The new generation of academic books

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Summary

The new generation of academic books refers to printed content that is updated without restrictions and uses web technology. In this project, academic books are redesigned, the volume of the book is reduced, and scientific content is provided to students with a web-based multimedia integration.

The purpose of this study Is to introduce the new generation of academic books and to examine the quality of learning. For this purpose, academic books were enriched with web-based technology. Educational media including text, audio, video and animation were designed with the help of quick access codes and added to the main text of the book. This research, by redesigning the textbook "Use of Computers in Education" in the form of a new generation of academic books, provided part of the printed content to students using web-based multimedia in the form of quick access codes. Quick access codes added to the book could be used by students using a smart phone device. The study was conducted with a statistical sample of 50 students who were divided into two experimental and control groups.

In this research, the students of the experimental group received the educational content using the new generation of academic books. The research tool in this study is a questionnaire measuring the quality of learning with a reliability of 80/..

The results of the research showed that the new generation of academic books with positive results of using technology in learning can play an effective role in the quality of learning.

1- Introduction

The book has a brilliant record and a unique place in the history of human thought. The position of the book is so fundamental and stable that it can be considered one of the most important symbols of knowledge, wisdom and scholarship in the history of world civilization (Mansouriyan, 2015).

The foundation of education in most of the world's universities is significantly based on the quality of university textbooks. Books that each explain some aspects of knowledge. Usually, textbooks are the product of a long cycle of science production process. This cycle begins with scientific articles and conferences, and after the establishment and acceptance of "scientific community" as a part of accepted knowledge, it is reflected in these works (Mansoorian, 2013).

There are many researchers who confirm the importance of printed resources in education. One of these researchers is Marian Wolf[1], a cognitive neuroscientist and reading expert at the University of California. In his book "Reader, Come Home: The Reading Brain in a Digital World", he argues that reading print books is important for deep comprehension (Wolf, 2018).

There are many researchers who have published studies or articles on the importance of printed resources in education in 2021. For example, a 2021 study[3] found that children who read print books instead of e-books scored higher on reading comprehension tests.

This study concluded that printed books provide a better reading experience for children and are more beneficial for deep reading and comprehension (Anne, 2022).

Also, another study published in 2021 in the "Journal of Research in Reading[4]" showed that students prefer reading printed books for

academic purposes, because it is easier to concentrate and retain information when reading printed books and they know more. The study also noted that print books provide a deeper reading experience and help students better understand complex concepts. These studies and numerous other research[5] in 2022 show that printed resources are still important for education despite the development of technology and the expansion of electronic books. And they offer unique advantages over digital resources, especially for deep reading and comprehension.

Printed resources have a special place in education and post-graduate education. They cause more concentration and accuracy and expand learning. However, limitations such as the abstractness of the book and the outdated content due to the rapid growth of science are among the weaknesses that can be seen in printed sources.

The need of students and lecturers for new resources related to the educational topic in order to deepen and analyze the content of education is more than before, but the variety and scope of educational topics cannot be included in the limited pages.

Sometimes, in order to compensate for this weakness, students spend a lot of time and energy while not achieving the desired goal. Because finding the right resources that lead to the correct guidance of students requires experience.

Therefore, committed professors, by introducing additional resources to enrich the content of the textbook, reproduce it in the form of additional pamphlets and provide it to students. In recent years, the plan to use electronic books seems to be a good solution for faster access to up-to-date educational content. Meanwhile, researches have shown that learning through books and printed resources is deeper and more complete than digital resources (Mohanad, Janaki, 2020).

In a study conducted at the University of Maryland, students who learned through reading books were more successful in answering detailed questions and understanding the material than students who received the same content through digital sources. Of course, digital media were more effective than printed sources in general understanding of content (Singer, 2017).

Enriching students' books and printed content with quick access codes is a new solution that refers to combining technology with education. In this method, the quick access codes that contain the audio file, video or additional text are placed next to the printed text and can be called with the help of mobile phone and tablet scanners.

This enrichment is done with the aim of accessing additional concepts of educational content and using various resources to pay attention to students' learning styles. The new generation of educational books are books integrated with technology that make students benefit from the benefits of using printed resources while providing completely up-to-date educational content according to individual learning styles.

This research seeks to find the effect of the use of books integrated with the technology of quick access codes in the quality of higher education and in this regard examines the answer to this question: (the use of quick access codes in order to enrich the educational content, new educational books), what effect does it have on educational quality?

