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Meta-Thematic Analysis of Constructivist Approach in the Second Level of Primary Education

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***Abstract*:** Today, the primary purpose of education is to raise individuals suitable for the age, as well as the personal development of the individual. Countries are trying to reflect the human qualities required by the age to social development by renewing their education programs in line with these purposes. It is seen that many different approaches have been adopted in the historical process. The aim of this study is to determine the effectiveness of the constructivist approach adopted today at the second level of primary education. In the study, a meta-thematic analysis study was carried out on the subject by scanning the literature. In the study, in order to determine the effectiveness of the constructivist approach in the second level of primary education, 680 studies were reached in the search made with the keywords "constructivist approach, primary education second level constructivism" in the National Thesis Center and Google Scholar database. As a result of the research, many cognitive-affective domain codes related to the constructivist approach have emerged. Outputs obtained in the cognitive domain; It has various contributions such as encouraging students to come up with new products, learning by doing, enabling the application of theoretical knowledge, providing permanent learning, and transferring the acquired knowledge to different courses. Codes obtained in affective social sense; it has come to the fore as the student's interest in the lesson and learning by having fun. It was concluded that the constructivist approach showed improvement in emotional and social areas such as providing a free environment in which students can express themselves, helping each other, enjoying the discussion environment, respecting the decisions taken by their peers, acting together, thinking that the lesson is getting boring, and liking to do research. It has been concluded that the activities and the time required to implement the activities are limited, the activities are similar to each other, the difficulties experienced by the students due to their prior learning, the disagreements within the group, the lack of equal responsibility within the group and the expectation of different materials are the negativities of the constructivist approach activities.

***Keywords*:** Constructivist approach, elementary second level, meta-thematic analysis.

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Introduction

With the development of the era and technology, the concept of the individual has come to the fore in every field globally. The reflection of this situation in the field of education has been by leaving the traditional teaching approaches aside and using student-centered approaches. The teacher-centered and passive learner approach, which has been used for many years, has been replaced by the constructivist approach, which puts the student at the center of the learning process and where the learner plays an active role in the learning process (Hoşgörür, 2002).

The rapidly developing and changing innovations in science and technology affect all areas of education, especially in education programs, and make innovations necessary. In this constantly changing and developing age, traditionally designed educational environments seem to be insufficient for children to adapt to the new world (Tuncel & Öztürk, 2013). Educational objectives are to harmonize the education system with global criteria and to increase the quality (Başaran et al., 2020). Today, students are expected to produce information and find the information themselves rather than consuming information and ready-made information. Individuals accepted by the contemporary world are those who accept the information conveyed to them exactly, do not wait to be directed and formed, but participate actively in the process of creating meaning by interpreting the information (Yıldırım & Şimşek 1999). The innovations experienced on a global scale also affected our country and in 2005, the curriculum was renewed within the framework of constructivist theory (Batdı & Atik, 2020).

Today, multiple intelligence and constructivist education approaches adopted in education processes come to the fore (Akyol & Çiftçi, 2019). The concept of constructivism is used together with the concept of active learning (Açıkgöz, 2003). It deals with how the learner constructs knowledge. The subjective creation and reorganization of knowledge is the basis of the approach (Saban, 2004). The individual creates individual and social meanings based on the knowledge he has acquired. Hein (1991) states in his study that there is no information that is disconnected from the experiences of the individual in his life. The important point in acquiring knowledge is related to the learner's making sense of new information in learner's mind based on previous experiences, rather than the descriptive transfer of knowledge (Von Glasersfeld, 1996). When considered as the learning theory of the constructivist approach, it tries to explain the knowledge acquisition processes of people. In addition, its philosophical foundations are related to epistemology. In the process of structuring knowledge, the life of the individual is important. As a matter of fact, the process of making sense of the new situations faced by the individual is shaped according to the individual's existing mental schemas. The individual is faced with different processes in the face of new situations. In this case, the individual either adds to the existing schema, makes changes to the existing schema, or creates a new schema.

