close and accessible environment of the researcher was targeted and thus, it was thought to give practicality to the research (Yıldırım & Şimşek, 2013). Although there is no consensus over the number of participants when the suggestions related to the number of participants in phenomenology studies are investigated, it can be between 3 and 25 people (Creswell, 2013, 2016; Dukes, 1984; Yıldırım & Şimşek, 2013). Therefore, the participants of the research consist of 15 teachers working in 6 different secondary schools in the city center of Burdur. The characteristics of the participants are presented in Table 1:

Table 1. Characteristics of the participants

Participants		<i>f</i>
Education	BA	10
	MA	5
Seniority	0-5	4
	6-10	7
	11-15	4
Subject matter	Turkish	3
	Mathematics	4
	Science	4
	Social Studies	4

As seen in Table 1, a total of 15 teachers were interviewed. Five of the teachers had master's degree and 10 of them had bachelor's degree. Three of the teachers were Turkish teachers, four were mathematics teachers, four were science teachers and four were social science teachers. The four teachers' seniority is between 0-5 years, seven teachers' was between 6-10 years, and four teachers' was between 11-15 years.

2.3 Data Collection Instruments

The data were collected by semi-structured interview technique. A semi-structured interview form was prepared by the researcher considering the purpose of the study. Before the interview form was prepared, the relevant literature was checked and a draft interview form was designed within the scope of the study. In the interview form, 5 open-ended questions were included so as to find answers to demographic information about the participants (subject matter, seniority and educational status) and to research questions. Questions about the phenomenon that was considered to have in-depth knowledge were designed as open-ended. Alternative questions and probes were added to the questions to provide rich data and to help participants understand the questions (Yıldırım & Şimşek, 2013). Similarly, metaphors were used in order to describe the research's phenomenon, teachers' ideas about their guidance role/scaffolding (Morgan, 1986; as cited in Yıldırım & Şimşek, 2013), and collect strong and rich qualitative data about the determined phenomenon (Patton, 2014; Yıldırım & Şimşek, 2013). For the validity of the interview form, editing were made by taking the opinions of two academicians who have expert and qualitative research experience in Curriculum and Instruction, and two secondary school teachers of different subject matters. In addition, the functionality of the questions in the draft interview form was examined through conversation-style interviews with two teachers who were not among the participants. As a result of these interviews, new probes were included. Also, it was observed that teachers could not explain the meaning of scaffold and therefore, instead of scaffold, guidance role

was used in the interview form. Interview form was finalized after the specified corrections.

2.4 Data Collection Process

At the beginning of the interviews, the participants were informed about the purpose of the study and the research phenomenon (guidance role/scaffolding) was briefly introduced. Also, it was assured that their opinions and any information about the participants remain confidential. In order to prevent data loss, voice recordings were taken with the permission of the participants and short notes were kept by the researchers during the interviews. The interviews took place in a conversation-style at the time and place chosen by the participants. The interviews were between September and November 2021 in one session, lasted about 15 minutes.

2.5 Analysis and Interpretation of Data

Qualitative data obtained in the study were analyzed by making descriptive analysis. Descriptive analysis process involves four stages: (i) creating a framework for descriptive analysis, (ii) processing data according to the thematic framework, (iii) identifying the findings, and (iv) interpreting the findings (Yıldırım & Şimşek, 2013). For the first stage of this process, firstly the voice recordings were written and the data set was created. In addition, teachers were encrypted as T1,... to prevent ethical problems in the analysis process. Then, the theoretical dimensions were revealed by examining the literature and a suitable framework was constructed in line with the research questions. The data were organized according to the themes exposed by the research questions. Two themes were determined: teacher's role and the metaphors related to this role, and the scaffolding used in the teaching-learning process. At the second stage, the data were read continuously and combined in a meaningful and coherent way in accordance with the framework. This process was carried out simultaneously by two researchers. Excerpts are selected according to the collected data. At the third stage, the edited data were defined and supported with appropriate quotations where necessary. At the last stage, the cause-effect relationship between the data was tried to be explained and if needed, it was tried to be interpreted by making comparisons between different cases.

