# The Role of Instructional Design in Music Education

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**Abstract.** Music education is known as a unique field in educational science; however, powerful educational models are still less understood and needs to be improved. The main aim of this research is to study the output of Instructional Design (ID) in music education. The method used in this study is an analytical-documentary approach. For this purpose, the literature related to this field which published since 2000 has been studied from available search engines such as Google Scholar. Learning music encompasses a wide range of skills which should be mastered. Further, The attitude towards music education has changed in the past few years, as some of the music educational aspects have been noticed to be applicable in people lives beside the music artistic aspects. These various aspects could baffle the teachers and instructors in their educational attempts. literature search shows that in scientific research field has been less attention given to ID in music education. The term of ID formed and developed with progress in the field of educational psychology in the 20th century. There are various models exist in instructional design in accordance with teacher attitude and approaches. These paradigms can help teachers to determine and reach to the certain goals. In this article we studied how the main elements of the general model of instructional design ADDIE, including Analysis, Design, Development, Implementation and Evaluation, can guide music teachers to form and develop their teaching plans.

**Keywords**: music teacher; music learning; instructional design model; general model of ADDIE; teaching plan

## 1. Introduction

"A fundamental reason for instructional design is to insure that no one is educationally disadvantaged, that everyone has an equal opportunity to use his individual talents to the fullest degree."

Robert M. Gagné

For the past twelve years the first author has been working as an elementary music teacher in several academies and schools in Iran. Encountering with lots of issues in teaching plans, she resolved to study the literature of educational science and apply the principles of instruction in music education. One of the significant parts of the pedagogical issues is the absence of music education as a specific major in the universities and colleges in Iran. Most sub-categories of music in universities are merely playing musical instruments, music composing and ethnomusicology. Many of the music teachers are musicians who have been graduated from those universities and numerous elementary music teachers have just attended some short courses in the musical mentoring. However, a serious weakness of this case is the lack of enough teaching skills of these teachers. Obviously, quality of the music teacher education is of vital importance to the music education expertise. Consequently, enhancing the effectiveness of preservice music teacher education programs is crucial to improve the quality of teaching music in the classroom (Ballantyne, 2005). Education, in general term and notwithstanding field, corresponds to individuals learning. It is essential for teachers in different fields to have knowledge about learning theories. Therefore, it can play a crucial role in music teachers career to know learning theories as active prescriptions which shape their comprehension of what the concept of learning means (O'Neill & Senyshyn, 2011). Several studies specified that teaching music, in addition to musical knowledge and skills, needs educational and teaching abilities. Circle (2005) stated that most graduated music teachers don't have enough qualification which is needed for teaching music.

On the other hand, in the past decades many researchers have argued that the social and technological changes are altering music education very rapidly in many countries (Hargreaves, Marshall, & North, 2003); Iran is no exception. Plummeridge (2004) stated that music education would become more meaningful if music is combined with arts programs. Scripp (2002) supported the idea of integrating music with interdisciplinary curriculum, but he suggested that the credibility and practical importance of future research will depend on expanding ways to involve musical skill aspects into research methods. Consequently, music teachers can assess whether the level of musical abilities makes any judgmental difference in the degree of mathematical or language arts acquirement. In two other studies researchers showed that music educators around the world have a big issue with aims and objectives. They noted that teachers are in a dilemma of choosing between musical and artistic skills or personal and cultural aims (Hargreaves et al., 2003; Bartel & Cameron, 2007).

Many teachers and music academies suggest that music learning develops several life skills of children which could be applied in the non-musical circumstances, such as social skills, self-expression and responsibility (Matthews, 2018). In addition,

researchers believe that children who have had the opportunities to learn music profit from supplemented brain activity which has been exhibited to boost students' skills to perform definite academic tasks (Yoon, 2000). These changes can generate new demands for revision and remodelling of music education in some dimensions such as approaches, aims and teaching methods. In more recent research, Gilbert (2016) indicated that the music educators must be qualified to construct their instructional and evaluation practices based on a model if they are supposed to efficiently assess their students.