The constructivist approach is described as the active structuring of learning by the learner. It provides the opportunity for meaningful learning by associating the individual's previous learning with the newly acquired new knowledge. This situation provides convenience in terms of transferring the acquired knowledge to life (Demirel, 2012; Hesapçıoğlu, 2011; Senemoğlu, 2009). Constructivist approach provides interpretation of information. Information becomes meaningful if the individual can interpret the information he has acquired and use it in his life. In this respect, the constructivist approach prevents rote learning. It is among the important features of the constructivist approach that each new information acquired becomes meaningful structures by being associated with previous learned information, instead of learning that is not integrated into life, which is disconnected from each other for the individual. This situation is very important in solving the problems faced by the individual in life (Perkins, 1999). The structuring of knowledge by the individual forms the basis of the approach (Ün Açıkgöz, 2005). It is important for an individual to associate new knowledge with previous

knowledge in order to define the world (Brooks & Brooks, 1999). The basis of the constructivist approach is to associate the learner's knowledge and experience before the school environment with the benefits obtained in the educational environment (Eisenkraft, 2003; Saraç, 2018).

Innovations in the field of education deal with the teacher's teaching style and learner behaviors. While human's search for individual meaning causes a complex situation, the individual builds his learning on social interaction, his own life and experiences (Semerci & Batdı, 2015). Learning environments where the learner is actively involved in the process as a subject facilitates the transfer of acquired knowledge to life. The constructivist approach provides practicality at the point of application by counting the transfer of the knowledge learned at school to different situations encountered in life. The fact that the classical teacher transfers the textbook exactly causes deficiencies in the use of knowledge in life. Knowledge that is not integrated into life is not permanent. The constructivist approach transforms the teacher-dominated classroom atmosphere into an environment where the teacher is the guide (Hanley, 2005). Democratic design of learning environments is among the sine qua non of the approach. In the constructivist approach, the teacher is in the position of a guide rather than transferring information and prefers to listen rather than talk in the process (Erdem, 2001). In the constructivist approach, instead of following the textbook, it is important to make sense of the new information with various activities by using the existing knowledge of the student (Bağcı Kılıç, 2006). With the constructivist approach, the individual gets rid of his passive role in the traditional education process and takes on an active role. By integrating the technology of the age into education, it provides a multimedia environment by including different courses and various course materials covering these courses (Demiralp, 2007).

It supports the individual's active participation in the learning-teaching process and supports skills such as critical thinking, research and questioning, recognizing the existing problem and developing relevant solutions. It is aimed to ensure that the rights of individuals are protected and respected in a democratic classroom environment. It allows for collaboration and group work where individuals can communicate easily (Holmes, 1991). Designing the classroom environment according to a constructivist approach enables individuals who can think in a broad perspective and write what they think, as well as individuals who are open to critical comments and have effective communication skills (Ergin, 1998). The process of structuring knowledge is formed by the effort of creating meaning from the life of the individual as a result of the interaction between the individual and the environment (Sabancı, 2008). The development of related skills seems possible with the qualified structuring of learning environments and the use of appropriate methods and techniques. The constructivist approach helps the learner to be responsible for learning information by being involved in the learning process and to be effective in the decision-making process. According to their readiness level, students share the information they have learned beforehand to construct new information by talking to each other, and they construct new information by reflecting the information to each other. The knowledge learned in the constructivist approach is a resource used for a new configuration (Kirişçioğlu, 2007). Demirel (2002) said that the constructivist approach is more related to the concept of learning than to the concept of teaching and stated that it is important to structure and transfer new knowledge to a new situation in the constructivist approach. Many experts have developed opinions in many different fields about the constructivist approach, but the first ideas about the content of the concept of constructivism were put forward together with John Dewey and Piaget (Özden, 2003). According to Piaget (1955), the child creates knowledge individually as a result of his own experiences. The individual strives to make his thoughts and actions meaningful. In this stage, the individual adapts his thoughts to new ideas and new experiences by providing information and direction. This adaptation process, or cognitive structure, consists of assimilation and adaptation processes. The theory of mental development developed by Piaget formed a basis for cognitive constructivism. The theory, which talks about balance, imbalance, re-balance, deals with the process of encountering the mind with