2.6 The Role of Researchers

In qualitative research, it is especially important for reliability to describe the position, competencies, personal values, assumptions, orientations and prejudices of the researchers in the process in order not to be perceived as the data collection instrument (Yurdakul, 2004). Thus, the role and qualifications of the researcher administering the study should be determined. The researcher teaches at undergraduate and postgraduate level with a doctoral degree in the subject and method of the study. Therefore, the researchers are thought to have the appropriate knowledge, skills and attitudes required by the qualitative research in conducting this study. The researcher is aware of validity and reliability measures, tried to take these measures before, during and after the study.

2.7 Validity and Reliability Measures

In this study, the following measures were tried to be taken so as to ensure reliability and validity:

Depth-oriented data collection, expert review and participant confirmation (Yıldırım & Şimşek, 2013) were provided in order to ensure the internal validity or credibility of the research. In this context, the researcher has collected in-depth data and provided data verification during the research. An evaluation meeting was held with an expert in the area and qualitative research methods. Finally, the results and comments of the research were shared with 5 participants, and the participants' confirmation was provided.

Detailed description strategy (Yıldırım & Şimşek, 2013) was run to ensure the external validity or transferability of the research. To this end, the data were presented by the researcher without interpretation and direct quotations were included.

Lastly, in order to ensure the external reliability of the research, the role of the researcher was defined, the participants were described in detail, the conceptual framework was given; and the data collection instruments, the process and the analysis of the data were explained in detail. For internal reliability of the research (LeCompte & Goetz, 1982), the data were presented by the researcher without interpretation and direct quotations from different participants were included.

Inter-coder reliability rates (Miles & Huberman, 1994, 2016) were calculated for coding the data. The reliability rate of the coding data was 91% for the question “What are the teachers' opinions about their roles in the teaching-learning process designed according to constructivist learning approach?”. The reliability rate of the coding data was 95% for the question “What are the teachers' metaphors about their roles in the teaching-learning process designed according to constructivist learning approach?”. Finally, the reliability rate of the coding data was 93% for the question “What are the types of scaffolding used by teachers in the teaching-learning process designed according to constructivist learning approach?”. As a result, the fact that the coordination between the coders was found to be more than 80% reliable (Miles & Huberman, 1994, 2016) for inter-coder reliability was enough to consider the research data as reliable.

3. Results

The findings of the study were discussed in two parts: “teachers' opinions and metaphors they have about the guidance roles in the teaching-learning process organized according to the constructivist learning approach” and “the scaffolding types they use in the teaching-learning process organized according to the constructivist learning approach”.

The findings related to the teachers' opinions and the metaphors they have about the guidance roles in the teaching-learning process organized according to the constructivist learning approach

The opinions of the teachers about guidance role of teacher in the teaching-learning process are presented in Table 2.

Table 2. Teachers' opinions about teacher's guidance role in the teaching-learning process organized according to the constructivist approach

Guidance role of teacher	<i>f</i>
Being a model-an example	2
Orientation-guidance	5
Classroom guidance	2
Making suggestions	1
Helping	3
Teaching learning	2
Total	15

As seen in Table 2, most of the teachers defined the “guidance role of the teacher” as orientation-guidance ($f:5$). Also, it was observed that they defined modeling ($f:2$), classroom guidance ($f:2$), making suggestions ($f:1$), helping ($f:3$), teaching learning ($f:2$). Some samples of teacher opinions on this subject are given below:

“...Teacher should be the person who leads the student to reach the information, not the person following teaching duty...” (T9).

“...Access to information is not very difficult in this age. The child can learn from anywhere. Our role as a teacher is to guide them in the process..., to be a role model to them...” (T4).

“...I have meetings with parents. I am guiding in this direction...” (T1).

“...As a guide, teacher should convey individuals how to teach learning” (T7).

As can be seen, it can be said that teachers are aware of their guidance roles. However, it was observed that they could not fulfill these roles in the teaching-learning process due to the intense and difficult content of the course, the lack of time and central examinations. T1 and T8 have pointed out this situation as follows:

“...Math is a difficult and abstract course because of its nature. There are also exams. So, we do not have time to work with students individually and to lead them using the knowledge.” (T1).

