Utilizing instructional design strategies to develop educational programs for addiction prevention among adolescents

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Abstract

The present study proposed methods to develop programs for the prevention of addiction among adolescents. After psychological theories on education related to health and addiction prevention such as the theories of Health belief model and the Social Cognitive Model and their application in education programs of the addiction prevention were studied, analyzed and combined with experiential learning and active learning theories, some strategies were proposed to designers and practitioners of the programs of addiction prevention among adolescents. The issues and strategies presented in the present study can help active trainers in the field of addiction prevention to enhance the effectiveness of their programs. These strategies were proposed based on the theories of addiction prevention and a combination between them and instructional design theories.

Keywords: instructional design; educational programs; addiction prevention; adolescents.
Introduction

Few studied have been conducted in the field of instructional design on addiction prevention or there are few models while there is a large body of literature for instructional design. The term “instructional design” can be taken into consideration from different perspectives as a science. Instructional designed aims to help individuals learn more effectively. This field includes research and views on educational, motivational and behavioral theories of learning and process models for design and application of educational programs (Reigeluth et al, 2009; Keller, 2008).

As a branch of educational technology, instructional design is utilized in different fields, and instructional designers play role in different contexts including governmental schools, martial environments, commercial and industrial contexts, higher education and health. In these contexts, instructional designers try to design appropriate models and programs and provide solutions for educational problems and challenges in different scientific fields (Fardanesh, 2013).

Studies conducted on the time of addiction beginning among students indicated that adolescence is the most critical period of life for tendency toward drug use, and secondary and high schools are natural environments for beginning drug use. Therefore, the importance of adolescence especially the first years of high school, i.e. ages 11-13, necessitates the issue that the educational planners and practitioners predict educational needs of these programs, especially since the tendency toward narcotic and psychotropic drugs has unfortunately been observed during these years (Nouri Ghasem Abadi, 2011).

Individual behaviors such as consuming alcohol and cigarette and drug abuse impose large expenses on society. Education is an important measure to prevent social and economic damages caused by such deviant behaviors. Utilizing instructional design theories to develop effective educational programs based on learning theories and psychological theories relevant to the field of addiction prevention is one of the effective strategies to prevent addiction among adolescents.

Models of addiction prevention among adolescents

To design educational programs of addiction prevention, the decision makers are faced with a set of theoretical frameworks of learning theories, models of addiction prevention and educational theories. However, the best choices and their application are challenging in designing educational programs. In order to tackle these challenges, the instructional designers need to consider a combined approach in choosing appropriate theories for designing educational programs of addiction prevention so that they can take advantage of different theories in designing such programs.

All intervention programs of public health are not equally effective in achieving their objectives. Experiences indicate that preventive programs will be more effective if effective factors in health problems are well understood. When the needs and motivations of the target
groups are determined and the context of the program is clear, the program will match the problem and will be more effective in solving the problem.

Most programs of addiction preventions have been developed without taking into account a coherent theory while there is evidence that utilizing a theory and a scientific framework in designing educational programs of addiction prevention has a remarkable effect on success of programs and achievement of the pre-assigned objectives and goals (Nutbeam, 2001; Nutbeam & Harris, 2004).

After an appropriate educational theory for addiction prevention is selected, instructional designers should decide how to make use of the selected theory in practice by using the strategies of instructional strategies. It seems that instructional designers should take a combined stance toward the theories of addiction prevention in developing an appropriate model so that they can take a collective advantage of the theories. Attempts made by psychologists in order to explain the phenomenon of addiction, effective factors in its development and methods to prevent it have resulted in formation of different approaches. One of the most important approaches is the Health belief model which was developed based on the cognitive model of drug use and abuse. It this model, it is assumed that illegal drugs are consumed by those who are unaware of their adverse complications; therefore, the coping method and increasing the individual’s knowledge and awareness about drugs should be based on received information and reasonable and logical decision making. The main assumption in this model is that adolescents should be provided with necessary information. By doing so, adolescents will gain a negative attitude toward drug use and will make a reasonable decision as not to use drug and quit it. In this approach; therefore, real information is provided on pharmacological nature and harmful consequences of smoking, alcohol and other substances and there is an emphasis on stressful and exciting consequences. Information provision is usually carried out through written texts, posters, films and mass media (Mohammadkhani, 2013).

Health belief model is one of the oldest theoretical models designed to explain health by understanding people’s beliefs about health. This method was originally developed to explain why individuals participate in screening programs and then was generalized to other programs of healthy behavior such as addiction prevention.

At its locus, this model indicates that individuals’ measure to conduct a problem-causing health behavior is indicated in the interaction among 4 types of beliefs. This model predicts that individuals with following conditions try to protect themselves or develop health:

- They understand that they are prone to a disease or a problem.
- They believe in potential serious consequences.
• They believe that there is a series of available measures to reduce their sensitivity or minimize the consequences.
• They believe that the profits resulted from the measures are more important than the barriers and expenses.