information. While the mind using existing knowledge is in a state of balance, new knowledge acquired with a new learning experience leads to a state of imbalance in the mind. If the learned information is in harmony with the person's prior knowledge, the mind absorbs this information and reaches a state of balance again. If the new information learned is not in harmony with the old ones, the person regains a state of balance by structuring the information with new schemes in order to assimilate this information in his mind (Yönez, 2009).

In the constructivist approach, the roles of the teacher and the student in the learning process are among the factors affecting this process. In the constructivist approach, the teacher guides the student in reaching and structuring the information rather than transferring the information directly. The methods and techniques to be used in the learning process are shaped according to the knowledge that the student needs to learn (Yönez, 2009). The student, who needs to take the information presented by the teacher in the traditional method and process it in his mind, should make an effort to reach the information in the constructivist approach, and be able to create new schemes in his mind by making use of his prior knowledge. Foerster (1998) presented a different suggestion for understanding the constructivist approach in his study. Giving the answer to the question of whether the concepts are discovery or invention as an invention indicates that the emphasis is placed on structuring.

The teacher has an important role in the design and implementation of the classroom environment and learning activities in accordance with the curriculum. It is not always easy for theoretical and practical knowledge to meet on a common ground. Researches emphasize that some problems are encountered at the point of application of the constructivist approach. It is stated that the motivation of the teachers is high in the process, but there are different deficiencies at the point of application. Teachers' need for information and the inadequacy of technological equipment in physical environments are among the shortcomings mentioned (Arslan, 2008; Kurtdede Fidan, 2010).

The constructivist approach ensures that the learner is aware of ownership and a voice in the learning process from kindergarten to higher education. The learner assumes control and responsibility for their own learning. Teachers, on the other hand, have a facilitating role for the learner in reaching the goal (Bay et al., 2010; Gündoğdu, 2006). Creating a suitable classroom atmosphere allows the learner to learn what and how. The learner structures the learning process according to their own speed and methods (Doğan, 2012).

Purpose and Importance of the Research

The fact that the world is in a constant change creates the necessity of keeping the systems up-to-date. Today, education is a force that determines the global route and position of countries. Considering that the way to stay well is to try to be better, it is necessary to renew the educational environments in parallel with the global changes. The importance of the constructivist approach is undeniable today, where the traditional education system has been replaced by contemporary approaches. The main purpose of this research is to reveal the effectiveness of the constructivist approach by examining the constructivist approach studies in the second level of primary education. It is important to increase the number of studies conducted in this type, to investigate and prove the current situation on the subject and to expand the scope within the information obtained. It is anticipated that the results obtained in line with this research will fill the gap in the literature and will serve as a guide for possible future research on the subject. It is seen that the number of meta-thematic analyzes related to the constructivist approach in the literature is not sufficient, and it is aimed that the study will contribute to this field. The sub-objectives for the purpose of the research are given below.

It was created within the scope of meta-thematic analysis based on document analysis. In the light of the themes and codes examined, qualitative research based on participant views is examined and the effectiveness of the constructivist approach in the educational processes at primary education level is determined. In this research, it is aimed to determine the contribution of the constructivist approach to the cognitive dimension, the contribution of the constructivist approach to the affective-social dimension, negative aspects of the constructivist approach.

