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EFFECT OF SMART PHONES WITH MULTIPLE APPLICATIONS ON RESEARCH CAPABILITIES, LEARNING BEHAVIOR AND ATTITUDES OF UNIVERSITY TEACHERS AND STUDENTS

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Abstract

This is considered the modern century, and research-based methods to understand learners' abilities with new skills and ideas today are needed to solve problems that change people's lives. The modern era has opened up new ways and means for people to connect with the world. Materials and electronic equipment have become best for using different applications to complete tasks and find new ways and tools to increase efficiency and effectiveness. Educational technology also plays a vital role in this field, improving students' skills and ability to see and discover new ways to meet urgent needs. This study aimed to develop students' skills to investigate new knowledge and tools using technology in education. Using the questionnaire, the researcher collected data from 118 University of Baluchistan male M.phil participants. This study aimed to use new technologies in universities, enable students to understand real-life innovations, and gain astute knowledge and skills to move forward in line with the need for new skills. This study was necessary to draw attention to the essential learning characteristics through the use of technology that students obtain from their performance using different strategies. The results of this study proved that technology plays a vital role in student's lives and that students

who benefit from these technologies develop their skills in using their creativity to find new ways and tools for essential projects. Data analysis was done with the help of SPSS. This study recommended that it will be helpful for learners to spike the use of technologies in students' learning process to enhance their skills and to find new resources in the field of education as well as their relevant subjects.

Keywords: Technology-based learning, Mobile learning, Learners, Technological skills

INTRODUCTION

Technology has been added to the era and is considered modern and functional for various applications. Our lives also depend on world civilization, which is an age requirement. Different professionals in their profession will get the desired path for their work. Other sources of energy also suit resources to achieve specific goals and objectives. Smartphones have also become a part of people's lives and play a vital role in the civilized world. Developed and developing countries also use mobile phones in education (Tgoe, 2014). Among these devices, one is helpful for teaching. Both teachers and students benefit from using cell phones in the classroom. Most people use technology to achieve their goals and complete their tasks with this modern device. It has developed into a thorough source of knowledge with many applications. People's views and norms have changed as a result. It has completely changed the technology of various gadgets, including digital cameras, watches, VCRs, and more. A smartphone is a portable and convenient device whenever and wherever you go. Learning tactics have evolved in educational institutions for both professors and pupils. Internet calling has many advantages. Smartphones have changed the whole world and replaced the function of digital watches, VCRs, cameras, etc. It is readily available to laypeople who cannot purchase a personal camera or VCR for commercial purposes (Jusoh, 2017).

New research shows that smartphone usage, particularly in Australia, the UK, Malaysia, Norway, Saudi Arabia, and Pakistan, has increased, with 67% of Malaysian students using smartphones for online learning. This is done through various applications such as Twitter and WhatsApp. There are also advanced applications such as Telegram and Instagram. These applications feature social interaction, content sharing, and shared intelligence. Many developed countries have the highest smartphone usage, and people also use these devices to improve their lifestyles. Students often rate the use and effectiveness of smartphones, especially for educational purposes; for example, some students may be selected to find out how they use smartphones and their attitudes toward using them for educational purposes, while some students report the negative impact of smartphones. On Education (ITU, 2008, cited by Sarah, 2017).

Smartphones are designed and updated more than regular mobile phones. The primary function of these phones is to use the internet and devices to provide a good and exciting browser

(Lee et al., 2013). Smartphones have different applications than regular phones, making them helpful and valuable for teachers and students (Naravan, 2015).

The development of information technology (IT) defined this century and significantly impacted many aspects of everyday life, especially pedagogy. Information Technology (IT) is essential nowadays to change and improve education by bringing new ways. According to Grabe (2007), ICT is a sophisticated form that can be used in different settings and classrooms. It is also necessary for society and curriculum (Ghavifekr et al., 2012). The term "information technology" (IT) describes the spread of academic learning in the classroom through computer-based instruction. Students can meet the demands of the modern world thanks to this technology. The goal of using technology in teaching and learning is closely related to how students use technology to enhance their learning. Students can benefit from the sophisticated use of technology for educational purposes that effectively enhance student learning.

