



# Curriculum Fidelity and Factors Affecting Fidelity in the Turkish Context

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## Abstract

Although a centralist education system is in place in Turkey, studies show that while implementing the curriculum developed by the Ministry of Education, teachers make changes based on their own preferences or depending on students. Curriculum fidelity can be defined as the degree to which teachers or stakeholders abide by a curriculum's original design when implementing it. Even though no clear position has been determined as to whether teachers' abiding strictly by the designed curriculum is beneficial or not, it is argued in the related literature that by determining fidelity of implementation, it is possible to explain the reasons for success or failure of curriculum innovations, and to specify the changes in the curriculum and their outcomes. In this study, the concept of curriculum fidelity is introduced through a review of the literature, then its historical background, importance, and methods of measurement are explored. Factors affecting curriculum fidelity and related research in the Turkish context are presented, and prominent features of curriculum changes reflected on the practice of education are studied. It is concluded from the study that the factors affecting curriculum fidelity in Turkey are teacher characteristics, curriculum properties, teacher training, institutional features, regional, social, economic, and cultural characteristics, a centralist education system, high-stakes tests, and student characteristics. Because of the understanding of viewing teachers as technicians responsible for implementing a curriculum designed by experts and directors, it cannot be possible to have expert staff that can adapt the curriculum to the conditions of their region, school, or class. This vicious circle drives teachers to ambiguity in planning and implementation; teachers having difficulties abiding by the curriculum under the conditions of the region, school, and class carry out curriculum implementations different in theory and in practice. Suggestions for practice and future research are also included in this study.

## Key Words

Adaptation/Mutual Adaptation, Changes in the Curriculum, Curriculum Implementation, Curriculum Fidelity, Program Evaluation.

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Ensuring students' acquisition of knowledge and skills necessary for adapting to the changing conditions of the world sets the basis for innovative efforts in the field of curriculum in Turkey (Milli Eğitim Bakanlığı [MEB], 2004). A useful way of explaining whether curricula are successful or not is to examine the concept of curriculum fidelity (Dusenbury, Brannigan, Falco, & Hansen, 2003).

The concept of curriculum fidelity, which has been the subject of many studies since the 1970-80s in the United States, is prominent especially in the fields of health (treatment programs, programs for prevention of the use of drugs, etc.) (Backer, 2000; Dane & Schneider, 1998; Dusenbury et al., 2003) and education (Remillard, 2005; Songer & Gotwals, 2005; Vartuli & Rohs, 2009). These studies include theoretical frameworks, explain errors or problems occurring in the process of implementation, and the concept is seen as an indispensable element in determining the effectiveness of a program (Fullan & Pomfret, 1977; Dane & Schneider, 1998; Dusenbury et al., 2003; Petruzzelli, 2010; Rogers, 2003). In addition, factors affecting curriculum fidelity have been determined, and it has been argued that as long as these factors are taken into consideration, curriculum fidelity can be maintained and effectiveness can be increased (Dusenbury et al., 2003; Roehrig, Kruse, & Kern, 2007).

In this study, the concept of curriculum fidelity is introduced through a review of the literature, then its historical background, importance, and methods of measurement are presented. Factors affecting curriculum fidelity and related research in the Turkish context are explored, and prominent features of curriculum changes reflected on the practice of education are studied. While the concept of curriculum fidelity (or fidelity of implementation) has been an important research subject in the North-American literature since the 1970s, the fact that no studies have been carried out on curriculum fidelity in Turkey was the starting point of this study. The concept of curriculum fidelity has been dealt with implicitly and its theoretical fundamentals are not emphasized sufficiently in studies on program evaluation and/or examinations of curriculum implementation done in Turkey (e.g Akdeniz, Yiğit, & Kurt, 2002; Akpınar & Aydın, 2007; Atila, 2012; Aydemir, 2011; Aykaç & Ulubey, 2012; Berk, 2008; Çelik-Şen & Şahin-Taşkın, 2010; Çobanoğlu, 2011; Gelen & Beyazıt, 2007; Kasapoğlu, 2010; Kaya, Çetin, & Yıldırım, 2012; E. Öztürk, 2003; İ. H. Öztürk, 2012; Semenderoğlu & Gülersoy, 2005; Tekbıyık & Akdeniz, 2008; Yangın, 2007; Yaşar,