“...But, since the subject is intense, we cannot do [guide] this.” (T8).

In order to reveal how teachers perceive the concept of guidance, the metaphors defined best by the teachers were examined and their opinions are given in Table 3.

Table 3. Metaphors defined best by the teachers and their opinions

Metaphor	<i>f</i>	Metaphor	<i>f</i>
Information provider	1	Traffic signs	1
Lighthouse	1	Mother	2
Ship captain	1	Candle	1
Reading book	1	Orchestra conductor	1
Troop leader	1	Guide book	1
Compass	2	Light	1
Total = 15			

The teachers' metaphors about guidance role in the teaching-learning process were categorized as in Table 4.

Table 4. Categories about guidance role

Category	<i>f</i>
Leader/guide	10
Manager/administrator	4
Information provider	1
Total	15

As seen in Table 4, the teachers' metaphors about guidance role in the teaching-learning process were categorized as: "leader/guide", "manager/administrator" and "information provider".

There are lighthouse, reading book, compass, traffic signs, candle, guide book and light metaphors under leader/guide metaphor. As for teachers' perceptions about the role of guidance, it can be said that the teacher guides the student in the process of researching, discussing and transforming the information into the product where necessary or when the student needs it.

Under the manager/administrator category are ship captain, troop leader, orchestra conductor and mother metaphors. It can be said that in the emergence of this category, there is the perception that teachers should be the ones who direct and manage the process of structuring the information related to the guidance role.

There is only one metaphor, information provider, under information provider category. This category emerged because of the fact that teachers preferred teacher-centered method techniques as the content of the course was intense and difficult, the duration was low and there were central exams.

The findings about the types of scaffolding used by teachers in the teaching-learning process designed according to constructivist learning approach

The types of scaffolding used by teachers in the teaching-learning process designed according to constructivist learning approach were investigated in line with classification by Hannah et al. (1999). The types of scaffolding used by teachers are given in Table 5.

Table 5. The types of scaffolding used by teachers in the teaching-learning process

Scaffolding type	Example	<i>f</i>
Conceptual	Scaffold in configuring information Scaffold in problem solving process	4
Operational	Access to information resources Directing to different sources Presenting material Preparing a research plan	9
Metacognitive	Defining learning tasks Guidance in research process	4
Strategic	Working through group work/peer learning	2

As clear in Table 5, it is observed that teachers chiefly preferred operational scaffolding (*f*:9). While they also use conceptual (*f*:4) and metacognitive scaffolding (*f*:4), strategic scaffolding (*f*:2) were not usually preferred.

Scaffolding used by teachers in the process of structuring the information and in the problem solving process can be given as an example of the conceptual scaffolding used by teachers. Regarding this situation, the statements by T2 and T5 are as follows:

“...The student who understands the subject knows how and can take it himself, but it is necessary to support the weak student. (...) I first do an example of what she/he is expected to do.” (T2)

“...That is, they are guided in finding something [accessing information] as I think it is more permanent in terms of learning.” (T5).

Access to information resources, presentation of materials, directing to different resources, and preparation of a research plan can be given as examples of the operational scaffolding

used by teachers. Statements by T2, T3 and T9 can be given in line with this scaffolding type:

“...I make directions with worksheets...I provide orientation by presenting examples from daily life...” (S2).

“...I recommend them to solve questions at home similar to the questions we solved at school.” (T3).

“...The teacher should be the one who shows ways to reach the information, not the one following task of teaching. For example, I ask the student an interesting question or check the child’s prior knowledge so that they can access the information...” (T9).

Defining learning tasks and directing them in the process of research can be given as an example to the metacognitive scaffolding that teachers used. Statements of T4, T7 and T9 regarding this situation are as follows:

Helping children with what and how, how much to study and their goals...” (T4).

“As a guide, teacher should explain individuals how to teach learning...” (T7).

“...I provide guidance on what to do and what to learn...” (T9).

Strategic scaffolding used by teachers are examples of group work / peer learning on a particular subject. The following statement by T2 can be presented as an example of this scaffolding type:

“...I ask them to match the good and the bad and tell their friends. I say ‘you will understand yourself better and your friend will learn from you.’” (T2).