If this model is utilized to form public trainings of addiction prevention, what beliefs are necessary for people through which they can adapt themselves to situations and minimize the risk?

In conducted studies, it is concluded that individuals should attain the following beliefs:

• They should believe that they are prone to addiction.
• They should believe that the consequences of addiction are serious.
• They should perceive the supportive signs around themselves (such as media and education).
• They should believe that the chance that they approach addiction will decrease by reducing risky behaviors.
• They should believe that the taken measures in order to further prevent the tendency toward drugs are advantageous.
• They should believe in their ability to take effective measures. These abilities can include life skills.

A part of health promotion programs is often devoted to changing the individuals’ knowledge and beliefs, and the health belief model is a resource to develop the messages and the content of knowledge promotion and attitude change, especially the messages designed to be used in mass media.

This model was designed and developed to explain different levels of behavior change (Prochaska & DiClemente, 1984). This model is based on the assumption that behavior change is a process not an event and that individuals possess a different level of motivation and will for change. Five stages of behavior change are proposed below.

• Pre-contemplation: This stage explains the individuals who do not even pay attention to change-based behaviors or intentionally decide to change.
• Contemplation: In this stage, the individual considers change for a specific behavior.
• Preparation or decision making: In this stage, the individual takes a serious promise to make a change.
Action: In this stage, change in behavior begins.

Maintenance: In this stage, the change and the achievements of educational programs are maintained.

From the perspective of program design, this model was specifically designed to show how different change processes can affect the conducted activities. There are different types of intervention. For instance, providing fitness facilities can help an individual move from contemplation stage to preparation or decision making stage, which is a kind of commitment for action.

Due to its common advantages in focusing on change processes, the stages of the change model soon became one of the main models in designing interventions of health promotion. This model emphasizes the needs for an intervention and can be utilized for any group of audience. One of the applications of this model is the training of addiction prevention.

Another model that is utilized in health field and addiction prevention is the social cognitive model. This model influences a comprehensive conceptual and supportive framework to understand the factors that affect human behavior. It also provides processes whereby learning takes place. However, it is mostly used to design addiction prevention interventions.

**Social cognitive theory**

This theory is one of the mostly used theories in the fields of health promotion and addiction prevention because it determines both essential factors of healthy behavior and methods to improve the change. This theory was developed based on understanding of the interactions that occur between individuals and their surroundings (Bandura, 1995). Primary psychosocial studies intended to focus on a method through which a specific environment leads to formation of a behavior. In doing so, behaviors are less rewarded or boosted so that individuals behave in a special way. For example, if in a workplace there is no rule as to where the individuals can smoke, it is easy to start smoking. If there are regulations about this issue, there will be more barriers; therefore, smokers less try to smoke and they will see a supportive environment to quit smoking.

Social cognitive theory indicates that the relationship between individuals and their environment is delicate and complex. For instance, when a large number of people are not smokers and persist restricting smoking in their environment, the smokers will find themselves in an environment with less reward even without official regulations. Therefore, these individuals are most likely to modify their behavior. In this case, non-smokers affect the smokers’ understanding through social influence.

This issue is focused on as mutual determinism. The method through which an individual and his surrounding and behavior are interacting and affect one another is also highlighted.
Understanding this interaction and the method through which modifying social norms can affect behavior provides an important sight into how behavior can improve through behavior promotion interventions. For instance, attempt to change social norms of smoking is considered as one of the most powerful methods of boosting smoking stop among adults.

Moreover, profound understanding of the relationship between individual and environment, an extensive spectrum of an individual’s cognitive factors from one third of this relation, influence each other mutually through behaviors and specific environments. Three of such understandings are highly significant. First, we have learning capacity through observing others’ behavior and receiving reward for different patterns (observational learning). For example, some young women might observe a behavior (such as smoking) by those who care about them, and they try to do so (the role of models). If they observe the behavior and value the rewards related to smoking, such as sexual attraction or favorite self-image, they are most likely to start smoking, and their expectation about smoking will be positive. Such an understanding more than ever highlights the importance of paying attention to the effect of peers and social norms on healthy behaviors and potential use of the models’ role in affecting social norms.

Second are the prediction and evaluation capacities on the output of different behavioral patterns (as expectations). For example, if you believe that smoking can help you lose weight and this weight loss is highly important to you, then you will be more likely to keep smoking than before. This finding highlights the importance of understanding individual beliefs and motivation for certain behaviors and the need for emphasis on short-term and tangible advantages. For instance, young people react more to short-term and immediate results of smoking (breathing problem and smelly clothes) than long-term threats for health such as lung and heart diseases.

