EXPERIENCED K-12 TEACHERS' OPINIONS ON BARRIERS PREVENTING SUCCESSFUL APPLICATIONS OF A CONSTRUCTIVIST CURRICULUM

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ABSTRACT

The Ministry of Education in Turkey utilizes a constructivist point of view as its philosophical framework for Curriculum. However, concerns exist among administrators, teachers, and families with regard to the successful application of the constructivist curriculum. This study investigated experienced teachers' perceptions about these barriers. Ten K-12 teachers with between 15 and 29 years of experience were interviewed about barriers to the constructivist curriculum and suggestions for enhancing it. The collected data were transcribed, segmented, and coded. According to the results, 8 categories emerged as barriers that prevent successful implementation of a constructivist curriculum: huge content load, insufficient infrastructure, complexity of activities compared to children's developmental stages, crowded classes, time limitation, insufficient in-service training, inappropriate parental support, and difficulty in assessment.

Keywords:Constructivism, Curriculum, Experienced K-12 School Teachers, Case Study

DENEYİMLİ K-12 OKUL ÖĞRETMENLERİNİN YAPILANDIRMACI MÜFREDATIN BAŞARILI BİR ŞEKİLDE UYGULANMASINI ENGELLEYEN FAKTÖRLERLE İLGİLİ DÜŞÜNCELERİ

ÖZET

Türkiye Cumhuriyeti Milli Eğitim Bakanlığı müfredat için yapılandırmacı bakış açısını filozofik çerçeve olarak belirlemiştir. Ancak, yapılandırmacı yaklaşımın başarılı bir şekilde uygulanması konusunda yöneticiler, öğretmenler ve veliler arasında büyük bir endişe bulunmaktadır. Bu çalışma, deneyimli K-12 öğretmenlerinin yapılandırmacı müfredatın başarılı bir şekilde uygulanmasının önündeki engellerle ilgili düşüncelerini araştırmaktadır. 10 tane 15 ila 29 yıl arasında öğretmenlik deneyimi olan K-12 okul öğretmeni ile yapılandırmacı müfredatın uygulanması önündeki engeller hakkında ve daha iyi uygulamalar yapılabilmesi için neler önerdikleri ile ilgili görüşülmüştür. Veriler, transkript edilmiş, bölümlenmiş ve kodlanmıştır. Çalışmanın sonuçlarına göre yapılandırmacı müfredatın başarılı bir şekilde uygulanmasının önündeki engeller olarak 8 kategori ortaya çıkmıştır. Bu kategoriler, içerik yoğunluğu, yetersiz altyapı, aktivitelerin öğrenci düzeylerine göre karmaşık olması, kalabalık sınıflar, zaman kısıtlılığı, yetersiz hizmet içi eğitim, yanlış aile desteği ve değerlendirme zorluğudur.

Anahtar Kelimeler:Yapılandırmacılık, Müfredat, Deneyimli K-12 Okul Öğretmenleri, Durum Çalışması.

INTRODUCTION

The curriculum of K-12 schools in Turkey is based on the constructivist philosophy (Yanpar, 2006), a determinant for in-class activities, student roles, and teacher roles. Airasian and Walsh (1997) define

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constructivism as an epistemology about the nature of learning. Duffy and Cunningham (1996) describe the essence of constructivism as an umbrella over a diverse selection of perspectives in which knowledge is shaped thorough experiences. Similarly, Ertmer and Newby (1993) observe that, according to this philosophy, knowledge is created by learners through experiences. Bruner (1990) emphasizes the effects of culture in constructing knowledge. Driscoll (2000) continues this idea, indicating that learning goals are identified in context according to constructivism. Piaget's and Vygotsky's (in Airasian and Walsh, 1997) theories form an infrastructure for constructivism, and Driscoll (2000) exemplifies that context is core via the concepts of situated learning, Bruner's discovery learning, and the dialectics of Vygotsky's theory.

Tobin (1993) states that attention to constructivism has grown since the 1980s, although it has a long history. According to Duffy and Cunningham (1996), constructivism dates to Von Glasersfeld, who states that knowing means knowing means knowing how to do; Kuhn, who advocates the "best description" view of theory in science, and John Dewey, a proponent of learning by doing instead of through recitation and memorization. After 1980s, it became an alternative to objectivism and its applications (Tobin, 1993). However, as Ertmer and Newby (1993) and Tobin (1993) advocate, no single philosophy is best, and all philosophies should be considered with respect to context.

