The place of training cd’s in computer aided education and the problems encountered with them

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Abstract

The computer that is used as a productive material and educative CD’s have an important place in the computer supported education. Using educative CD’s increase the attractiveness of educative material in terms of presentation of image, sound, animation, video and interaction with the user. This study emphasized the drawbacks and benefits of using computer that is the one of the last product of technology and CD’s in terms of educative material. The necessary features of educative CD’s were determined. The problems of CD’s that faced were examined and solutions were proposed about those problems.

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1. Introduction

One of the primary indicators of a country’s level of development is the education policy it follows and the level of education of its population. Education, which is very important in determining countries’ level of development, is an area on which specialists should study and has been applied differently for centuries. The application of new innovations to educational settings leaded way to getting more efficient results. Computer, which is one of the most important communication tools of our time, is also one of the newest innovations and is being used efficiently in many areas. Computer, which facilitates professional life, cannot be thought independent of education. Its contributions to education prove how important to integrate computers into educational settings. Interactive training CD’s are one of the materials used with computers. Training CD is a kind of electronic book that enables interaction between the student and the computer, covering a subject by visuals, animations and sounds etc. The first studies on training CDs had been implemented by TÜBİTAK ( The Scientific and Technological Research Council of Turkey). A group who left TÜBİTAK established SEBİT and the CDs produced in here had been put on
the market under the name of “Akademedia”. Thereafter, SEBİT, produced CDs called “Vitamin” by making small differences on “Akademedia”. With Meteksan’s establishment, “Kids Plus” CDs had been put on the market.

In this review, the place of training CDs in Computer Aided Education had been examined while focusing on their benefits to education and highlighting solutions for the problems that are encountered.

1. Benefits of Training CDs

Studies on education show that there is a positive correlation between the number of sense organs used during education, active learning and learning rate. E4 project which had been carried out at Drexel University in the USA between 1988-1997 shows the following. “The rate of using sensual channels and learning rate shows a definite relation. For example, it is determined that the more the number of sense organs stimulated during learning, the easier for students to learn the material. The results showed that, a student who learns 10% of the data introduced to him/her learns 50% of it by watching a movie. Additionally, according to the study, with “Computer Aided Education” programs, that use sound, motion display and interaction, 90% of the data is learned (http://www.akademedia.com.tr, 2000).

Training CDs, which are accepted as electronic instructors, has a positive effect on education. When studies on the subject (Uşun, 2000; Aşkar, 1998; İpek, 2001; Özcan, Seferoğlu ve Yağcı, 2002; Kaya, 2002) are examined, the benefits of training CDs can be sorted as follows:

- Students are active rather than being passive while learning the subjects. Training CDs provide them with the opportunity to interact.
- Training CDs increase students’ motivation. This brings effectiveness and success in education.
- Students are able to learn subjects with visuals, animations and games while having fun.
- Through one-to-one education, each student learns at his or her own pace.
- Experiments which are dangerous or expensive to implement are applied easily by simulation techniques.
- The natural phenomena which are impossible to see with unaided eyes can be explained through animations.
- Students have the opportunity to repeat what they could not understand as many times as they need.
- It is possible for student to learn the subjects in a shorter period of time. 20 to 40 % of learning time is saved.

2. Types of CDs

Training CDs can be categorized as Exercise and Practice CDs, Educational CDs, Simulation CDs, Problem Solving CDs, Educational Game CDs.

3.1 Exercise and Practice CDs: Such CDs do not instruct any topics, these are aimed to strengthen what is told by the instructor. To do so, exercise and practice questions should be compatible with the subject that had been instructed, the user should be given a definite period of time, should maintain the attention of the students with various sounds and colors. The operation of such CDs is as follows: “Computer asks a question to the student, the student enters the answer, computer checks the answer and provides feedback to the student.” (Demirel, Seferoğlu ve Yağcı 2002:136).

3.2. Educational CDs: These CDs are aimed at instruction of the course topics. While doing this, color and sound of computers are utilized. After each topic, a test is applied to see how much of the topic is learned.

3.3. Simulation CDs: Simulation is animating the phenomena within computerized environment which are difficult or impossible to be shown in classroom. Simulations should be cheaper than the actual experiment, should be focused on subjects that must be seen or on the ones which are difficult to apply and they should be freed from the time limitations of a real experiment.

3.4. Problem Solving CDs: These are the ones which are aimed at developing students’ problem solving abilities. They help students consolidate what they learned by solving problems.

3.5. Educational Game CDs: They ensure that topics are learned through games.
3. The Essential Facilities of Training CDs

The essential facilities of training CDs whose importance in education is understood each passing day can be sorted as follows.

4.1. Ease of Use: Training CD must have a structure which can easily be understood and used by any student. According to Uşun, “…an additional effort should not be expected from the student for computer-student interaction. Therefore, the forward and backward steps within the course, repetitions of the chapters or experiments should be introduced via easily accessed processes (Uşun, 2001: 91).

4.2. Educational Games: With educational games it is assured that students learn the topics without getting distracted while increasing their motivation towards the course. According to the study carried out by Anadolu University Computer Aided Education Agency, “games can be efficient tools of education”(Uşun, 2000:93). It is definite that game should be a tool rather than the aim in courses and they should be designed according to the target group. “Violence should be avoided in educational games. The games should not be difficult or complicated for student to prevent distraction. Colors, music and animation elements should be in a format which will not disturb them.” (Akpınar, 1999:83). The game interface (image 1) of a training CD named “Q Test” can be given as an example. In the interface of Q Test, an amusing approach to learning English words developed by the use of a crossword game.