Finally, this theory emphasizes the importance of belief in your capacity to successfully accomplish a task (self-efficacy). Self-efficacy has been considered as the most important precondition for behavior change, and the attempt level and its result can be affected accordingly. Therefore, promoting self-efficacy is an important responsibility in achieving behavior change. From this perspective, it has been recommended that both observational learning and collaborative learning (through supervising rehearsal and repetition) lead to development of knowledge and skills necessary for behavior change (behavioral capacity). These cases have been considered as powerful instruments in creating self-confidence and self-efficacy. In the following sections, some applications of this model in enhancing self-confidence are presented (See Table 1).
Table 1. Methods to enhance self-confidence based on social cognitive model

<table>
<thead>
<tr>
<th>Mastery experiences</th>
<th>Enabling individuals to attain plausible but challenging goals, the experience of gaining mastery has the utmost effect on increased self-confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social modelling</td>
<td>Showing them individuals whom they like to be similar to. This should include a comprehensive depiction of small steps to obtaining a complex goal.</td>
</tr>
<tr>
<td>Improvement of physical and emotional conditions</td>
<td>Being sure about that they are in a comfortable situation. This can include attempts aimed at decreasing stress and increasing positive feelings.</td>
</tr>
<tr>
<td>Verbal encouragement</td>
<td>Telling them that they can conduct a task. Much encouragement can enhance self-confidence enough so that initial measures are taken toward behavior change.</td>
</tr>
</tbody>
</table>

Two of the most important theories utilized in health training and addiction prevention programs were explained above. One of the criteria of selecting the theories of addiction prevention was their repletion in the field of health training, based on which health belief model and social cognitive model have the highest rate of repletion and application (Glanz et al, 2008). Education theories that can be used in designing addiction prevention programs and can be combined with the abovementioned psychological models are explained below.

**Education theories**

The present study was an attempt to provide a conceptual framework for designers and developers of addiction prevention programs in order to help them design appropriate addiction prevention programs by combining addiction prevention theories in the field of health and instructional design theories. Experimental learning theory and active teaching methods are emphasized by addiction prevention instructional designers (Mohammadkhani, 2013; Nouri Ghasem Abadi, 2011). Based on experimental learning strategies and active learning; therefore, a model has been designed and utilized a basis for developing addiction prevention programs. The most appropriate method for behavior change and skill creating is collaborative and experimental learning in which both the trainer and the trainee are active. This method provides the learners the opportunity to use their acquired skill in social situations and gain mastery. Experimental learning has roots in Kolb’s learning theory (2005). Experimental learning has 4 main component stages as follow.

1. **Preparation:** Carrying out short-term activities can prepare students for the main course and provide a time for the members to
focus on the group activities. These activities can be active or passive, written or oral. The second objective is to prepare the group and enhance sympathy in the group.

2. Activity guidance: This includes making grounds for learning and expressing the objective of the activities. This activity can link the first session and the previous session and the current activity. The activity objective is expressed clearly and intelligibly because it results in an increase in cooperation and a decrease in group resistance.

3. Activity conduction: This provides the individuals with educational experience so that they can generalize what they have learned to their real life. The teacher should use his knowledge about the group in activity selection. Activities should lead to maximum participation and a balance between theory and practice.

4. Contemplation: The students should be engaged actively in learning process and contemplate about their own learning experiences. Contemplation about the conducted activities is an important part of experimental learning.

Another recommended educational methods for addiction prevention educational programs is the active learning approach. This approach shifts the focus on teacher and learning materials to students and management of active engagement with learning materials. Through active learning methods and modelling by the teacher, the students quit their traditional role as passive receptors of information and learn how to acquire knowledge, skills and their meaningful application (Mayer & Johnson, 2010). Active learning generally includes three stages: 1) preparing the learner; 2) learning activities of the students; and 3) learning transfer.

Results

Using the combined approach and by integrating the stages of experimental learning and active learning (See Table 2), a framework composed of 1) preparing the learner; 2) leading learning activities; 3) conducting learning activities; 4) contemplating; and 5) learning transfer along with educational strategies, addiction prevention educational programs were developed.

Table 2. The framework of designing educational activities for addiction prevention

<table>
<thead>
<tr>
<th>Preparing the learner</th>
<th>Pre-organizer, attracting the learner’s attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading learning activities</td>
<td>The link between the old and new learning, expressing the objectives</td>
</tr>
<tr>
<td>Conducting learning activities</td>
<td>Linking the activities and learning objectives, creating the relationship between theory and practice, providing learning guidance</td>
</tr>
<tr>
<td>Contemplating</td>
<td>Questioning and asking for performance</td>
</tr>
</tbody>
</table>
Learning transfer | Improving learning and performance and transferring learning to real situations
---|---

In addiction prevention educational programs, using the principles of active learning and experimental learning is focused on. In order to facilitate the utilization of experimental learning theory in addiction prevention programs, its components are presented in Table 3 along with a model.