From the constructivist point of view, because knowledge is constructed by learners, teachers are not suppliers of knowledge but learning managers or coaches (Airasian and Walsh, 1997; Duffy and Cunningham, 1996), whereas students are the primary active participants in the learning process (Airasian and Walsh, 1997; Driscoll, 2000). Moreover, Duffy and Cunningham (1996) emphasized that according to a constructivist view, a strong responsibility for learning belongs to learners.

Although constructivism has gained popularity, some concerns have emerged regarding its successful application in learning activities. Some of these concerns stem from the very philosophy of constructivism itself. Airasian and Walsh (1997) warn of four major issues about the application of constructivism:

- Constructivism is an epistemology, and an epistemology is not an instructional approach. Rather than representing instructional prescriptions, it is only descriptive.
- It does not provide the sole means by which students construct meaning. One's task is to find a balance between constructing and receiving knowledge.
- It demands more time than non-constructivist orientations because students and teachers need to get accustomed to this approach, and implementation and constructing knowledge require an investment of time, as well.
- Assessment is a significant problem in constructivist learning environments, as no clear method has been established for measuring success.

This study was intended to obtain in depth information about K-12 school teachers' perceptions on the constructivist philosophy and challenges met while applying this philosophy. Moreover, suggestions were taken with regard to successful implementation of constructivist curriculum in class activities. Identifying the barriers that prevent implementation provides beneficial information for educational policy makers, teachers, school

administrators, and families, since the feedback pertains to the application and success of the curriculum. Because teachers play the most important role in education as applicators (Gibbs, 2003), their opinions about the constructivist curriculum are important to understand its practical use. With respect to the aim of the study, three research questions were posed:

1. What do K-12 school teachers think about the constructivist curriculum?
2. What do K-12 school teachers think about barriers preventing the successful application of the constructivist curriculum?
3. What suggestions do K-12 school teachers have to benefit the constructivist curriculum effectively?

METHODOLOGY

This was a qualitative research study using single case research design. According to Bogdan and Biklen (1998), single case study design is "a detailed examination of one setting, or a single subject, a single depository of documents, or a particular event" (p. 59). In this study, experienced K-12 school teachers' perceptions in a single school were investigated. The data were collected through semi-structured interviews.

Instrumentation

A semi-structured interview form was prepared by the researcher and checked by an expert. There are 3 main questions in the form: a) What do you think about the constructivist curriculum?, b) What are the barriers to applying constructivist curriculum successfully?, c) What do you suggest for applying constructivist curriculum successfully? Additional questions were asked as determined by interviewees' answers. For example, if an interviewee stated that the constructivist curriculum was beneficial, the researcher would ask for more details as to why he or she thought that way.

Participants

Purposive sampling was applied in the study. Ten experienced primary school teachers were interviewed from among a pool of twenty. All the experienced primary school teachers in the school where data were collected participated to the study. Because novice teachers experience many problems related with classroom management (Draper, Fraser, Smith, and Taylor, 1991, in Draper, O'Brien, & Christie, 2004; Featherstone, 1993; Orungbemi, 2009), the researcher wanted to collect data from experienced teachers. Moreover, the researcher preferred to collect data from primary school teachers since secondary school teachers teach different groups and levels, complicating the problems they may experience while applying the constructivist curriculum. Therefore, the primary school teachers interviewed in the study had between 15 and 29 years of teaching experience. Their ages ranged between 38 and 52. Three were male; the others, female. The participants taught at the same school.

Context

The school where the data were collected was a pilot school. The numbers of experienced teachers is high in pilot schools in Turkey. The school was comprised of two buildings--one for primary school teachers and one for

secondary school teachers. The school had a computer and science laboratory; however, students could only access these facilities during lessons.

Procedure

Face-to-face interviews of approximately 25 minutes each were conducted with 10 interviewees. An interview schedule was developed, and questions were constructed by the researcher. The order and format of the some interview questions were changed after an expert review. Before the interviews were conducted, permission to record the conversations was granted by interviewees. After the interviews, the collected data were transcribed and coded to identify themes. The transcribed data were analyzed using an open coding method.