From these deficiencies and changes arise different questions. First of all, which methods and guidelines can be prescribed to enhance the music teachers' skills? How music educators will be able to remedy lack of educational knowledge in their career? In addition, if the outlook for music learning is instrumental and children are learning music to improve their life skills and intellectual abilities, which skills exactly will be improved? Have the skills been specified before starting education? Do the teachers have a particular plan for improving the non-musical skills in the music class or they think that just learning music develops the skills naturally? How acquisition of skills could be assessed and evaluated?

Cognitivists Robert Gagné and Leslie Briggs (1974) stipulated:

> "Learning must be planned, rather than haphazard, so that each person will come closer to the goals of optimal use of his talents, enjoyment of life, and integration with his physical and social environment. Naturally, this does not mean that the planning of instruction will have the effect of making different individuals more alike. To the contrary, diversity among individuals will be enhanced. Planned instruction has a purpose of helping each person to develop as fully as possible, in his own individual directions."

Kemp and colleagues (2011) described Instructional Design (ID) as an instrument which makes learning more efficient and effective and less difficult. They believed that it can be helpful for teachers to know about principles of ID. In recent restructured schools' teachers may see themselves increasingly involved in design activities (Kemp et al., 2011).

Referring to these theoreticians' statements, who are the greatest in ID, it is important for teachers to know how learning and instruction can be designed. Indeed, music teachers cannot be excepted from this topic. Although some researches have investigated issues that music educators face with but it does not seem that they have discussed ID as a facility for teaching music. Bautista and colleagues (2016) reviewed the seven mainstream music education journals (such as Music Education Research, Journal of Music Teacher Education, Journal of Research in Music Education, and etc.) from 1990 to 2015 (Bautista et al., 2017). They identified 17 articles which described "professional development (PD) initiatives for K-12 music teachers" and interestingly found that very few PD initiatives engaged teachers in planning curriculum materials. Moreover, as we mentioned later, music teachers in Iran mostly do not obtain academic pedagogical knowledge pre or in-service. Accordingly, it seems that applying a

framework would help them to design their instructional plan as well as to determine where and how the instruction should start and to where it should lead the learners.
This paper attempts to show that Instructional Design (ID) can be considered as a significant phenomenon for teaching and learning music. There are numerous models for ID which are related to different learning theories. In this study we apply ADDIE as a general term for ID. Molenda (2003) stated that ADDIE is not a specific model, but it is a synonymous with instructional systems development (ISD). Technically, it is only a label that refers to a family of models that shares common basic elements (Molenda, 2003). Here we describe five top-level headings of ADDIE, Analyses, Design, Development, Implementation and Evaluation, and their application in procedure for designing instruction in music classes.

## 2. Methods

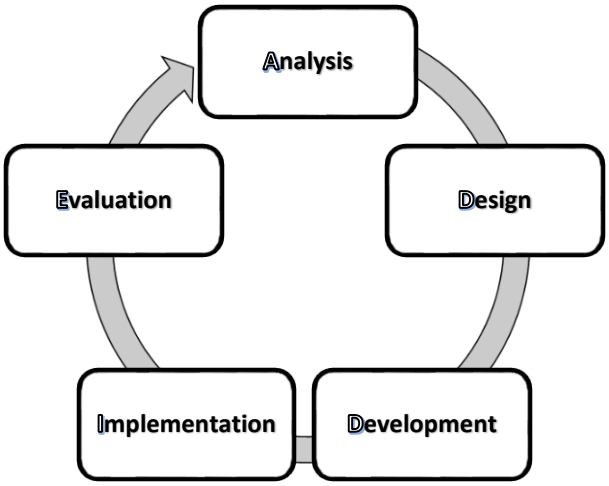
The study uses analytical-documentary approach as a qualitative method in order to identify the instructional design and its role in music education. For this purpose, the literature related to music education which published since 2000 has been studied from available search engines such as Google Scholar. Some of the key words that have been searched are: instructional design in music education, music learning, music education issues, music teaching plan, music curriculum, learning theories and teaching music, learning strategies in teaching music, and music teacher education. 19 items, included articles, reports, and books, have been chosen among others from the music education literature. The theories of Kemp and colleagues as well as Gagné and Briggs have been applied as the main sources for identifying Instructional Design. The definition of ADDIE has mainly been extracted from Kurt's article (2017) and Noroozi's book (2016).