2012). These studies focus on only a part of the dimensions (mainly participant responsiveness) to be considered in the measurement of fidelity of implementation. However, in the Turkish literature, there is a need for a rich theoretical foundation in curriculum fidelity and for a discussion of the factors affecting fidelity of implementation in Turkish contexts. With the introduction of the concept of curriculum fidelity and its theoretical framework in Turkey, it would be possible to strengthen the research database, which is mainly based on surveys, and to initiate studies at an international level. Moreover, research shows that renewing curricula does not guarantee the renewal of class and teacher behaviors (Atila, 2012; Aydemir, 2011; Çakmak & Gürbüz, 2012; Çelik, 2012; İ. H. Öztürk, 2012; Tekbıyık & Akdeniz, 2008; Yaşar, 2012). Therefore, suggestions for practice and further studies are also included in this study.

### What is Curriculum Fidelity?

Although all curricula are developed based on theories of learning, teaching, and assessment, and teachers are generally given only one curriculum design, teachers implement the curriculum in different ways (Songer & Gotwals, 2005). In studies of curriculum innovations in the US, it was found that some teachers implemented the new curricula as they found them useful while some did not, because they thought these innovations restricted their own autonomy (Datnow & Castellano, 2000). This led researchers to study how curricula are implemented.

Curriculum fidelity or fidelity of implementation is defined as "a determination of how well a program is being implemented in comparison with the original program design" (Mihalic, 2002, p. 2), "a way of determining the alignment between the implementation of a treatment and its original design" (Furtak et al., 2008, p. 362), or "the extent to which teachers implement an intervention, curriculum, innovation, or program as intended by the developers" (Pence, Justice, & Wiggins, 2008, p. 332). In summary, fidelity of implementation can be defined as the degree to which teachers or stakeholders abide by a curriculum's original design when implementing it.

### The Importance of the Curriculum Fidelity

Studying curriculum fidelity is important for a variety of reasons, all of which are related to

gaining an understanding of how the quality of implementation can be improved when research based programs are disseminated. First, an important reason for studying fidelity of implementation is that it reveals failure to implement the program as planned. A second important reason for studying curriculum fidelity is that it often helps to explain why innovations succeed and fail. Third, an assessment of curriculum fidelity allows researchers to identify what has been changed in a program and how changes impact outcomes. Finally, curriculum fidelity reveals important information about the feasibility of an implementation (Dusenbury et al., 2003; Fullan & Pomfret, 1977).

### Historical Background of Curriculum Fidelity

In analyzing the historical background of fidelity of implementation, Rogers' Diffusion of Innovation Theory, and the Research, Development and Diffusion (RD&D) model are noteworthy. The RAND (Research and Development) study titled *Implementation of Educational Innovations* from the 1970s is also remarkable (Blakely et al., 1987; Dusenbury et al., 2003; Marsh & Willis, 2007). Another study contemporary with the RAND report was carried out by Rogers, Eveland, and Klepper (1977). As a result of this study, the classical RD&D model was updated in order to make the process of diffusion of innovations more efficient. Educational policies were also subjected to changes in relation to the re-conceptualization of the model (Dusenbury et al., 2003).

By the end of the 1980s, perspectives on the concept of curriculum fidelity were divided into two main categories: a traditionalist approach (pro-fidelity camp) and an innovative approach (adaptation camp). In addition, a third approach combines these two and argues that changes are necessary and should be flexible (Berman & McLaughlin, 1976 as cited in Dusenbury et al., 2003).