Method

In this research, qualitative studies on the effectiveness of the constructivist approach at the second level of primary education were examined and meta-thematic analysis was made. Studies that included participant opinions were included in the research. It is described as a type of analysis based on document and document review on the basis of meta-thematic analysis. It is explained as a type of analysis that deals with the findings in a holistic way by examining the findings in the content of the qualitative studies in detail and creating different codes and themes. It is described as the analysis of qualitative studies and making them meaningful with codes and themes that unite them on a holistic common denominator (Batdı, 2019). In the study, the effectiveness of the constructivist approach in the second level of primary education was determined by the meta-thematic analysis method. In this context, 680 qualitative studies were reached by scanning the Google Scholar and National Thesis Center database. Qualitative studies were accessed by scanning in English and Turkish using keywords such as "Constructivist approach, Constructivist approach, constructivist approach and its effect". As a result of duplication, 215 of the remaining 535 studies were excluded due to unrelated topic. When the abstracts that do not fit the main purpose were removed, 5 qualitative studies were found suitable for meta-thematic analysis in terms of scientific content, out of 230 studies suitable for inclusion, suitability and quality. Accessed studies were analyzed within the scope of content analysis within the scope of document review. Content analysis is described as a research technique that helps to obtain theoretical results from the texts related to the compilation and classification of the texts in the accessed data (Cohen, Manion, & Morrison, 2007). In order to ensure transparency in the Content Analysis process, it is important to specify the sentences from which the codes created within the scope of the study are taken (Yıldırım & Şimşek, 2018). For this purpose, the codes created in the content analysis process in the study and the expressions of the participants who were the source of the codes were transferred directly from the relevant study. It is anticipated that this transfer will contribute to the content analysis (Merriam, 2009).

Meta-Thematic Analysis Process

The theses included in the analysis were coded as T1, T2…. The foundations were formed from the codes extracted from the accessed studies. At this point, three themes were formed as "contribution to the cognitive dimension", "contribution to the affective-social dimension", and "negative aspects of the constructivist approach". In addition, the agreement between coders was calculated with the Cohen Cappa agreement value and it was determined that the agreement was at a good level. Presenting direct quotations from related studies during the coding and analysis of the findings in the study supports the reliability of the study. In this way, validity and reliability were tried to be ensured in the study. The flow chart of the studies included in the meta-thematic analysis is presented in figure-1.