## 3. Results and Discussion

### 3.2 ID and ADDIE

Instructional Design (ID) can be determined as the process of systematic design which is based on what we know about learning theories, information technology, systematic analysis, educational research, and management methods (Kemp et al, 2011). The initiation of concept of ID was called in the early the1950s (Kurt, 2017) and numerous scholars have developed several theories and models on it until now. Considering to the educational and learning goals, the instructional designer chooses a model and utilizes it towards accomplishing intended objectives. In this article, five phases of ADDIE are designated for instructional design in music education as leading components. Each of these stages, Analysis, Design, Development, Implementation and Evaluation, included several sub-stages (Kurt, 2017). Each stage has outcomes which are inputs for the next stage and the expansion cycle is interactive that is the extent of the combination of the phases (Merrill et al., 1990), (Figure 1). We have examined how the phases can be used to design teaching music.

Figure 1: The conceptual model of ADDIE




### 3.2.1 Analysis

In the analysis phase, instructors focus is on the instructional goals which should be characterized based on the learners' background knowledge (Wang & Hsu, 2009). The analysis includes learners, goals, determining methods and determining limiting factors (Noroozi & Razavi, 2016).

*Learners:* Every pupil, who is engaged in learning process, has many characteristics that can impact on outcomes of instruction. There are several aspects of learners that should be considered for designing instruction, such as age, nationality, cultural background, previous experiences, interest and needs (Kurt, 2017). The teachers as instructional designers collect the information that is crucial to achieve specific objectives (Kemp et al., 2011) related to learners. In learning music, pupils are involved in mastering many different skills that might be perceived differently at any age. Therefore, it is vital to notice pupils age and the features of any age group. In addition, music originates in socio-cultural context and it is inevitably important to know what music are valued in learners' culture (Smithrim & Upitis, 2007). Children, from birth, are auditors and their sound experiences will influence their attitude towards the different music styles. Hence, it is crucial to start with musical enculturation, especially at early stages (Campbell & Scott-kassner, 2019). One other item that should be considered is music learners' interest. For achieving the musical objectives, pupils are supposed to practice intently and their interest play a significant role in maintaining them diligent. Recognition of the learners' needs is an essential part of the analysis.

*Goals:* The momentous decision in analysis stage is to choose the goals and select the objectives that will conduct the learners to the specified goals. Gagné and Briggs (1974) introduced a backward path for the goal analysis. Indeed, he noted that the best way is to determine learning outcomes, the expected capability after instruction, and then move backward and design the instruction. They represented five learning outcome

categories including *intellectual skills*, *cognitive strategies*, *verbal information*, *motor skills* and *attitudes*. Besides, he believed that even in creative thinking learning these categories should be noticed. Gagné and Briggs (1974) indicated some sub-categories for every category and stipulated that every expected capabilities can belong one of them. It is clear that many musical learning outcomes can be related to these categories. But the domain of objectives in music is complicated and related to different types of learning (Isbell, 2011). Practically, musical objectives not only correspond to content, but also include understanding of the different ways that music can be comprehended and the realm of the contexts in which it occurs (Philpott, 2004). Therefore, if the educator does not specify the objectives and the types of learning before teaching, accomplishing them seems much more difficult. The leading point in determining learning outcomes is that the verbs which are applied to describe the objectives should have a single meaning for all literate persons (Briggs & Gagné, 1974). Further, as we mentioned in introduction, the goals of the music education have changed in recent years and they define beyond the artistic merits. One considerable function for objectives is providing criteria to evaluate pupils learning (Kemp et al., 2011). With defining non-musical objectives before starting education, the teacher will be able to prepare special musical activities for learners to achieve the objectives and assess whether they accomplish them or not. In addition with determining the goals, instructor clearly delineates skills and knowledge which are needed for attaining the objectives (Noroozi & Razavi, 2016). With specifying the input required skills, music teachers will be able to assess whether learners are ready for learning new skills or not. If not, a backup plan can be used to conduct the learners to the start point of the learning new skills.