RESULTS

According to the analysis results, one category merged related to the first interview question, namely, positive point of view about constructivist curriculum. Moreover, the results showed the barriers preventing successful applications of constructivist curriculum were overwhelming content load, insufficient infrastructure, complexity of activities compared to children's developmental stages, crowded classes, time limitations, insufficient in-service training, flawed or inappropriate parental involvement, and difficulty in assessment.

1. Positive Point of View about Constructivist Curriculum

The interview results showed that all the teachers found constructivist curriculum applications more beneficial than traditional teaching methods in terms of learning quality. According to the teachers, students are more active and learn by doing in a constructivist curriculum. The teachers stated that students have a good time during the activities. Moreover, they found the performance based assessment of the constructivist curriculum fair compared to traditional test-based assessment. On the other hand, they complained that they could not benefit from the constructivist curriculum because of some barriers. One teacher stated:

> The philosophy behind the constructivism is really perfect according to me. Students are active, they experience what they learn. And I see that my students are entertaining while doing activities. Also, assessment is based on the students' performance not on test results. I oppose traditional testing since student success cannot be assessed in one or two hours, and a student may be unsuccessful because of illness, anxiety, or stress.

Another teacher said that:

> I think that applying a constructivist curriculum is more beneficial than the old curriculum. At first, all students are learning by doing. They are studying on projects and problems.

2. Barriers Preventing Successful Applications of A constructivist Curriculum

2.1. Overwhelming Content Load

Content load refers to the quantity of a subject matter expected to be taught, which all teachers felt was extremely heavy and caused great difficulty in applying constructivist curriculum successfully. According to the teachers, the curriculum forces students to construct their own knowledge, requiring more time than simply

transmitting information via traditional teaching methods. Moreover, the content load does not allow students to be active. Teachers did not have enough time to teach their subject matters comprehensively based on the activities in the constructivist curriculum. The teachers emphasized that, in addition to constructivist curriculum applications, they covered a significant amount of content by applying traditional methods based on the positivist philosophy. One teacher explained:

> We have to teach a huge amount of content to our students. Also, we have to apply the constructivist curriculum. However, it is impossible to apply constructivist curriculum to teach all these subject matters. We try to find a moderate way and combine the requirements of the two conditions. So, we sometimes teach via traditional methods. We have to do this.

Four teachers also complained that lesson books did not include enough information about subject matters. These teachers indicated that lesson books focus on questions that direct students to investigate, leading both students and their families to seek out unrelated or overly complex information on the internet. Teachers also pointed out that because of this reason; they had to spend an extra effort to explain the detailed information about the homework to parents.

2.2. Insufficient Infrastructure

5 of the 10 teachers mentioned insufficient infrastructure as a barrier to applying the constructivist curriculum. Because they did not have the necessary materials, they could not complete large portions of curriculum activities. One of the teachers stated that:

> Students were to create a cabinet according to an activity in the constructivist curriculum. They had to use different materials such as cartons, wood, papers, crayons, and whatever else they wanted. Everything was good for the activity. However, because we do not have a special room or space at the school, we had difficulty storing the students' projects. All of the students had to carry their projects, and we could not exhibit students' works as we planned.

Seven teachers stated that not only the students but the teachers suffered from the lack of materials. For example, the school did not have computers. If they had to conduct research, they had to go to internet cafes. Also, 4 of these 7 teachers pointed out that in-service trainings on basic computer programs such as Word, Excel, and Powerpoint were not beneficial because without computers on which to practice, they did not retain the information presented.

2.3. Complexity of Activities Compared to Children's Developmental Stages

Eight teachers stated that students were active and learning necessary information in the constructivist curriculum. According to them, benefits reaped by students were numerous and positive. However, some activities were overly complex. For example, one of the teachers observed:

> Students do individual or group projects according to the constructivist curriculum. Of course it is very beneficial for students because they learn by doing something. However, I think that some activities are very complex and students have not reached the developmental stage to do these projects. Some projects are more suitable for high school or university students.

2.4. Class Size

All teachers stated that classes were too crowded to apply constructivist curriculum effectively. According to them, ideal class size would be 15 or 20 students. Instead, their classrooms consisted of 35 or more students. They further emphasized that because they taught at a pilot school there were even fewer students in their classrooms than in other schools. Although the essence of the constructivist curriculum is directing students during learning, classrooms are so crowded that teachers cannot meet the needs of all students. One teacher expressed her frustration:

> I could not guide all my students as needed. I have 36 students, and some projects are so complex that students need too much help. However, I have no time to guide all of them because I am alone and I have to teach them 5 lessons each day.