By the 2000s, adaptation and mutual adaptation approaches, which first appeared in 1975 with the RAND study, gained prominence. Researchers adopting a fidelity of implementation approach focused on the full classroom implementation of comprehensive curricula developed by curriculum development experts (Marsh & Willis, 2007). Those who adopted an adaptation approach, on the other hand, argued that curricula should be adapted for the school (Ben-Peretz, 1990; Marsh & Willis, 2007; Pinar, Reynolds, Slattery, & Taubman, 2004). While implementation of clear and well-designed

programs with fidelity is accepted as a proper approach by some authors, others consider it to be more appropriate to adapt ambiguous and defective programs under certain conditions (Emshoff et al., 1987 as cited in Vartuli & Rohs, 2009). Backer (2002) expresses that it is hard work to establish a balance between fidelity of implementation and adaptation. Berman (1981) suggested a contingency model in practice in order to solve this tension. In this model, the decision for fidelity or adaptation is based upon the nature of the innovation.

As a requirement of the nature of centralist education management in Turkey, curricula are expected to be implemented in a standard way nationally. Hence, it does not seem to be quite possible that the camping that appeared in the form of fidelity or adaptation of implementation in the US can find place in Turkey in the short term. It is also known that while implementing the curriculum developed by the Ministry of Education, teachers make changes based on their own preferences or depending on students (İ. H. Öztürk, 2012; Yıldırım, 2003). Therefore, although it is emphasized in the directives of MEB (2005) that curricula should be flexible enough to allow for changes in subjects, time, and practices, and should take into consideration school-environment and student relations, no concrete regulations are found on encouraging teachers to take an active role in curriculum development processes. Furthermore, no explanation is included about how they can adapt the curriculum to their class environments, or what their authority and degrees of freedom are in this regard (İ. H. Öztürk, 2012).

### Measurement of Curriculum Fidelity

Since the 1980s, many methods have been developed to measure curriculum fidelity (Blakely et al., 1987; O'Donnell, 2008). However, these methods are still seen as insufficient (Brekke & Wolkon, 1988 as cited in Dusenbury et al., 2003) and it is argued that there is no standardized method that can be used widely to measure curriculum fidelity (Waltz, Addis, Koerner, & Jacobson, 1993). In the literature, five dimensions have been determined for the measurement of curriculum fidelity: adherence, dose/duration, quality of program delivery, participant responsiveness, and program differentiation (Dane & Schneider, 1998; Dusenbury et al., 2003; O'Donnell, 2008).

Some authors in the literature state that all these dimensions should be measured in order to more

accurately examine the big picture of curriculum fidelity (Dane & Schneider, 1998), while others suggest that this is not necessary (Azano et al., 2011). However, it is emphasized that data should be collected on these dimensions from different sources using different measurement tools (Bond, Evans, Salyers, Williams, & Kim, 2000; Mowbray, Holter, Teague, & Bybee, 2003).

### Factors Affecting Implementation of Curricula

Studies show that individual and institutional adoption of innovations is a difficult and complicated process (Emrick, Peterson, & Agarwala-Rogers 1977 as cited in Rogers, 2003). Authors classify the factors affecting practices of innovations in the field of teaching in different ways. For instance, Fullan (2007) classifies the factors affecting curriculum implementation as the characteristics of change, regional, institutional factors and external factors. On the other hand, Gresham, MacMillan, Beebe-Frankenberger, and Bocian (2000), and Reschly and Gresham (2006), classify the factors as complexity, materials and resources, confidence in program effectiveness, and interventionist. Dusenbury et al. (2003) points out four main factors affecting curriculum fidelity:

- 1) Teacher characteristics: Different characteristics of teachers are an important determiner of curriculum fidelity. Sobol et al. (1989) found that self-confidence and teaching enthusiasm increased fidelity whereas authoritarian personality decreased it. Additionally, teachers' knowledge in the field and in theoretical backgrounds (Carlsen, 1993; Kruse & Roehrig, 2005 as cited in Roehrig et al., 2007), their pedagogical skills in relation reform or innovation (Adams & Krockover, 1997; Shulman, 1987 as cited in Roehrig et al., 2007), and their beliefs and approaches (Anderson, 1996) are also closely associated with program implementations. Even though teachers seem to be only one of the factors in the process of implementation, they are highly important and have a determining role in the success of a reform (Han, 2013).
- 2) Program Properties: Many properties regarding the structure and operation of a program affect fidelity of implementation. The first one of these is whether the program is complicated or simple. Other program properties include the sincerity of program implementation, a program's sufficiency and effectiveness, institutions and

agencies supporting the program, and program management.