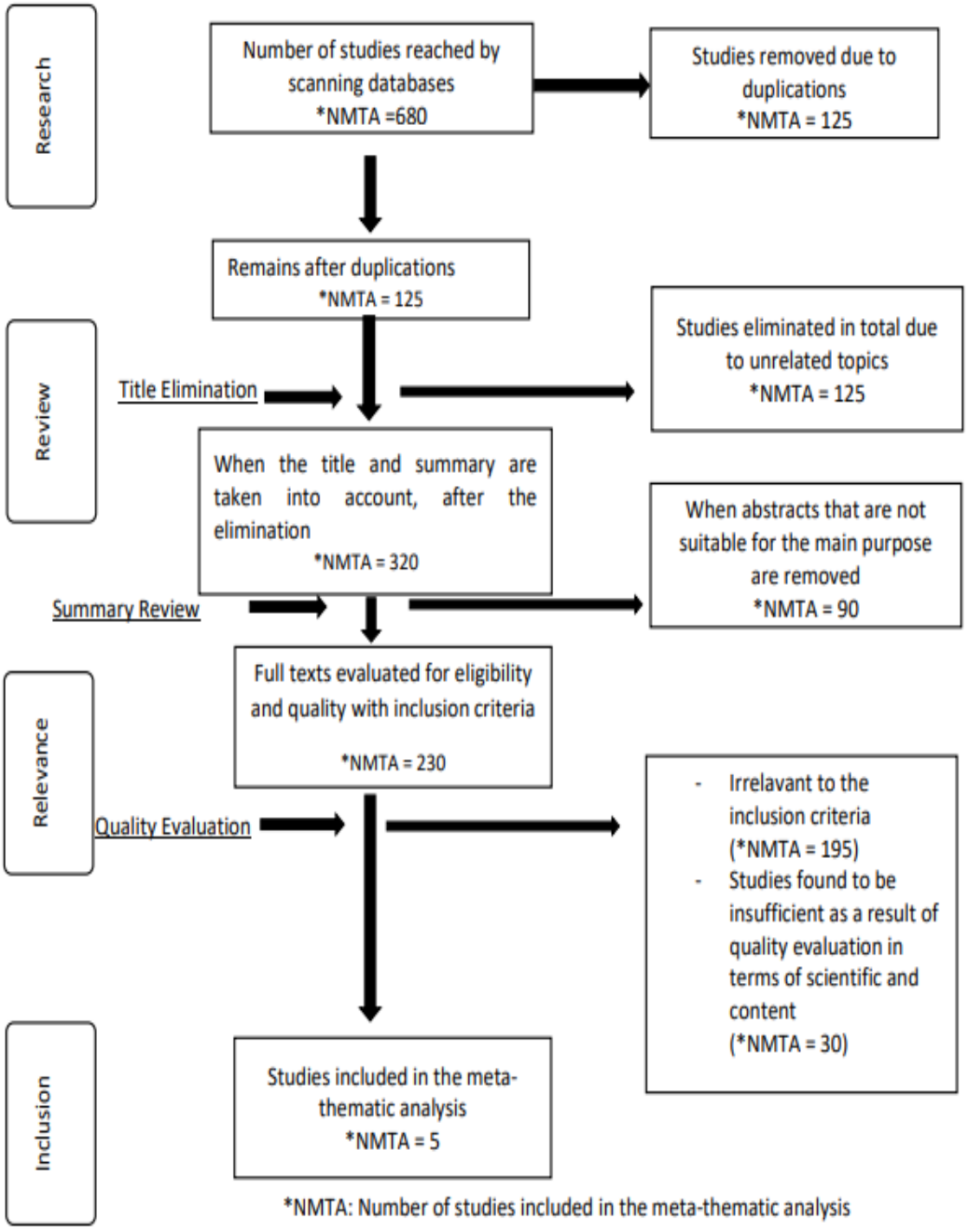

Figure 1**.** Flowchart of studies included in the meta-thematic analysis

Results

Meta-thematic analysis method, which is one of the techniques based on document analysis, was used in the research. Themes and codes created from the participant opinions in the studies examined were presented as models. In this context, the contribution of the constructivist approach to the cognitive dimension, the contribution of the constructivist approach to the affective and social dimension, and the negative aspects of the constructivist approach are presented as models based on the views of the participants.