Table 3. Educational strategies along with examples (based on the combination of experimental learning theory, active learning theory, health belief model and social cognitive model) for addiction prevention among students

<table>
<thead>
<tr>
<th>The five stages of educational strategies based on experimental learning and active learning theories</th>
<th>Application of the strategies in preventing addiction among students based on health belief model and social cognitive model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparing the learner</td>
<td></td>
</tr>
<tr>
<td>• Warning about health threats</td>
<td></td>
</tr>
<tr>
<td>• Provoking fear/loss of health (to encourage healthy behaviors)</td>
<td></td>
</tr>
<tr>
<td>• Understanding the sensitivity or bad conditions of health among drug abusers</td>
<td></td>
</tr>
<tr>
<td>• Reminding health advantages (to encourage having healthy behavior)</td>
<td></td>
</tr>
</tbody>
</table>

Explainin the immediate and long-term unfavorable physiological, aesthetic and health, and social consequences of drug abuse. Providing successful models through images and other types of media and emphasizing..
Leading the learning activities

- Presenting messages related to prior knowledge, values, prior experiences, and reminding the value of adaptation along with available values and needs for adaptation with the environment for the audience
- Presenting messages about individuals’ different social values, understanding opportunities and threats and having self-confidence

<table>
<thead>
<tr>
<th>Leading the learning activities</th>
<th>Conducting learning activities</th>
<th>Contemplation</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Presenting messages related to prior knowledge, values, prior experiences, and reminding the value of adaptation along with available values and needs for adaptation with the environment for the audience</td>
<td>- Making use of admirable and knowledgeable social models to indicate favorable behaviors and developing self-care skills</td>
<td>- Providing original practices and presenting feedback in order to improve the information and ability of the tests, develop the skills and enhance self-efficacy</td>
</tr>
<tr>
<td>- Presenting messages about individuals’ different social values, understanding opportunities and threats and having self-confidence</td>
<td>- If possible, sing intellectual and religious models from the peers of the target group to accelerate the modeling process.</td>
<td>- Helping the students learn behavioral</td>
</tr>
</tbody>
</table>

Emphasizing the increased social position caused by drug abuse among the abusers, highlighting the norms against drug abuse, and helping understand that most adolescents do not use drugs.
among the audience

- Providing situations for guided practices and correctional feedback in order to improve social skills, flexible self-efficacy, role play, and mental practice among the audience

<table>
<thead>
<tr>
<th>Learning transfer</th>
<th>Developing social support of favorable behaviors</th>
<th>Developing social structures in order to support individuals changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Providing behavioral messages, short and highlighted messages that encourage the audience to put their decisions into practice</td>
<td>Guiding the students so they can help others develop skills of resistance against social effects that encourage the development of drug abuse</td>
</tr>
<tr>
<td></td>
<td>Distributing the messages of the newspapers and school press, students’ electronic magazines, posters, and postal news</td>
<td></td>
</tr>
</tbody>
</table>

In Table 3, after the stages of experimental learning and health learning theories and the combinations of the two with health belief model and social cognitive model were examined, strategies were provided for developing addiction prevention educational programs for adolescents. It is obvious that the issue of addiction prevention is extensive and a lot of
educational materials can be designed in this regard. The presented table can be utilized as a framework for designing various educational programs in different fields and different groups of audience.

Conclusion

Instructional design approaches are utilized for different educational situations. One of these health learning situations is addiction prevention. Instructional design approaches to design educational programs to prevent addiction among adolescents were presented in the present study by utilizing instructional design views, experimental learning theories, active learning, health belief model, and social cognitive model. In so doing, the recommendation provided by recent models were combined with educational strategies and a coherent framework for designing educational programs.

Adolescence is one of the sensitive periods of growth, in which the primary tendencies toward drugs happen; therefore, designing practical programs to prevent addiction for this age group is necessary. Along with this necessity, it is necessary that the designed programs be based on scientific and tried principles in order to enhance the efficiency and effectiveness of such programs.

Among the education theories, experimental learning and active learning theories are more emphasized by designers of educational programs of addiction prevention. The logic underlying their work is also this that any educational program should provide trainings in cognitive, emotional and psychosomatic domains so that the highest level of efficiency can be achieved in regard with addiction prevention. Therefore, since this theory engages the learner actively in learning process, it can be highly appropriate for designing such educational programs.

On the other hand, since health belief and social cognitive models provide systematic solutions for achieving a correct understanding of the damages and advantages of behaviors, they can maximize the effect of educational programs. The abovementioned issues were about health belief model. Social cognitive model also provides the learners a different model by presenting solutions for positive and effective modelling. Moreover, the proposed methods to enhance self-confidence among the learners can have the utmost effect on designing addiction prevention educational programs and can lead them take up appropriate behaviors.
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