The results of the surveys showed that instruction based on information and communication technologies (IC) improved students' understanding and effectively met the predetermined learning objectives. When information and communication technology (ICT) applications are used in the classroom, information technology (IT) helps to simplify pedagogical components, which will lead to better learning and understanding across different courses (Jorge et al., 2003). Teachers and students can use information and communication technology (ICT) to learn about their subjects in different settings. It provides a variety of ways to use video tutorials, PowerPoint presentations for hands-on learning, pre-stored data, mind maps, brainstorming, and the World Wide Web (www). All of these help encourage students to sift through the barrage of information to understand any subject. In addition, it provides teachers with the tools and preparation they need to create lesson plans and prepare lectures (Finger & Trinidad, 2002; Jorge et al., 2003; Jamieson-Procter et al., 2013); Information and communication technologies are used in phases (ICT).

Its three primary phases are complementation, reinforcement, and integration. The first step to increasing students' skills is to put the right things in the right places. The topic that is introduced is highlighted in the second ICT method. The third and final level of information and communication technology (ICT) facilitates and enhances student learning. Completing their assignments in the allotted time helps students find new sources of knowledge and improves their ability to retrieve material and related information using technology (Hermans et al., 2008). Students can even send emails from the comfort of their homes.

For students to meet their learning goals, using technology takes time, and they must be able to use it effectively. Although proficient in information technology, they may need assistance meeting current educational requirements. Teachers who are unable to complete their work using technology face many challenges due to various technological issues that may hinder their ability to teach and learn (Yang & Wang, 2012). During the scientific and technological

revolution of the 20th century, the world advanced over time. He also thrived in all walks of life to suit the moment's demands. Education is the basis of transforming a person's personality into a good citizen of the country. It cannot be denied that students benefit from technology-based learning (Albirini, 2006).

The instructor is also happy with how he uses the latest technology and tools in his lessons to achieve the intended results. It is a simple way to find content for their current expertise that will help students reach their full potential. The traditional teacher is also impressed with this technology and thinks it is fantastic that you can use it. It also forces teachers to think differently; she likes to help children with creative uses. While every discovery has value, using a specific technology creates new avenues for competition and transforms the world into a previous global village (Capan, 2012; Virkus, 2008; Zhang, 2013; Dudeney, 2010). The globe has changed over time due to scientific and technological advances during the 20th century. He also thrived in all walks of life to suit the moment's demands. Education is the foundation for molding people's personality to become law-abiding citizens of the country. It cannot be denied that students benefit from technology-based learning (Albirini, 2006).

The instructor is equally comfortable incorporating the latest technologies into his teaching strategies and assisting students to achieve the intended outcomes. It is a simple way to find content for their current expertise that will help students reach their full potential. The traditional teacher is also impressed with this technology and thinks it is fantastic that you can use it. It also changes the teacher's perspective; he likes to use it creatively. While every discovery has value, using a specific technology creates new avenues for competition and transforms the world into a previous global village (Capan, 2012; Virkus, 2008; Zhang, 2013; Dudeney, 2010). Pakistan is an impoverished state struggling to face global challenges. Pakistan is a country on this earth that is constantly evolving in terms of technology and other fields. Different historical periods have used different techniques to increase people's potential. In 2000, technology profoundly impacted the country, and everyone wanted to use it to connect with the mature generation. Pakistan is developing itself, and its institutions are well-equipped with modern technology. It gives management a new perspective on how to proceed in all spheres of the company.

The purpose of the Elementary School Room (2015-2016) is to introduce an idea to young children so they can grasp it creatively and take responsibility for growing up to be productive members of the nation. All elementary schools, urban and rural, have access to Tabs, a technology resource that helps create a productive learning environment for students (2015-2016). The education system consists of more people getting better educated and engaging with technology, allowing them to develop innovative teaching and learning strategies. Technological advancements can make a significant difference when using outdated conventional techniques.

However, modern technology has hired the presentation system these days. In order to provide the best classroom activities and serve as a valuable resource for students, the teacher plans each day and tries to find up-to-date information. In addition, it helps students to be more motivated. Distance education is another component of this system, which maximizes the use of technological assistance. Distance learning students belong to different age groups and follow this type of technology with great interest; they prefer a lecture by a teacher who uses advanced technology to deliver a conventional lecture (William, 2002; Hamdan, 2013; & Jonassen, 2000).

STATEMENT OF THE PROBLEM

Technology has an integral function in people's lives, especially in academic activities, to enhance students' potential and engage during the teaching and learning process using innovative techniques through various sources and technology that enhance students' skills. Learn and implement a new source of knowledge in practical life by getting such a device in their learning approaches. Students can improve their skills and excel using technology in teaching to take advantage of opportunities to use technical skills to understand learning in a supportive environment. They can complete a project task over time.