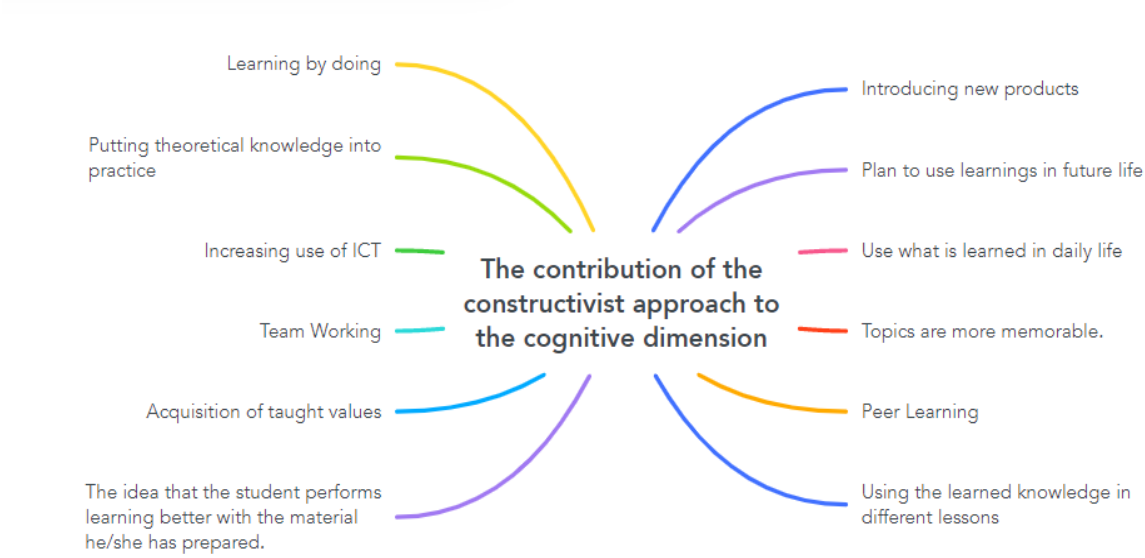

Figure 2. Contribution of the constructivist approach to the cognitive dimension

When Figure-2 is examined, some of the codes compiled from the views of the participants in the context of the contribution of the constructivist approach to the cognitive dimension can be given as "learning by doing, introducing new products, teamwork, making the subjects more memorable". In the study coded T1, “There are things that I learned a lot from this. I can do very well in the future and teach my children in the future and they can be very successful.”; In the T-2 coded study, “We learned together as a group in order to learn, we worked together and we succeeded together.”, “Everyone worked together in the group throughout all the activities. Everyone did one side of the event. All activities are shared as a group.” Their statements show that constructivist approach activities support students to work in teams. It can be said that integrating the learned information into life provides meaningful and permanent learning experiences in the process. It is seen that peer learning with a constructivist approach is supportive. In addition, it can be described as the contribution of the constructivist approach to the cognitive dimension of the student being active in the lesson, providing learning by doing and experiencing, and providing the opportunity to use the acquired knowledge in different lessons.

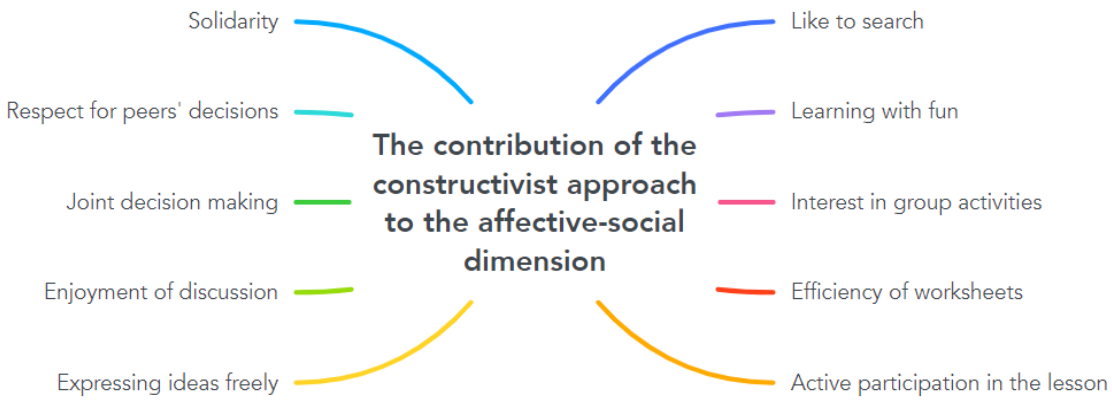

Figure 3**.** Contribution of the constructivist approach to the affective-social dimension

When Figure 3 is examined, the codes containing the contributions of the constructivist approach to the affective and social dimension are seen. The effects of the constructivist approach on the affective and social dimensions of the student are seen as follows: Active

participation in the lesson, increased interest in the lesson, free expression of ideas, learning with fun, cooperation, making common decisions. In the referenced T3 coded study "We did a great job with our friends, they say, what's wrong with one hand, two hands have a voice", "I do all the tasks, research and activities are very enjoyable… it is not boring at all, especially group tasks are very joyful… it is very enjoyable to do something together. ", in T 5 coded study "I am eager to participate at every stage of the lesson… the worksheets are so fun, we have fun like in kindergarten… I enjoy talking in discussions, our teacher cares about everything we say"", in T 2 coded study "We learned a lot, we had a lot of fun doing these exercises." When we look at their expressions, we can say that constructivist approach applications make the learning process of the students fun, so the interest in the lesson and active participation increase accordingly. Again, based on the views of the participants, it would be correct to say that the students' working as a team by supporting each other in the learning process improves the helping skills of the students. The fact that students enjoy the process, play an active role in learning activities, and positively affect their interests and attitudes towards learning are thought to be the benefits of the constructivist approach to the affective-social dimension.