*Determining Methods:* Typically, there are several methods in every instructional subject. Music education, as a historical term in educational science, possesses a wide range of methods. It is one of the professional parts of the music teachers careers to know about the methods and the features of them. That can help teachers to choose the best method depends on the learners, goals, and facilities, and enhance that if it is needed. Five well-known methods and approaches in music education are: *Kodaly*, *Dalcroze*, *Suzuki*, *Orff*, and *Gordon*. Some teachers apply merely one of them and some others incline to implement a combination of methods in their classes. There is no global agreement on methods, but the significant matter is that the applied methods ultimately should be compatible with pupils and develop their understanding of music, based on learning theories (Patricia, 1986).

*Determining limiting factors:* There is no doubt that every instructor faces plenty of limitations in the process of designing instruction. Detecting the limitations will provide a logical attitude for designers (Noroozi & Razavi, 2016). Limitations in music education, as same as other education fields, can be described based on many factors, such as financial resources, instructional materials (e.g., musical instruments, note books, available media, and etc.) and appropriateness of classrooms space (e.g.,

dimensions, acoustic, decoration, and etc.). These sorts of limitations should be considered by music teachers in designing process.

### 3.2.2 Design

In the design phase the instructor designs learning strategies, evaluation instruments and media to shape the content based on the objectives (Wang & Hsu, 2009). The designer should have a systematic attitude and apply a set of the rules to make sure that the plan is structured logically (Kurt, 2017).

*Teacher's approach:* Choosing a teacher's approach to apply the parts of the plan is a sub-stage for design phase (Kurt, 2017). Learning theories are generated from educational psychology and they shape our comprehension of learning. Since middle of the 20th century, four approaches to learning theories have been developed: behaviourism, cognitivism, constructivism and connectivism. To teach a musical objective, typically, the music teachers face different approaches and it is their commitment to choose the best approach depends on the learners, subject, situation, and etc. The music teachers who have a great knowledge about learning theories and the ability to apply them can be known elegant, skilled and responsive (Isbell, 2011).

*Instructional Strategies:* A significant part of the ID process is to determine the instructional strategies for the purpose of making connection between instructional activities and accomplishment of the goals (Noroozi & Razavi, 2016). Kemp and colleagues (2011) indicated that a reliable instructional strategy encourages the learners to energetically link their existence knowledge to the new information. They also prescribed several strategies for teaching different learning objectives (facts, concepts, principles and rules, procedures, attitudes, and etc.) that could be beneficial guidelines for music teachers. In addition, music teachers might design their strategies based on the content. For instance, movement activities seem logical for teaching rhythm and in the elementary music classes and musical games play a particular role in instructing children indirectly. However, if the games are well designed, they will ultimately lead the learners to the goals steadily.

*Revision and Designing Media:* The first step in this sub-stage is the revision of existent media and making decision whether they are satisfactory (Noroozi & Razavi, 2016). Gagné and Briggs (1974) stated that the media selection should be based on cost, simplicity of use, estimated efficacy for the purpose, availability, reasonable for use and storage, awareness of the kinds of media, forecasted problems, and acceptability to the pupils. They proposed a question that the teachers can answer for choosing media: "what type of stimuli would be needed for this instructional event?". In this method, the teacher will have a list of media to select the best one among them based on the instructional events within lessons. It is crystal clear that the main medium in learning music is *sound*. But there are many other sorts of media which are applied in teaching and learning music, such as note books, CDs, flashcards, and etc. In addition, nowadays, the technologies have a significant role in the youth's life and they also have

shaped pupils learning styles. Therefore, that would be music teachers' responsibility, as same as other teachers, to utilize the new technologies in an appropriate way and evaluate their fruitfulness (Ruthmann & Hebert, 2012). Accordingly, in some cases the teachers are in the task of designing media to make the learning much more effective.

*Time:* Organizing time is another crucial sub-stage for design phase and it is considered in different parts, such as time frame for each activity and assigned time to accomplish each task (Kurt, 2017). Of course, in teaching music assigning time to each part could be beneficial. For instance, the teacher can answer these questions: How much time will be required for a specific course? How much time should be assigned for each activity in the class? How much time each task will need to be mastered by different learners?