- 3) Teacher Training: Teacher training plays a significant role in the successful implementation of innovative programs. However, there is no sufficient study showing which professional development activities affect teaching performance more. Berman and McLaughlin (1976) showed that teachers preferred very detailed and clear instruction during training, asked for supporting administrative staff to perform successful practices, and that external consultants (or researcher and experts) were not very beneficial for better implementation. In another study, professional development activities including observation and support were found to increase the quality of program implementations (Smylie, 1988).
- 4) Institutional Features: Implementation of a program depends on the openness of an institution to innovations. Teachers' self-efficacy levels, school culture, opportunities and support provided by directors, effective leadership, staff morale, how effective the institution is at problem solving, and the degree of readiness for implementing the new program are some of the features determining curriculum fidelity at the institutional level.

### Turkish Studies on Curriculum Fidelity

Although the concept of curriculum fidelity is not used in the literature in Turkey, many studies have been done on how and to what extent programs are implemented. In these studies, instead of curriculum fidelity, aspects such as curriculum practices (E. Öztürk, 2003), differentiations in curriculum implementation at the school level (Öztürk Akar, 2005), opinions of teachers about adoption and implementation of curricula (Tekbıyık & Akdeniz, 2008), the level of implementing constructionist learning teaching activities (Kasapoğlu, 2010), the effectiveness of program practices (Çelik-Şen & Şahin-Taşkın, 2010), curriculum implementation (Çobanoğlu, 2011), the effectiveness of curriculum activities in practice (Aydemir, 2011), the opinions about application level of elementary school program (Aykaç & Ulubey, 2012), the perception and implementation of elements of constructivism by teachers (Atila, 2012; Yaşar, 2012), factors affecting the implementation of a new education program at schools (Kaya et al., 2012), and teachers' development and implementation of plans (İ. H.

Öztürk, 2012) are examined. As stated previously, the components of fidelity in the literature are listed as adherence, dose/duration, quality of delivery, participant responsiveness, and program differentiation. Although the studies carried out in Turkey have not used the concept of curriculum fidelity and its theoretical framework, it can be seen in related studies that findings were obtained on the dimensions of *adherence* (Atila, 2012; Han, 2013; Kenan & Özmen, 2010; İ. H. Öztürk, 2012; Yaşar, 2012), *dose/duration* (Han, 2013; İ. H. Öztürk, 2012), *quality of delivery* (Atila, 2012; Aydemir, 2011; Aykaç & Ulubey, 2012; Caner & Tertemiz, 2010; Çelik-Şen & Şahin-Taşkın, 2010; Çobanoğlu, 2011; Han, 2013; Kasapoğlu, 2010; E. Öztürk, 2003; İ. H. Öztürk, 2012; Tekbiyık & Akdeniz, 2008; Yangın, 2007; Yaşar, 2012), *participant responsiveness* (Akpınar & Aydın, 2007; Atila, 2012; Aydemir, 2011; Aykaç & Ulubey, 2012; Bayrak, 2009; Caner & Tertemiz, 2010; Çelik-Şen & Şahin-Taşkın, 2010; Çetin, 2009; Han, 2013; Kasapoğlu, 2010; Kenan & Özmen, 2010; E. Öztürk, 2003; İ. H. Öztürk, 2012; Tekbiyık & Akdeniz, 2008; Yangın, 2007; Yaşar, 2012) and *program differentiation* (Akdeniz et al., 2002; Berk, 2008; Gelen & Beyazıt, 2007; Semenderoğlu & Gülersoy, 2005).

### Discussion, Conclusions and Recommendations

As a result of this study, it is concluded that the factors affecting fidelity in the literature (teacher characteristics, program properties, teacher training, and institutional features) are largely present in Turkey. However, in addition to these factors, some properties that stand out in the Turkish education system which could also be claimed to affect curriculum fidelity are worth discussing. These factors are regional, social, economic, cultural characteristics, a centralist education system, high-stakes tests, and student characteristics (academic achievement and learning differentiations).