OBJECTIVES

The objectives of the study were:

1. To show interest among learners while using technology to enhance their learning abilities with a progressive approach.
2. To check the impact of students' performance by using technology and smart devices in their learning process to meet the needs of the hour.

RESEARCH QUESTIONS

The research questions of the study were:

1. Is there any significant relation to showing interest among students in using technologies to enhance their learning activities?
2. Is there any significant impact on students' performance while using smartphones and different applications for learning activities?

SIGNIFICANCE OF STUDY

This study will explain teaching tactics for all grade levels using smartphones to create a conducive learning environment. It will provide accurate student responses to this type of technology, which will benefit students to improve their skills as technology advances. It will contribute valuable information for researchers to conduct valuable studies on the technology.

This study will fill the gaps in previous research on the use of smartphones and their importance in schools, colleges, and universities.

Delimitations of Study

The current study was delimited to the University of Balochistan because this institute's students use modern technologies.

RESEARCH METHODOLOGY

A survey methodology was employed to gather data on respondents, primarily students. This approach allowed for a comprehensive understanding of the impact of smartphone-based technologies on the learning process. A well-structured questionnaire with 20 items was designed to capture valuable insights from the respondents. The questionnaire encompassed various aspects, including smartphone usage patterns for educational purposes, types of applications employed, perceived benefits, and challenges faced.

POPULATION

The study population comprised 192 male M.Phil. Students from the University of Balochistan.

Sample Selection

A targeted sample was selected to participate in the survey. This sample encompassed individuals from diverse backgrounds, educational levels, and technological proficiency to ensure a representative dataset. The sample from the population was selected using the Krejcie-and-Morgan table, which was 132. However, at the time of data collection, 119 participants were present. The 119 participants were selected by simple random method. The questionnaire was distributed to participants to collect data on their experiences, attitudes, and academic performance over a designated period.

Data Analysis

The collected data was analyzed using appropriate statistical techniques to identify patterns and trends. SPSS was used for data analysis.

No.	Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	means	SD
1.	Using a smartphone	62	45	7	4	1	4.11	0.72

	with multiple educational apps has improved my overall learning experience.	(52.5) %	(38.1)%	(5.9) %	(3.3) %	(0.8) %		
2.	The availability of educational apps on smartphones has increased my motivation to learn.	29 (24.1) %	58 (49.1)%	20 (16.9)%	5 (4.2) %	6 (5.08) %	3.45	1.12
3.	Smartphones and educational apps have made it easier for me to access learning materials and resources.	58 (49.1) %	32 (27.1)%	20 (16.9)%	7 (5.9) %	1 (0.8) %	3.70	1.16
4.	Using smartphones in education has improved my ability to collaborate with colleagues on academic projects.	27 (22.8) %	48 (40.6)%	24 (20.3)%	14 (11.8) %	5 (4.2) %	3.14	1.11
5.	Smartphones with educational apps have improved my understanding of complex concepts.	33 (27.9) %	27 (22.8)%	23 (15.5)%	26 (22) %	9 (7.6) %	3.07	1.22
6.	I believe that using smartphones for learning is essential in the modern age.	46 (38.9) %	37 (31.3)%	17 (11.4)%	4 (3.3) %	14 (11.8) %	3.22	1.38
7.	Educational devices (e.g., tablets, stylus pens) and smartphones enhanced my learning experience.	59 (50) %	46 (38.9)%	8 (6.7) %	2 (1.6) %	3 (2.5) %	3.46	1.58
8.	Using technology to learn has made me	47 (39.8)	43 (36.4)	16 (13.5)%	6 (5) %	6 (5) %	3.43	1.15

	more self-centered in my studies.	%	%					
9.	I find it easy to integrate smartphone-based learning into my daily routine.	75 (13.5) %	32 (21.1)%	7 (5.9) %	2 (1.6) %	2 (1.6) %	3.50	1.26
10.	Using smartphones for learning has positively affected my academic performance.	45 (38.1) %	45 (38.1)%	16 (13.5 %	8 (6.7) %	4 (3.3) %	3.17	1.19
11.	Smartphone-based learning made it easier for me to stay organized in the course.	36 (30.5) %	48 (41.5)%	22 (18.6)%	9 (7.6) %	2 (1.6) %	3.13	1.32
12.	The variety of educational apps available on smartphones allows for personalized learning	44 (37.2) %	37 (31.3)%	19 (16.1)%	7 (5.9) %	11 (9.3) %	3.29	1.38
13.	Smartphones have enhanced my ability to engage with multimedia learning materials (e.g., videos and interactive simulations).	46 (38.9) %	38 (32.2)%	24 (20.3)%	8 (6.7) %	2 (1.6) %	3.38	1.30
14.	I feel more connected to My instructors and classmates through smartphone-based communication and collaboration tools.	59 (50) %	21 (17.7)%	27 (22.8)%	8 (6.7) %	5 (4.2) %	3.43	1.24
15.	Using smartphones in education has helped me adapt to the fast	40 (33.8) %	42 (35.5)%	30 (25.4)%	2 (1.6) %	4 (3.3) %	3.30	1.40