![Image 1. A Game Interface Used in “Q Test “ CD](image1)

4.3. Simulation: It is the instruction of a course by motion images. It is different from animation in that it is interactive. According to Akpınar, “ Simulation, like animation, gives the student an imitation of the course subject but it lets the examination of variables under different circumstances an with different values in an interactive way. Representation of phenomena which are risky, time consuming, dangerous or impossible to demonstrate in the context of time limitations in real life and providing students with the opportunity to implement experiments with them can be performed by simulations (Akpınar, 1999: 68-71).

4.4 Question-Answer Interaction: Question-answer maintains the interaction of the student and computer. Through the tests, students can repeat the topics and realize what they did not understand during the courses. The questions can be in the form of multiple choice tests, they can be answered via the keyboard or by dragging the answer to the blanks via mouse. Since answers given by the keyboard are difficult to evaluate for the computer, multiple choice questions are the most appropriate type. As it is seen in the example (image 2), the “English Plus” education CD, uses the drag and drop method for answering questions. In “Akademedia” CD (image 3) however, multiple choice format is used.

![Image 2. “Questions” Interface of “English Plus” Training CD Produced by Raks.](image2)

The steps which are followed through questions are as follows:
“Selection of the question item, demonstration of the question item on screen, answer given by the student, program’s evaluation of the answer, student receiving feedback and reinforcer related to the answer, process of passing to the next question item” (İpek, 2001: 102).

The steps which are followed through questions are as follows:

- The form of questions should not be negative.
- Questions should be sorted from simple to complex, easy to difficult. Another method is to group the questions. (In this method, questions are grouped according to their levels of difficulty, students choose the groups according to their own level. They shift from the group that they fail to another one which is more appropriate for their level.)
- Students should be provided with feedback about their answers. After a correct answer, a positive feedback should be delivered.
- After the wrong answers, besides a negative feedback, the solution of the question should be administered.

4.5. Administering Feedback: The responses given to students are accepted as feedbacks in Computer Aided Education. According to İpek, “feedback gives students the opportunity to think and better compare their knowledge” (İpek, 2007: 74). Feedback process can change according to the form of the answer.

Feedback given after a correct answer: Feedbacks given after a correct answer should be encouraging, meaningful and short. For example, these feedbacks can be in the form of expressions like “very good”, “congratulations” etc. or symbols expressing happiness like “a smiley face”.

Feedback given after questions without a certain answer: In some cases, there is no right or wrong answer to a question. In cases like asking the names of students, the feedback following the answer should only be “thank you”, and statements like “please press the enter button to proceed.”

4.6. Local Features: The CD that is to be designed should not be the copy (translation) of another one which had been designed and used abroad. There are differences between a student living in New York and living in Urfa in terms of their experience, style and perception of life. The perception might be different in rural and urban contexts. For example, a fast paced program might not be comprehended in a place where the level of education is low. Differences in education systems can be added to the difference in comprehension which is seen in people growing in different countries. There are differences in the education programs applied in Turkey and abroad. These differences should be taken into account, training CD should be prepared in a way that do not harm the cultural pattern of the country and it should reflect local features.

Tender offer by the Ministry of Education for Computer Aided Education states the conditions regarding the data applying software should include as follows:
“Course text, drawing and graphic, coloring and painting, animation, simulation, branching, mouse and keyboard interaction, hypertext medium.” (Mutlu, 1991:42).
4. Problems Encountered with Training CDs:

CDs in the market had been examined and the problems had been sorted as follows:

- Inadequate documentation stemming from lack of obtaining adequate and correct information from the specialists.
- Inadequate utilization of computers’ capacity like, not using animations as much as needed.
- Poor arrangement of CDs in terms of education.
- Inappropriate and inadequate feedbacks towards users.
- Avoiding students’ control and being non interactive.
- Poor ability to stimulate students’ imagination.
- Screen arrangements’ (interfaces) lack of visual consistency. In consistent color and shape of pages. Designer should locate the desired message correctly, for Özcan, “eyes move by skipping form one spot to another. Generally, readers or viewers begin skimming their eyes form the upper left side of the center and continue skimming casually over the page” (Özcan, 1999). So the message that is intended to be highlighted should be positioned in the upper left side of the screen to ensure the users focus on the subject.
- Crude and bulky view of the buttons.
- Animations being watched in a very small window.
- Sloppy preparation of illustrations.
- Dead pages without links to each other and students’ disappearance among those pages.
- Use of mere photographs to support the sentences rather than using animations or illustrations because of their difficulty of preparation. As a result of all these, uniform CDs are designed which do not attract attention of students.

5. Conclusion

Training CDs’ feature of providing factors such as image, sound, animation, video and interaction as a rich tool of instruction during the courses make their use attractive as an education tool. As long as this rich tool is used correctly and consciously it can increase the quality of education and contribute to bringing up of highly educated societies. Training CDs can motivate students with many items and activities like animations, graphics, games, photographs, videos and sounds at the highest level. Design of training CDs is a team work and this team has to include people who are specialized in various areas. Graphic designers should be included during the visual design of CDs. It is important to realize that visually poor CDs can never contribute to the course. People who are specialized in CD design should utilize their knowledge in interface design, use of texts, images, colors, animations and buttons. Even a CD with perfect visual design may not be adequate in assuring effectiveness of education. It should also be a functional CD with full content. In terms of functionality, computer programmers should be consulted while content should be left to the specialists and educationalists. Its countless benefits to education shows that this new material will be an indispensable part of it.

References