First, teachers' characteristics are considered to affect curriculum fidelity. In studies relating to the new curriculum put in practice in 2005, it is determined that teachers practice innovations eclectically (Aydemir, 2011; Atila, 2012; Çakmak & Gürbüz, 2012; Çelik, 2012; İ. H. Öztürk, 2012; Tekbiyık & Akdeniz, 2008; Yaşar, 2012). Furthermore, these studies have shown that teachers are not familiar enough with the curriculum (Tekbiyık & Akdeniz, 2008) and have serious difficulty in assessment (Yaşar, 2012).

Teachers' decisions about teaching and their practices are influenced by their perceptions of program design (Fullan, 2007; Herron, 1971). For example, teachers' usual perceptions of general curricula as "a list of subjects, guide books, source books, supplementary books, course books, yearly plan, timing, limitations and academic concepts" (Kaya et al., 2012; Yurdakul, 2011), and as a "collection of subjects", are considered a problem hindering program implementations (Gleeson, 2000).

Another characteristic of teachers affecting fidelity is the roles given to the teachers by the program, and the adoption of these roles. These roles cannot be considered independent of life styles shaped by social factors, habits, and values, and therefore the adoption of innovations would take some time (Eğitim Reformu Girişimi [ERG], 2005). Studies carried out in Turkey have shown that teachers cannot perform the roles given to them by the 2005 curricula (Atila, 2012; Çelik-Şen & Şahin-Taşkın, 2010).

The second feature affecting fidelity is curriculum properties (Dusenbury et al., 2003). Studies in Turkey show that necessary needs analyses are not done before developing programs (Kenan & Özmen, 2010), the gains included in the program are not related with the content and expressions, and most of the time, unnecessary gains are included in programs (Özmen, 2005). Moreover, teachers think that unrealistic programs are developed, as they are developed by academicians and lesson processes are not considered adequately (Kaya et al., 2012).

Another important factor pertaining to curriculum fidelity is teacher training. It is known that professional development activities (in-service training) or information on the reform movement are required to maintain fidelity of implementation. In the studies carried out in Turkey (e.g. Bümen, 2005; Bümen, Ateş, Çakar, Ural, & Acar, 2012; Kenan & Özmen, 2010; World Bank, 2006; Yaşar, 2012) it is evident that there is a serious and radical need for transformation in professional development of teachers. In this context, when curriculum changes are undertaken in Turkey, professional development activities should be organized flexibly in accordance with local, regional and institutional needs, they should be planned so as to be practice weighted (Bümen, 2005), and the understanding of continuous professional development should be adopted.

On the other hand, teachers' pre-service education also affects their successful curriculum implementation and fidelity. Therefore, pre-service teacher education should include courses and practice on how to implement curriculum, and to

what extent and how to make adaptations according to school, region, class, and student characteristics.

Implementation of curriculum with adherence to its planned form is also seen as closely related to an institution's openness to innovations, as well as other institutional features. Studies carried out in Turkey show that administrators are not competent enough in relation to the implementation of curricula, institutions do not provide sufficient support, no cooperation is maintained among stakeholders, and necessary physical conditions and material are not supplied (Bayrak, 2009; Gülbahar, 2010; Kenan & Özmen, 2010). These studies confirm that curriculum fidelity is influenced by institutional context in Turkey.

Of the factors affecting fidelity of implementation in Turkey, but not mentioned frequently in the literature of some Western countries, regional, social, economic, cultural characteristics are particularly note-worthy. In the overall Turkish context, it is seen that school conditions vary extremely by geographical regions and socio-economic structures (Çelik, 2012), and these differences affect student achievement (Derin, 2006, ERG, 2010; Yücel, Karadağ, & Turan, 2013). In addition, problems such as poor physical conditions of schools, crowded classes, teachers or students being unable to access different resources, and the insufficiency of educational tools and equipment have been noted (Altunsaray, 1996; Ari, 2000; Damğa, 2008; E. Öztürk, 2003). Moreover, some school types (e.g. mobile education or multi-grade classes) are known as institutions where the inequality of opportunities stands out. This situation was brilliantly critiqued by a young teacher in an award-winning 2008 documentary titled (*On the Way to School*) (Aktaş Salman, 2010). In this context, studies examining the disadvantages resulting from regional-social, economic differences should be continued, and the effects of the adaptations made due to these factors on student and school achievement should be analyzed.