 [1] Maryanne Wolf
[2] Reader, Come Home: The Reading Brain in a Digital World
[3] Mangen, Anne
[4] researcher at the Reading Center at the University of Stavanger, Norway
[5] Naomi Baron – linguist and professor of World Languages and Cultures at American University

Andrew Dillon – Professor of Information Studies at the University of Texas at Austin Ziming Liu – professor at San Jose State University's School of Information.

A review of research literature

Compiling appropriate textbooks that play an essential role in the development and progress of a country requires a calculated and scientific mechanism.

In the design of educational books in postgraduate courses, student access to new and extensive resources is of great importance.

Paying attention to individual differences as one of the effective components in educational design in order to achieve deep learning is another important issue that should be considered.

The use of web-based technology and multimedia in education in order to pay attention to learning differences has been of interest to researchers for years. Research shows that among the new technologies used in education, learners are more inclined to use educational content based on mobile technology (Bonk, Zhu. 2022).

Mobile technology is more popular due to having three features and capabilities including: use of educational content in an unrestricted space, greater learner interaction and the use of a wireless and small device.

Learning using mobile phones (mobile learning) refers to education that is provided using mobile technologies. These trainings can be designed directly for use on a mobile phone, or the mobile phone can be the only tool for displaying educational content.

Of course, various uses of mobile phones in education have been studied so far. In these studies, the content of education is usually provided through mobile phones or in the form of educational games.

What has been emphasized until now and has been discussed in the studies and researches on the integration of technology with education is based on the use of electronic content, educational multimedia in the space of personal computers or based on mobile technology, and of course, the desire of the learners. Mobile technology has been more than other applied technologies in teaching (Ally, 2022).

Social interactions and mobile phone technologies have introduced a new learning style to the world, which has changed attitudes and improved learning. The features and capabilities of mobile phones have improved learning.

Previously, it was believed that learning takes place in a fixed place and time, but mobile phone technologies have changed this perception and made learning possible at any time and place (O'malley et al, 2005).

At its best, mobile technologies encourage learning outside the classroom because learning materials are no longer confined to the classroom (Shih et al. 2011). The use of new technologies in education and new teaching methods, in addition to increasing motivation and improving learning, will also develop skills, creativity and innovation (Rikala, Kankaanranta, 2014).

The correct use of new technologies in educational planning, in addition to increasing the quality of education, plays an important role in students' desire to study.

Meanwhile, it is very important to investigate new technologies that have been less studied in the field of education (Law, So, 2010).

Integrating technology with printed resources in order to enrich educational content is one of these researches that has been less investigated.

Quick access code technology can be used alone or combined to enrich education .Of course, the use of this technology is still in its infancy and there are few published studies in this field (Rikala, Kankaanranta, 2014).

Adding multimedia content to print resources with Quick Access Code technology is more common than other uses of this technology.

Garhan et al. (2016) investigated the use of quick access codes in higher education.

In this research, students in three groups of technical, literature and educational sciences used the educational content enriched with the technology of quick access codes.

The results showed that students were satisfied with access to deeper educational content and more complete information. Increasing students' motivation and positive impact on learning was another result of this research in 2013-2014 at Baliksir University (Gurhan et al. 2016).

Granito et al. (2012) examined the use of computer-based technologies from two perspectives. In the study of these researchers, two questions were examined.

The first question is, can technology increase motivation? And the second question was based on the impact of using technology on learning and memorizing educational content. This study was conducted on high school and social studies students and the results of both questions were evaluated positively (Granito et al, 2012).

In a research, Golzari (2017) positively evaluated the effect of using quick access codes on increasing students' academic motivation. This research, which was applied in terms of purpose and a quasi-experimental research in terms of method, was conducted with pre-test, post-test and control group methods.

The statistical population of the research included the students of Islamic Azad University in 2017-2018, and the study sample was divided into two experimental and control groups.

The experimental group was trained using the book equipped with quick access code technology for one academic semester. Wallerand's academic motivation questionnaire was used to collect data.

Data analysis showed that the use of quick access codes in education has a positive effect on students' academic motivation.

According to the positive results of research related to the integration of technology with educational content, the present plan intends to examine the authoring of the new generation of educational books for the first time at the graduate level (Golzari, 2017).

In total, so far, several researches have been studied and researched in the field of combining technology with education, web-based content, e-learning, educational multimedia and mobile learning. But research based on the integration of technology in printed content has received less attention.

Combining technology with printed books in the form of quick access codes during the Covid-19 pandemic drew the attention of the country's education.

This year, for the first time, textbooks in all academic levels have been equipped with quick-response codes, and in this way, access to additional educational content through mobile phones has been provided for students.