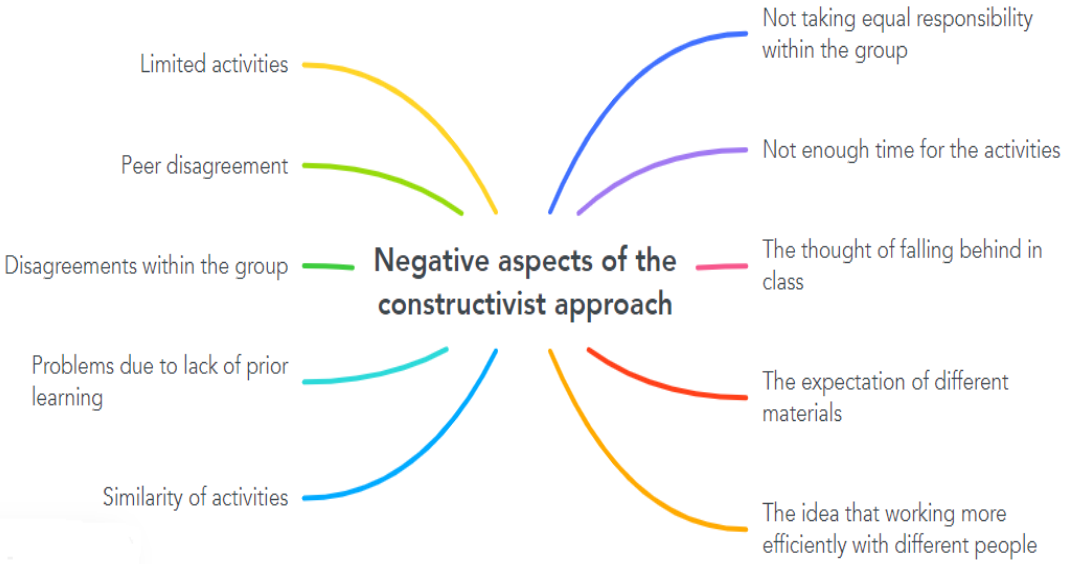

Figure 4. Negative aspects of the constructivist approach

When Figure 4 is examined, the model of the negative aspects of the constructivist approach based on participant views is presented. In the model created in line with the opinions of the participants, some of the negative aspects of constructivist approach practices were expressed by the participants with codes such as the similar nature of the activities, the lack of time to implement the activities, the expectation of different materials, the inability to take equal responsibility within the group, the difficulties arising from the lack of prior learning. From the opinions of the participants, In the referenced T4 coded study "The activities were limited, we only did one study on each subject.

If we had done more work, it could have been more permanent in our minds.", in T 3 coded study "We fell behind in the subjects", "We sometimes had difficulties while coding. If these were shown to us at an earlier age, we would not have experienced these difficulties.", "I think it was a very good application, but our time was limited, so many activities were limited" statements also support these codes. From this point of view, it is seen that there is not enough time for the activities applied in the constructivist approach, that the applied activities have similar characteristics with each other, and that there may be some disagreements due to the fact that the students do not take equal responsibility in group work. In addition, it can be said that

the process will be negatively affected if there are deficiencies caused by the pre-learning of the students. These findings obtained within the scope of the study are shown among the negative features of the constructivist approach.