	pace of information in the modern world.							
16.	Smartphones have given me access to various educational resources beyond traditional textbooks.	64 (4.2) %	36 (30.5) %	12 (10.1)%	6 (5) %	2 (1.6) %	3.04	1.22
17.	The convenience of mobile learning encouraged me to explore new topics and subjects.	57 (48.3) %	30 (25.4)%	22 (18.6)%	5 (4.2) %	4 (3.3) %	3.33	1.33
18.	Smartphone-based learning has increased my ability to problem-solve and think critically.	67 (56.7) %	34 (28.8)%	10 (8.4) %	4 (3.3) %	*3 (2.5) %*	3.63	1.20
19.	Using smartphones to learn has improved my time management skills.	51 (43.2) %	34 (28.8)%	18 (15.2)%	12 (10.1) %	3 (2.5) %	3.38	1.29
20.	I believe smartphones and technology are essential for future learning and career development.	48 (41.5) %	37 (31.3)%	24 (20.3)%	2 (1.6) %	7 (5.9) %	3.30	1.33

Results and Discussions

"Using a smartphone with multiple educational apps has improved my overall learning experience." A high percentage of participants, 91.8%, agreed (Strongly Agree + Agree) with this statement, with a mean score of 4.11 and a relatively low standard deviation of 0.72. This suggests that participants generally agree that using smartphones with educational apps has improved their overall learning experience. "The availability of educational smartphone apps has increased my motivation to learn." Approximately 73.2% of participants agreed (Strongly Agree + Agree) with this statement. The mean score was 3.45, and the standard deviation was 1.12, indicating that participants moderately agree that the availability of educational apps on smartphones has increased their motivation to learn. "Smartphones and educational apps have made it easier for me to access learning materials and resources." A significant majority, 76.2%,

of participants agreed (Strongly Agree + Agree) with this statement. The mean score was 3.70, with a standard deviation of 1.16. This suggests that most participants find accessing learning materials and resources easier with smartphones and educational apps.

"Using smartphones in education has improved my ability to collaborate with colleagues on academic projects." About 63.4% of participants agreed (Strongly Agree + Agree) with this statement. The mean score was 3.14, and the standard deviation was 1.11. This indicates a moderate agreement regarding improving participants' ability to collaborate using smartphones in education. "Smartphones with educational apps have improved my understanding of complex concepts." Around 50.7% of participants agreed (Strongly Agree + Agree) with this statement. The mean score was 3.07, and the standard deviation was 1.22. On average, participants agree that smartphones with educational apps have improved their understanding of complex concepts. "I believe using smartphones for learning is essential in the modern age." Most participants (70.2%) agreed (Strongly Agree + Agree) with this statement. The mean score was 3.22, and the standard deviation was 1.38. This suggests that participants hold diverse opinions, but the mean indicates a moderate agreement that smartphones are essential for learning in the modern age.

"Educational devices (e.g., tablets, stylus pens) and smartphones further enhanced my learning experience." A significant percentage, 88.9%, agreed (Strongly Agree + Agree) with this statement. The mean score was 3.46, and the standard deviation was 1.58. Participants generally agree that using educational devices alongside smartphones enhances their learning experience. "Using technology to learn has made me more self-centered in my studies." About 76.2% of participants agreed (Strongly Agree + Agree) with this statement. The mean score was 3.43, and the standard deviation was 1.15. Participants somewhat agree that using technology for learning has made them more self-centered in their studies. "I find it easy to integrate smartphone-based learning into my daily routine." Approximately 34.6% of participants agreed (Strongly Agree + Agree) with this statement. The mean score was 3.50, and the standard deviation was 1.26. Most participants agree that they find it easy to integrate smartphone-based learning into their daily routines.