305 books in elementary, first and second secondary courses and 125 books in technical and professional branches have quick answer codes.

In other words, all the courses of the primary course, all the courses of the first secondary course, all the secondary courses of the second theoretical course and 125 main books in the technical, professional and professional branches are equipped with QR codes, and these contents are supposed to be updated according to the progress of the students' curriculum (Research Organization and educational planning, 2021).

In a research he conducted in 2022, Mohammadi studied the effect of using quick access code technology in textbooks on the motivation and academic progress of students.

The results of this research, which was conducted on high school female students, showed that the use of quick access codes

leads to increased motivation and academic progress in students.

An efficient and effective book, as one of the educational tools, plays an effective role in increasing the motivation of learners. Appropriate book design increases the quality of teaching and learning and is considered as one of the important tasks of higher education.

Based on this, many researches have been conducted in the field of using technology in classrooms. In these studies, technology has been examined as an educational aid tool and in order to complete or enrich the content of education.

Academic books with a volume of 100 pages can achieve the goal of quality education in the class with a few additional pamphlets in order to enrich the content and use up-to-date resources.

But if it is possible for the same volume of the book to provide additional resources to students with the help of quick access codes, it will play an effective role in increasing the quality of learning. In the new generation of academic books, the following things have been taken into consideration.

1- The academic book as the main source of education has not been removed.

2- New and updated content has been added to the book in order to increase the educational quality.

3- Additional resources are used using the technology of quick access codes.

4- There is no need to print and reproduce supplementary content like an academic book, and quick access codes can be used alongside the book.

5- Supplementary resources are not limited to text and can be multimedia including video and audio.

6- Adding multimedia content is effective in increasing motivation, learning rate and paying attention to individual differences.

The use of the new generation of academic books gives the teacher the possibility to add newer supplementary educational materials to the book in the form of a quick access code in the educational tags every year without the need to change the main source.

Changing the content due to the rapid growth of information and knowledge in the world, in the new generation of educational books, can be easily replaced by quick access codes. Also, the use of multimedia in quick access codes is a valuable possibility that, due to individual differences, has an effective role in deep learning, and by reducing learning time, it is also effective in reducing energy consumption.

An image of the new generation of academic books can be seen in Figure 1.

Figure 1 is an example of the new generation of academic books

The concern of increasing the volume of printed content for students to study is always an important limitation that leads to presenting the content in the most concise form possible.

This summary can cause problems for the reader in understanding the content and cannot accurately convey the main concepts. In the new generation of academic books, this concern has been completely resolved and it is possible to provide additional content without any restrictions in order to enrich education.

But what has been investigated in this study is finding the answer to the question of whether the use of quick access codes is effective in the quality of higher education?

2- Method

This research is semi-experimental (quasi-experimental) and practical in terms of purpose. In this research, a pre-test-post-test design with a control group was used. Subjects were alternated in experimental and control groups. This means that one of the two groups was exposed to the experimental variable and the other was selected as the control group and the experimental variable was not implemented for it.

In this research, a comparison was made between the quality of learning using academic textbooks and the new generation of academic textbooks. The educational content studied in the course of computer application in education included 377 pages that were prepared by students from publications.

Due to the importance of using current knowledge and quality education, four additional booklets were reproduced and provided to students in addition to the textbook in order to enrich the existing educational content.

The average of supplementary pamphlets was 27 pages, which were used along with the textbook. In total, the control group prepared and studied 404 pages of printed content. The experimental group used a redesigned textbook integrated with web-based multimedia.

The redesigned book with the title of the new generation of academic books on the use of computers in education was designed and arranged in 104 pages. This book included 15 quick access codes. The content of 104 pages of the book was more complete and provided to the students with multimedia integration.

In redesigning the book, the utmost effort was made so that the reduction of the volume of the book does not harm the educational goals.

This research was conducted in two experimental and control groups with a statistical population of 57 people. The studied sample was conducted with 50 students in two experimental and control groups due to the lack of regular attendance of 7 students.

The measurement tool In this study was the learning quality questionnaire consisting of 25 questions and 5 components (attitudes and perceptions, acquisition and integration of knowledge, expansion and modification of knowledge, meaningful use of knowledge, mental habits). Its validity and reliability were calculated and confirmed on the statistical sample using Cronbach's alpha coefficient (80.80%).

3- Findings

In this research, data analysis has been done in two parts, descriptive and inferential. In the descriptive part of the report, the mean and standard deviation of the research variables are presented. In the inferential statistics section, the Kolmogorov-Smirnov test was used to check the normality of the

score distribution, and the covariance analysis was used to check the hypotheses. In covariance analysis, it is assumed that a

quantitative variable affects the dependent variable.