4. Discussion

When the findings regarding the first sub-problem of the study were investigated, it was concluded that the teachers were aware of their guidance roles. However, it was determined that some teachers could not fulfill these roles in the teaching-learning process because of the intense and difficult content of the course, the lack of time and central examinations.

Similar results were obtained in the study conducted by Akpınar and Aydın (2007). The results of the study display that teachers are aware of their roles, adopt these roles, but are inadequate and they need education in this regard. Likewise, it is revealed that teachers do not know their role in the application process (Atıla, 2012; Çelik-Şen & Şahin-Taşkın, 2010). Çakmak and Gürbüz (2012) also reveal that teachers apply their own curriculum in the classroom; they could not carry out practical studies in their class due to the loaded content of the programs and the limited time; they transfer the information in the books to the students via teacher-centered methods, they find themselves inadequate in using the laboratory and equipment. In addition, some studies show that teachers’ professional knowledge and skills are insufficient to apply student-centered methods and techniques (Çavaş, 2012; Ören et al., 2010); therefore, they prefer student-centered methods and techniques in classroom practices (Atıla, 2012; Aydemir, 2011; Çelik, 2012; Yaşar, 2012).

In addition, it is found that pre-service training of teachers is insufficient in the development

of their professional knowledge and skills (Bozak, Özdemir, & Seraslan, 2016; Kavas & Bugay, 2009). Concordantly, teachers' views on professional development activities are generally negative (Arik, 2017; Aydoğan, 2002; Çiftçi, 2008; Kaya, 2017; Pusmaz, 2008). According to the "International Teaching and Learning Research (TALIS)" report published in 2010, it was stated that professional development activities were ineffective (Büyüköztürk, Akbaba-Altun, & Yıldırım, 2010). Also, it was emerged in the TALIS report published in 2018 that the percentage of the teachers who stated the positive impact of professional development activities in Turkey on teaching practice was the lowest among OECD countries (Organization for Economic Co-operation and Development [OECD], 2019).

On the other hand, Bümen et al. (2014) try to explain this situation with the concept of commitment to the curriculum. They investigated the factors affecting the commitment to the curriculum and included teacher characteristics and education among these factors. The factors that stand out from the characteristics of teachers are: their perspective about the curriculum, the meanings they attach to the curriculum, the roles that the program imposes on the teacher and the adoption of these roles. They drew attention to the importance of these characteristics since they gave valuable information in terms of revealing failures in the teaching-learning process, reflecting innovations in the curriculum in practice and explaining the reasons for success or failure.

As can be seen, one of the difficulties in transferring the constructivist education approach to classroom by teachers is due to the insufficiency of the education that teachers receive before and in-service. This situation was also examined by the Council of Higher Education (CoHE) and a "National Workshop on Change and Transformation in Teacher Training" was held in 2016 in order to increase the quality of teachers. It was decided to update the Undergraduate Programs of the Faculties of Education considering the social needs and demands of the society in addition to the new developments in the field of education sciences and teacher training in the world. Thus, new programs have started to be implemented since 2018-2019 academic year (CoHE, 2017). These update efforts are expected to provide solutions to the pre-service training issues discussed above. In such a situation, it is highly recommended that besides the pre-service trainings of the teachers, their professional development should be arranged more according to application-oriented models (e.g., research-review model, working groups model) rather than course-seminar-conference trainings (Bümen, Ateş, Çakar, Ural, & Acar, 2012). Furthermore, continuity should be prioritized in the implementation of professional development programs, and it should be aimed to effectively continue the training, monitoring, evaluation and scaffold processes in these programs (Bümen et al., 2014).