2.5. Time Limitation

All teachers needed more time to apply the activities of the constructivist curriculum. Although they found the activities more beneficial than comparable traditional methods, they stated that to apply constructivist activities was impossible during the lessons. One teacher explained:

> Time is not sufficient to apply subject matters based on the activities. Each lesson takes 40 minutes, and when I cannot finish lessons by applying constructivist curriculum, I start to teach via direct instruction and summarize content.

2.6. Lack of Adequate In-service Training on Constructivism

The results of the interviews showed that 3 out of 10 teachers had negative feelings about the instructional design of in-service trainings on constructivism. These teachers were not familiar with the constructivist curriculum concept, instructional theories, or assessment and attended in-service training. However, the trainings about constructivism were not effective because the experts just presented the definition and theories of constructivism, identified teachers' and students' roles in instruction, and how they assess the process. However, according to the teacher, experts should have shown how to apply constructivist curriculum by actively engaged learners during in-service trainings. The teachers expressed frustration because they themselves were not active during these trainings:

> Constructivism is based on the idea that students would be active during the instruction. Yes, we learned this about constructivism, but we did not actively learn through constructivism. The experts teaching at in-service trainings just were lecturing. Actually, I did not learn how to apply constructivism in my instruction.

2.7. Inappropriate Parental Involvement

According to the interview results, all teachers believed that the constructivist curriculum encourages family involvement in the learning process, making families more concerned about their children's education. However, the teachers had different thoughts about this family involvement. While two were pleased because parents helped their children with lessons, other teachers were frustrated because parents instilled misconceptions in students. Also, interview results showed that the education levels of parents was also an issue. While the same two teachers were pleased with the education levels of parents, which allowed them to help their

children, other teachers stated that parents did not know enough about the role of assessment in the constructivist curriculum and argued with the teachers:

> I cannot explain to parents why I assess the students according to projects, not according to exams. They wanted me to prepare test questions and give marks to the children according to the results of these tests, but a big portion of the marks are given according to students' performances while doing projects. I really think that parents also need training on the constructivist curriculum.

Another issue connected with this theme was that parents did or could not always provide the necessary materials for their children to do projects. Seven of the teachers said that most of the homework required students to bring materials from home, but not all parents could afford them. One of these teachers said that:

> Some projects require students to bring materials but some families cannot afford them. I sometimes provide materials for students but sometimes not and this situation really causes problems in-class.

2.8. Difficulty in Assessment

The data of the interview results showed that all the teachers had positive feelings about the assessment system of the constructivist curriculum. However, they also complained about the lack of clear assessment methods for measuring students' performance. The teachers stated that they tried to be objective during the assessment, but the students were always questioning their marks because the process assessment was subjective. Moreover the teachers emphasized that it was impossible to apply the assessment in constructivist curriculum successfully under current conditions. For example, one teacher stated that he did not conduct objective assessments because he could not keep up with getting to know students' performances due to time limitations, content load, and class size. Another teacher explained her difficulty in assessing one particular student:

> Actually the idea based on assessing students according to process is very good, but applying it is very difficult. For example, one of my students is very smart, but she cannot afford some materials to do her projects. Sometimes I buy some and give her what she needs, but not always. Please tell me how I can assess this student when she cannot do her homework because she cannot buy materials or research her homework on the internet because she does not have a computer at home.

Although one of the teachers stated that accessing information was easy for students because of the library, others stated that the city library did not include enough books for all students. This teacher also pointed out that only a few students had internet access in their homes, and they had to visit internet cafes.

3. Teachers' Suggestions

All suggestions made by the teachers about how to apply the constructivist curriculum successfully were related to the identified barriers. All the teachers stated that, first of all, classroom conditions should be improved—Class size should be reduced to 20 students, each class should have a computer with internet access, the school should support students who cannot buy materials for projects, content load should be reduced, and each school

should have a special exhibition room for projects. One teacher suggested that if the problems related to the infrastructure were solved, teachers would be much more successful in applying the constructivist curriculum:

> I think that problems related with the infrastructure should be solved first. Really it is very difficult to apply problem-based, activity-based, and project-based methods in crowded classes. Since the classes are crowded, we can not finish lessons in time and a problem emerges. We cannot allow our students to present their projects to friends because we do not have time.