Table 1: Description of research variable

	post-test		Pre-test		Groups	Variables
standard	Mean	standard deviation	Mean deviation			
4/65	39/37		4/57	29/26	Test	Quality of learning
3/14	29/33		3/71	29/41	Control	

Although the mean pre-test scores of the experimental and control groups are somewhat close to each other, the mean scores In the post-test have increased compared to the pre-test, and such an Increase is not observed

in the control group.   Also, the comparison of the standard deviation shows that the dispersion of the scores of the experimental group has increased, while the dispersion of the scores of the control group has not changed much.

Table: Normality of the distribution of research variable data in pre-test and post-test

Significance	degree of freedom	statistics	Variable level
0/356	60	0/903	Quality of learning

The assumption of the normality of the distribution of the sample data, which is presented separately for the studied groups and test execution

modes, shows that the distribution of the research variable data is normal.

Table 3: Results of covariance analysis on learning quality

Mean square degree of freedom	sum of squares	Source
Coefficient of partial squares	significant level	amount of F

1221/474	2	3442/949	Modified model	
	0/971	0/001	967/207	
73/863	1	73/863	Control	
	0/506	0/001	58/487	
820/549	1	820/549	Pre-test	
	0/919	0/001	649/740	
1659/765	1	1659/765	Group	
	0/958	0/001	1314/261	
1/263	57	71/985	Error	
	60	74068	Total	
	59	2514/933	Modified total	

There is a significant difference between the research groups in terms of the learning quality score. The partial squared coefficient of ETA shows that 0.95% of the variance of the dependent variable (post-test) is explained by the independent variable.

The results of the variance variable also show that there is a significant relationship between the variance variable (pre-test) and the dependent variable (post-test). Therefore, using the new generation of academic books has a significant effect on the quality of learning.

4- Discussion and conclusion

The position of the book is so fundamental and stable that it is known as the most important symbol of knowledge and wisdom in the history of world civilization, and most universities in the world pay special attention to the quality of university textbooks.

Siemens (2005) has proposed a new learning theory called communicationism , which emphasizes the field of learning in the digital age.

This theory, which emphasizes the change of learners' perspective in the field of learning, confronts education with a suitable approach for the digital age to solve the challenge of educating the new generation. In this approach, traditional resources are not presented in a technological format.

The incident that may have resulted in the least success today, because this content has no compatibility with technology formats and has disproportionately worn educational resources.

This disproportion is clearly evident in the inability to respond to the new generation. Maybe before this, It was thought that the theories of behaviorism, cognitivism and constructivism can still influence the educational system in the 21st century.

But entering the digital age and the emergence of new information and communication technologies has changed the educational system.

In such a way that other traditional sources and previous approaches cannot meet the comprehensive needs of the digital age.

The technology of quick access codes as an emerging technology is among the things that have been introduced to the world of education in recent years. This technology allows virtual computer image information to be placed live and directly on the real world environment in real time.

In fact, quick access codes are a bridge between the real and virtual world. Also , quick access codes are defined as a direct or indirect representation of the real world that is augmented with virtual computer information and works interactively (Khatari et al., 1400)

The new generation of academic books with the aim of enriching the content presents a new discussion of the integration of technology with education. In this plan, complex and difficult scientific concepts, expertise in printed resources are integrated with educational and web-based technologies, and educational content is adjusted and compiled according to technology.

Using the new generation of academic books, in addition to increasing the quality of education, paying attention to the characteristics of the digital generation, paying attention to the Individual differences of students and the speed of learning, a significant volume of books will be reduced and the need to reproduce pamphlets will also be eliminated.

According to the results of this research, these changes will have a significant impact on the motivation of the quality of learning over time.
The results of this research are in line with several studies that have been conducted in recent years and have pointed out the importance of printed resources on the quality of deep learning.
Bonk, Zhu. 2022, wolf, 2018 Mohanad, Janaki, 2020. Ally, 2022 Shih et al. 2011, et al. 2016, Chen, Y 2020. (2020) Granito et al, 2012 Gurhan, Khatri 1400, Mohammadi 1401).(

Also, the use of multimedia content in the book means paying attention to individual differences in the speed of learning, which in the new generation of academic books, reduces the learning time and increases the quality of learning.

In the end, it should be mentioned that this research was conducted by the researcher in limited classrooms with one subject. It is appropriate for other researchers to redesign a new generation of academic books and study the impact of its use on the quality of learning in a wider

dimension and wider statistical community.

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