Conclusion and Discussion

Within the scope of the research, the effectiveness of the constructivist approach was discussed with the meta-thematic analysis method. As a result of the analysis, many cognitive and affective field codes related to the constructivist approach were found. When these codes are examined, the contribution of the constructivist approach such as encouraging students to produce new products in the cognitive field, enabling learning by doing, enabling the application of theoretical knowledge, making the subjects more memorable, providing students with development in peer learning and working in groups, transferring the learned information to different courses. conclusion has been reached. Within the scope of the research, the effectiveness of the constructivist approach was discussed with the meta-thematic analysis method.

As a result of the analysis, many cognitive and affective field codes related to the constructivist approach were found. When these codes are examined, it is seen that the constructivist approach encourages students to come up with new products, provides learning by doing, allows the application of theoretical knowledge, makes the subjects more memorable, provides students with development in peer learning and group work, and transfers the learned information to different courses in the cognitive field. The student-centered constructivist approach ensures the permanence of the learned information as students actively participate in the learning process in its activities. In addition to this, gaining the values taught, using the learned information in their future lives, and using what is learned in the lesson in daily life are also the contributions of the constructivist approach activities to the cognitive development of the students. Batdı et al. (2021) emphasize that learning processes designed with a constructivist approach provide more academic success to students compared to traditional methods. He also states that the constructivist approach is effective in reaching meaningful and permanent outcomes in learning processes. Learning activities designed with a constructivist approach enable students to be active in the process and help increase the level of success (Aydın, 2007; Ayaz & Şekerci 2015).

Constructing the knowledge by the student increases the efficiency of the learning processes on the learner (Akyol & Fer 2010; Kaya & Zengin 2018). The findings obtained from this study show parallelism with the studies in the literature, and it is seen that the constructivist approach adds quality to the learning processes and offers qualified and productive learning experiences to the students in the cognitive dimension. Another of the themes created based on the views of the participants is the relationship of the constructivist approach with the affective and social field. The constructivist approach does not only contribute to the cognitive development of the student. While realizing new learning, the methods of realizing these learnings lead to some developments in the affective and social areas. In this context, when the codes created under the theme of the contribution of the constructivist approach to the affective and social field are examined, the increased interest in the lesson and the fun learning codes stand out. It has been concluded that the students who teach with a constructivist approach have developed in emotional and social areas such as freely expressing their ideas, enjoying in the discussion environment, helping each other, respecting the decisions of their peers, acting together, thinking that the lesson is getting boring, and loving to do research. Since group success is more important than individual work, especially in group activities, they had to learn to work and cooperate with their peers.

In their study, Savaş et al., (2012) stated that constructivist approach applications enable students to enjoy the lesson and thus internalize the lesson. As Vgotsky stated in his theory, the role of society and other people in learning is very important. Although learning is defined as an individual process, the effect of the social environment cannot be ignored (Arslan, 2007). Çetin and Günay (2007), in their study, examined the effect of educational activities created with a constructivist approach on success, and it was mentioned that information exchange became possible by establishing social interaction with the constructivist approach in the related study. The findings obtained in this context are supported by different studies in the literature, and it is seen that constructivist approach applications contribute to students in the social-affective sense. Although there are many positive features of constructivist approach activities, they also have some negative features (Şimşek, 2004). The negative aspects of the constructivist approach, which was created based on the views of the participants, were examined and codes were created in this direction. It has been concluded that the activities and the time required to implement the activities are limited, the activities are similar to each other, and the difficulties experienced by the students due to their prior learning and the expectation of different materials are the negativities of the constructivist approach activities. Different studies in the literature contain criticisms that the approach is inadequate in terms of application in crowded classrooms, which it may be functional in environments with strong technological infrastructure, and that different problems may occur in time management and evaluation (Ocak, 2010). In addition, there are some negative aspects especially in-group activities. It was concluded that peer conflict, intra-group disagreements, not taking equal responsibility within the group, and the idea that the student could work more efficiently with different people were among the negativities encountered in constructivist approach activities.

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