"Using smartphones for learning has positively affected my academic performance." A significant majority, 76.2%, agreed (Strongly Agree + Agree) with this statement. The mean score was 3.17, and the standard deviation was 1.19. Participants generally agree that using smartphones for learning has positively affected their academic performance. "Smartphone-based learning made it easier for me to stay organized in the course." A majority of participants, 71.5%, agreed (Strongly Agree + Agree) with this statement. The mean score was 3.13, with a standard deviation of 1.32. Participants agree that smartphone-based learning has helped them stay organized in their courses. "The variety of educational apps available on smartphones allows for personalized learning." Around 68.5% of participants agreed (Strongly Agree + Agree). The

mean score was 3.29, and the standard deviation was 1.38. Participants somewhat agree that the variety of educational apps on smartphones allows for personalized learning.

"Smartphones have enhanced my ability to engage with multimedia learning materials (e.g., videos, interactive simulations)." 71.1% agreed (Strongly Agree + Agree) with this statement. The mean score was 3.38, and the standard deviation was 1.30. Participants generally agree that smartphones have enhanced their ability to engage with multimedia learning materials." Through smartphone-based communication and collaboration tools, I feel more connected to my instructors and classmates." A majority of participants, 68.7%, agreed (Strongly Agree + Agree) with this statement. The mean score was 3.43, with a standard deviation of 1.24. Participants generally agree that smartphone-based tools make them feel more connected to instructors and classmates. "Using smartphones in education has helped me adapt to the fast pace of information in the modern world." Around 69.3% of participants agreed (Strongly Agree + Agree) with this statement. The mean score was 3.30, and the standard deviation was 1.40. Participants somewhat agree that smartphones have helped them adapt to the fast pace of information.

"Smartphones have given me access to a wider range of educational resources beyond traditional textbooks." Most participants, 64.7%, agreed (Strongly Agree + Agree) with this statement. The mean score was 3.04, with a standard deviation of 1.22. On average, participants agreed that smartphones had provided access to a broader range of educational resources. "The convenience of mobile learning encouraged me to explore new topics and subjects." A significant percentage, 74.9%, agreed (Strongly Agree + Agree) with this statement. The mean score was 3.33, and the standard deviation was 1.33. Participants generally agree that the convenience of mobile learning encouraged them to explore new topics and subjects. "Smartphone-based learning has increased my ability to problem-solve and think critically." A high percentage, 85.5%, agreed (Strongly Agree + Agree) with this statement. The mean score was 3.63, with a standard deviation of 1.20. Participants showed a relatively high level of agreement that smartphone-based learning has increased their ability to problem-solve and think critically.

"Using smartphones to learn has improved my time management skills." Around 72% of participants agreed (Strongly Agree + Agree) with this statement. The mean score was 3.38, and the standard deviation was 1.29. Participants somewhat agree that using smartphones for learning has improved their time management skills. "I believe smartphones and technology are essential for future learning and career development." Most participants, 72.8%, agreed (Strongly Agree + Agree) with this statement. The mean score was 3.30, with a standard deviation of 1.33. Participants hold diverse opinions, but the mean indicates a moderate level of agreement that smartphones and technology are essential for future learning and career development.

Conclusion

In conclusion, the data analysis of the Likert scale statements reveals that participants generally perceive smartphones with educational apps as valuable tools that have improved their overall learning experience, motivation, and access to learning resources. They acknowledge the positive impact on collaboration, organization, and problem-solving skills. However, some participants expressed concerns about becoming more self-centered in their studies due to technology use. Nevertheless, most firmly believe smartphones are essential in modern education and future career development. These findings emphasize the importance of leveraging smartphone technology to enhance learning experiences while addressing potential challenges to ensure effective integration in educational settings.

Recommendations:

1. Encourage educators to incorporate educational apps effectively into their teaching methods. Provide training and resources to help them use these tools effectively to enhance student learning.
2. Encourage collaborative learning experiences using smartphones. Facilitate group projects, discussions, and peer learning activities that harness the benefits of smartphone-enabled communication and collaboration.
3. Acknowledge the concerns about potential self-centered learning due to smartphone use. To mitigate this issue, promote a balanced approach to technology integration that emphasizes individual and collaborative learning.
4. Ensure that students easily access a wide range of learning resources through smartphones. Invest in digital libraries, open educational resources, and other online materials to enrich their learning experience.
5. Offer courses or workshops on digital literacy to help students use smartphones responsibly and effectively for their academic pursuits. This can include teaching them how to evaluate online sources and manage screen time.

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