*Evaluation instruments:* The criteria for measuring the effectiveness of the instruction derive from the instructional objectives (Kemp et al., 2011). In the other words, the definite verbs stated for each objective provide the right set of criteria for instructor to know what must be measured and how the measurement should be like. In teaching music, because of the wide range of the skills, knowledge and objectives, accordingly, there will be numerous items which should be evaluated. The teachers can specify that what criteria might be implement for each category characterized in analysis phase. Especially, in order to evaluate non-musical objectives, the teachers can identify them and then make decisions that how the evaluation can be carried out.

### 3.2.3 Development

Selection or preparation of the instructional media and materials, designing the learning activities modelled on solitary or group formats, production of required materials, as well as final acceptance of instructional materials are executed in *Development* phase (Noroozi & Razavi, 2016).

*Materials:* Teachers, in many cases, choose the materials and media instead of developing them (Briggs & Gagné, 1974). The instructor selects the materials which have been revised in design phase and modifies them in case of necessary. Further, in many situations, teachers are responsible to produce the materials. Creative music teachers can use multiple identities of themselves and their pupils to create a novel curriculum. They also integrate and restructure different conceptual frameworks and ideas to construct the instruction (Abramo & Reynolds, 2015). Music teachers can fabricate new materials which are adaptable to their learners. Besides, in some cases, a collaboration between teachers and learners in creating materials, such as inventing simple percussion instruments with recyclable waste, is effective and pleasant in elementary music classes. The main point in creating materials is that they must be invented in order to meet the objectives.

*Activities:* In this phase the educator demonstrates levels and types of activities based on the objectives. Learning music encompasses several domains of skills and types of learning (such as intellectual and psycho-motor skills, attitudes and emotions) which might be transferred to other realms (Hallam, 2004). Depends on types of skills and

instruments, level, grade and number of pupils, the music educators can design the learning activities. For instance, in a group class, the collaborative activities might be more constructive. Besides, music is defined as a creative field (Hallam, 2004) and the musical creative activities have a leading position in music classes. As we already mentioned, in the last decades learning music is designated for non-musical goals. It seems efficient if music teachers design their activities while the expected non-musical skills are determined. Moreover, they can classify the activities based on their functions. This classification can enable teachers to choose some activities from the different categories in every session. Consequently, the variety of the activities might motivate the learners and also it helps them to learn several skills equally at the same time.

### 3.2.4 Implementation

After design and development, the instructional system is prepared to implement in the real situations. Awareness of probable problems is the requirement of this stage (Noroozi & Razavi, 2016). Instructor and learners collaborate to train on new planning. Therefore, the design can be steadily evaluated for further enhancement in implementation phase (Kurt, 2017).

*Mining Data:* The key word for this phase is *procedure*. While the pupils are engaged with the project, the instructors are striving to realize what learners' feedback is. Indeed, they should answer this question: Are the pupils passionate, interested and engaged? (Kurt, 2017). Teaching music is a mastery of different and multiplex abilities and demands a balance between subject comprehension and the skill to keep children eager (Witchell, 2004). Then music teachers are responsible for observing pupils and assess how much they are captivated by the activities, materials and media. Further, it might be more difficult to qualify musicality and imagination than recognise technical achievement in music performance (Hodges, 2004) but it is teachers' responsibility to be aware of learners' growth in different musical features.

*Backup strategy:* In addition of observing learners' feedback, the instructors monitors the performance of ID to be sure whether system is working well. If not, there should be a backup-strategy to remedy the situation (Kurt, 2017). These supports are also required when there are problems with the materials and media (Noroozi & Razavi, 2016). Indeed, music teachers in this sub-stage can actively see how the system is working and realize the drawbacks of ID. They will be able to make decisions about modification of the methods, strategies, media, and materials.

### 3.2.5 Evaluation

The purpose of evaluation in education is to make judgments about the pupils' success in learning based on determined goals (Kemp et al., 2011). Applying formative and summative evaluation, the instructor realizes that how the curriculum can be enhanced for the next implementation phase (Wang & Hsu, 2009).