Teachers' metaphors about the role of guidance were investigated in order to see their perceptions about their roles in the teaching-learning process in detail. In fact, metaphors are seen as a creative result of theoretical thinking applied to enrich our perceptions in the educational phenomenon (Inbar, 1996, as cited in Cerit, 2008). When the metaphors through which teachers show their guidance roles in the teaching-learning process are analyzed, it is concluded that teachers see themselves as leader/guide, manager/administrator and information provider. When teachers' perceptions about the role of guidance are examined, it

can be said that they have the perception of guiding the student, directing and managing the information process as well as the perception of transferring information when needed. Similarly, parallel categories were determined in the metaphor studies on the constructivist teacher in the literature. In the study conducted by Eminoğlu, Küçüktepe, and Gürültü (2014), the nine categories identified were “teacher as a guide”, “teacher as a source of information”, “teacher as a formative-shaper”, “teacher as a dissemination-enlightener”, “teacher as an analyst-explorer” “teacher as manager-protector”, “teacher as master”, “teacher as source of life”, “hardworking teacher”.

In brief, it can be concluded that teachers have the right perceptions about the role of guidance in the constructivist teaching-learning process, as well as the perception of the teacher as a source of information or providing information. Teachers’ producing categories that consist of some metaphors contrary to the constructivist approach of education in their perceptions about the guidance role might be interpreted as teachers working in the system have deficiencies in practice. Similarly, seeing teacher’s role as transferring knowledge indicates either constructivist learning approach is not applied correctly or teachers do not know it (Günay, 2015). Thus, for this problem, it is important to conduct more detailed metaphor studies investigating teachers’ perceptions about guidance role and provide solutions in Turkey’s context by detecting deficiencies and mistakes about their perceptions.

Findings related to the second sub-problem of the study were examined according to the classification made by Hannafin et al. (1999). According to this classification, teachers prefer operational scaffolding more in the teaching-learning process and they do not use strategic scaffolding much when using conceptual and metacognitive scaffolding. Likewise, in the study run by Çakar Özkan (2017), it was found that the teachers who used student-centered approaches in their classrooms used scaffolding to guide their students and give instructions while implementing the activities, but they did not have the knowledge and skills regarding scaffolding types and how to implement them. When analyzed according to the classification, it was revealed that teachers used essentially conceptual and operational scaffolding while metacognitive and strategic scaffolding were not used much. When the positive effects of the scaffolding used by teachers in the teaching-learning process upon students’ cognitive (*e.g.*, Azevedo & Hadwin, 2005; Byrnes, 2001; Molenaar et al., 2010) and affective learning (*e.g.*, Çakar, 2013; Hmelo-Silver et al., 2007) are considered, it is recommended that teachers should effectively use more scaffolding. It is assumed that sample plans and practices are needed for the effective use of the scaffolding by teachers in the learning process. Developing guides/handbooks that cover the crucial elements of learning approach as curriculum, research types, research models, teacher roles, student roles, learning environment and evaluation process in detail by reflecting the philosophical and theoretical foundations of the theory arranged according to the constructivist learning approach for teachers by field experts can be suggested.

5. Conclusion

The results of the current study have revealed that teachers are aware of their role of guidance, but they cannot fulfill it because of so many reasons in the teaching learning process. One of

the most important reasons of this stems from the inadequacies of the pre-service and in-service training of the teachers. Similarly, in addition to the fact that teachers have correct perceptions about the role of guidance in the constructivist teaching-learning process, it has been found that the teacher also has perceptions such as being the provider of knowledge or the source of knowledge. Besides these perceptions, the results displayed that while conceptual and operational scaffolding are mostly preferred by teachers, metacognitive and strategic scaffolding are not used that much.

These results have important implications in terms of in terms of the effective application of student-centered method techniques in the teaching-learning process and preventing students from learning incorrectly or incompletely. For this reason, teachers' professional knowledge and skills regarding their guidance roles should be paid attention during both pre-service and in-service training. Additionally, organizing teacher handbooks can be a functional solution for teachers in order to use the scaffolding more effectively.

This research is limited to teacher opinions. In order to obtain more comprehensive results, other stakeholders can be added to the study group of the research. Also, there is a need for quantitative research examining the effectiveness of the scaffolding used in the teaching-learning process on students' cognitive or affective learning. Moreover, when the literature on scaffolding is examined, there is no consensus on the definition and classification of scaffolding. Further theoretical studies on scaffolding are considered important in terms of presenting the historical development, philosophical and theoretical foundations for the research on the current subject.

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