Additionally, socio-cultural characteristics can affect curriculum fidelity. Some hidden dynamics and educational reform movements ignoring anthropological, psychological, sociological, historical, and philosophical bases (Goodlad, 2007) with promotion through negative selection (Bolat, 2012), and some that appear at the decision or persuasion stage for innovations, affect adoption or fidelity as well.

One of the main factors affecting the implementation of the new curriculum in Turkey is the centralist education system. In Turkey, which has the most centralist education system among

OECD members (Fretwell & Wheeler, 2001), some problems arise in the implementation of the programs designed with a centralist understanding due to considerable differences between regions. These problems are observed to cause failure to meet the interest, expectations, and needs of the region, students, and parents (Yüksel, 1998), and provide less opportunity for teachers or schools in aspects such as right of choice, taking responsibility, critical thinking, and developing their own teaching strategies (Karakaya, 2004). In order to find solutions for these problems, a school-based approach to curriculum development has been prominent in some countries (Bümen, 2006; Collwill & Gallagher, 2007; Kaya et al., 2012). An autonomous structure provided for teachers and the school with school-based curriculum development can contribute to adopting curricula and improving fidelity (Datnow & Castellano, 2000).

Another factor affecting curriculum fidelity in Turkey is high-stakes tests. Studies carried out in Turkey found that teachers with a traditional point of view prefer to do tests preparing students for exams (Güneş & Baki, 2011), and sometimes attach particular importance to the subjects covered in university entrance exams (İ. H. Öztürk, 2012). This is also supported by students and their parents (Yaşar, 2012). These results show that national high-stakes tests seriously affect teachers' fidelity of implementation.

The last factor which affects curriculum fidelity in Turkey is student characteristics. Some studies carried out in Turkey (i.e. Kaya et al., 2012; E. Öztürk, 2003; İ. H. Öztürk, 2012) have shown that if students' levels of achievement are high, teachers implement the curriculum as it was planned, whereas if level of achievement is low, only some or sometimes none of the concepts included in the curriculum are covered by teachers.

Involvement of teachers in planning and decision processes in the introduction of new curricula can facilitate fidelity of implementation or adaptations. In this context, the concept of teacher autonomy comes up. It is necessary to view teachers as *experts* who plan their professional activities efficiently and can *adapt* the curriculum in accordance with the characteristics of the class and the region. The literature suggests that fidelity would be appropriate for clear and well-designed/structured programs, while adaptation would be more suitable for ambiguous, defective, or poorly-structured programs (Berman, 1981; Boote, 2006). Teachers are often seen as technicians rather than experts in Turkey. An indication of this is teacher



(guide) books, which contain a detailed lesson plan, and are prepared or approved by the Ministry of Education for many courses. In fact, one study showed that a great majority of teachers think curriculum development is the responsibility of the Ministry of Education and that they are not authorized for or responsible for it (Can, 2009). Therefore, it is not realistic to expect teachers, who are perceived as technicians, to adapt the program to their own school and classroom conditions in the role of a professional. This vicious cycle leaves teachers in uncertainty when it comes to planning and implementation; teachers having difficulty maintaining fidelity of implementation under the conditions of their school, region, and classroom practice a different curriculum from the one in theory.

Finally, in future studies to be carried out on curriculum changes, the concept of curriculum

fidelity and its theoretical framework should be taken into account to strengthen Turkish research databases and pave the way for international comparisons. Studies can be performed to determine the criteria and standards that can indicate effective implementation of programs and to examine fidelity of implementation factors presented in this study which are prominent in Turkey but not mentioned frequently in Western literature. Furthermore, differences between state and private schools in terms of curriculum fidelity can also be examined. Finally, it is recommended to study whether curriculum fidelity is necessary, the limits of adaptation, the effects of school-based curriculum development on fidelity of implementation reflections observed in student achievement, and the relation between teacher autonomy and curriculum fidelity.

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