*Formative Evaluation:* Before implementation in the classroom, each plan may seem perfect. The instructor uses formative evaluation to ensure that plan is serving the objectives as it is in the process (Morrison, Ross, Kalman, & Kemp, 2011). Thus, evaluation is a continuous process which flows through the entire instruction. Formative evaluation, as an active process, enable music teachers to be conscious of their teaching, pupils learning and the program success while the plan is implementing. All of these assessments should be done based on the achievement objectives. It is not enough to specify the objectives, including musical or non-musical, in the beginning but they need to be assessed during the instruction to be sure whether they are accomplishing by learners. Further, one significant part of evaluation is to give learners feedback on their performance. The music teachers' comments can influence learners to maintain motivated, encouraged and passionate in the process of learning. In addition, the comments give pupils leading information about their learning. In this matter, the important point that should be considered is being aware of the applied words in response to pupils' performance. Indeed, evaluation requires to concentrate on what the learner has done instead of on the learner, whether positive or negative judgment (Bartel & Cameron, 2007). For example, the teacher might say, "You must have practiced hard" rather than "You are smart!".

*Summative Evaluation:* Summative evaluation provides information about programme effectiveness that will be determined by analysing test scores, rating plans and performances, and observing learner behaviour (Morrison, Ross, Kalman, & Kemp, 2011). The guidance about evaluation phase is to measure how much of the expected objectives are accomplished by learners. Because of the complexity and multiplicity of music learning outcomes, the process of evaluation seems unlikely to be easy, especially assessment of the ones that are defined as transferable skills to other realms. But this issue is not a justification for ignoring the evaluation, conversely, it commits the teachers to provide and apply specified criteria for measuring the learning outcomes. Tools for assessing the success of a music programme and achievement might include organizing standards by utilizing standardized tests and teacher made tests and determining measurements designed for self-assessment (Moore, 2016). As we mentioned, implementation of ID stages is a cyclic process. Consequently, the evaluation phase can be considered as the significant stage which its outcomes provide efficient information that can be utilized for the next ID process.

## 4. Conclusion

The purpose of the current study was to determine how the Instructional Design (ID) can help music teachers to plan their teaching, especially for music teachers in Iran who do not obtain academic pedagogical knowledge pre or in-service. ADDIE, as a general model for ID, was chosen and its five stages (Analysis, Design, Development, Implementation, and Evaluation) were discussed with the aim of the designing teaching

music. In the first phase, Analysis, the music teachers should determine who their learners are, what goals and objectives the learners should achieve during or after teaching, which methods exist and which of them are appropriate for their learners, and what are the limitation factors in their teaching process. In Design phase, the teachers determine the most appropriate conditions for teaching and learning through selecting instructional approach, revision and designing media, managing time, and evaluation instruments. Development phase is the stage for preparing or selecting the materials and media as well as designing learning activities. In Implementation stage, teachers and pupils collaborate to train on new planning. Ultimately, the teachers in Evaluation phase should measure the effectiveness of the instruction.

The findings of this study suggest that music teachers can utilize ADDIE as a leading tool to design their teaching. Indeed, they can engineer the entire instruction from the start to the end. Learning music encompasses a wide range of different skills that accomplishing them, in the lack of a precise plan, seems to be difficult. On the other hand, the goals for learning music define beyond the artistic features in recent years. Music teachers in the process of ID can identify non-musical goals, such as social skills, self-expression and responsibility, to design special activities to reinforce them, and ultimately assess whether learners attain the goals. Music teachers with applying ID will have a written plan, not only in the mind, that demonstrates each part of instruction like an architectural plan. In addition, ADDIE is a cyclic process which could be revised and modify for the next implementation. Therefore, formative and summative evaluation enable music teachers to judge how designed plan is working and enhance the disadvantages. One significant point about ID is the knowledge that it is required for each stage. For instance, the music teachers should have sufficient information about learning theories and approaches, music teaching methods and the types of media to apply the ADDIE. Fulfilling these prerequisites does not seem effortless, nevertheless, it qualifies teachers for their career and designing instruction.

This study has represented a general framework for music teachers to design their instruction. It would be valuable for future researches to create specific models for ID in music education. These models, depends on their function, could be applied for variety of different goals. Emerging several goals for music education might cause new demands for revising methods and creating adaptable models which could be implemented in different cultural, social, or educational contexts.

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