According to the interview results, another suggestion was that parents should be trained about the constructivist curriculum, especially assessment, so parents can help their children more effectively and to reduce conflicts between parents and teachers.

Eight teachers, who complained about the complexity of activities compared to children's developmental stages, suggested that flexibility should be provided to teachers in terms of selecting the activities. These teachers stated that the authority should give permission to eliminate activities that are above students' developmental stages and design more suitable options.

DISCUSSION AND CONCLUSION

In Turkey, K-12 schools apply a curriculum based on the constructivist philosophy. Constructivism has been very popular since the 1980s (Tobin, 1993). Latour (2003) explains constructivism: "It first looked like a good idea: it was fun, it was original, it was enlightening to use the word 'constructivism' to designate the work" (p. 27). However, some authors have criticized constructivism because of the difficulty in fulfilling its promises (Airasian and Walsh, 1997; Latour, 2003). Ertmer and Newby (1993) and Tobin (1993) offer a solution regarding the philosophical complexity in education systems—philosophies should be chosen with respect to context. Since the philosophy of the curriculum is the determinant of everything in educational systems, policy makers should take note of the qualitative and quantitative research studies about the success of the curriculum. This qualitative research study investigated the barriers preventing the successful applications of the constructivist curriculum from the practitioners' point of view.

The study results showed that all teachers felt that constructivism enhances learning quality since students are learning by doing and have fun during instruction. However, study results showed that the teachers did not find school conditions sufficient to apply constructivist theory successfully. Parallel to Airasian and Walsh (1997), the teachers pointed out that constructivism demands more time than non-constructivist methods. According to the teachers, it was impossible to apply constructivist activities fully because of crowded classrooms, content overload, and time limitations. Some teachers stated that they sometimes started lessons with constructivist activities but finished by applying direct teaching methods. The teachers stated that they were teaching too many details and suggested that detailed information in the content should be eliminated and class sizes should be reduced. Although the identified problems should be resolved, Latour (2003) states that a balance must be struck between constructivism and fundamentalism (positivism).

According to interview results, the teachers felt that parent involvement in education increases with the application of the constructivist curriculum, giving teachers and students an advantage. Kerr (2005) supports the teachers' statements; he found a positive correlation between parents involvement to education and students achievement in his study. However, 8 teachers complained that they could not benefit from the advantages stemming from parents' involvement because the parents did not know how to guide their children, leading them to misconceptions about subject matters. To eliminate this barrier, teachers suggested that parents should be trained about the constructivist curriculum and how to help their children succeed.

Another barrier was difficulty in assessment. The teachers stated that constructivism required assessing students according to performance, which was difficult because teachers were not sure if they were being objective. Brualdi (1998) further explains such teachers' concerns about performance based assessment: "Some teachers are hesitant to implement them in their classrooms. Commonly, this is because these teachers feel they don't know enough about how to fairly assess a student's performance (Airasian, 1991). Another reason for reluctance in using performance-based assessments may be previous experiences with them when the execution was unsuccessful or the results were inconclusive (Stiggins, 1994)" (p. 1). The only suggestions offered by the teachers regarding assessment was decreasing class size to no more than 20 students in order to ensure fair assessments, as overcrowded conditions made monitoring student progress nearly impossible.

The teachers also mentioned the need for computers in each class room to exhibit student projects, and funding for students who cannot afford to buy project materials. According to teachers, students had difficulty accessing information while doing projects, and a computer with an internet connection could solve this problem. Moreover, the teachers emphasized that if the students had the chance to exhibit their projects, they would be more motivated to complete them. Finally, the teachers stated that the school should have aid for poor students so they can be assessed on par with their peers.

In sum, according to the study results, the constructivist curriculum offers many promises to Turkey. However, to apply it successfully, researchers should continue to investigate barriers and eliminate them. This study is only one part of the investigative process. The next step should be collecting the results of such studies and creating a plan to eliminate known barriers. For the further study, the findings of this study are planned to be used to develop a survey and the data from more primary school teachers will be collected via this developed survey.

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