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FACTORS DETERMINING DEMAND FOR BLENDED LEARNING POST-COVID-19 IN SAUDI ARABIA

Hisham J. Bardesi

Economics Department, King Abdulaziz University
Jeddah, Saudi Arabia

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ABSTRACT

This research explores the factors affecting blended earnings post-COVID-19 in Saudi Arabia. The data was collected through an online survey of 1142 students in the Spring of 2024 at King Abdulaziz University (KAU). A five-point Likert scale assessed the significance of factors affecting the demand for blended earnings. Comparative tests were carried out on three aspects: the benefits of learning, factors contributing to its success, and elements that attract students. These tests aimed to determine if there were differences in opinions based on participants' demographic information. The study results highlighted the importance of the factors considered, emphasizing that aspects influencing the demand for blended learning primarily center around program quality, alignment with students' preferences, cost suitability, institutional framework, technical readiness, expertise, flexibility in time and space, technical/Internet infrastructure, and academic and technical support.

Furthermore, the study, using comparative tests for the three main areas, found no statistically significant differences in the opinions of the study sample regarding most demographic factors (marital and job status, monthly income, place of residence, level of experience in computing, and internet applications and previous experience with e-learning), towards the factors that contribute to determining the demand for blended education. However, the study found statistically significant differences in a few demographic factors in some of the three main study areas; it was found that females, e-learning students, literary students, postgraduate students, students aged between (31-38), and student nationality play a significant role in determining the demand for blended learning, as they have higher inclinations towards it.

KEYWORDS:- Blended Learning, e-Learning, Demand for Blended Learning, Determining Factors, Saudi Arabia.

1. INTRODUCTION

While education has become the cornerstone of the progress of nations and peoples, most countries have sought to develop their education systems. Given that many traditional educational stages rely heavily on the instructors, leaving the student as a passive learner; many academic institutions have begun implementing new learning methods. These methods aim to make students active, positive, and practical, with the role of the teacher limited to guiding and supervising. Hence, many technological innovations have emerged to make the student the focal point of the educational process instead of the teacher. These innovations focus on active learning strategies and cooperative learning. One of the most important innovations is e-learning, which generally relies on using technology in all its forms to deliver information to students in the least amount of time and effort.

E-learning is characterized by the ease of updating and modifying the information provided to students. It also serves as a solution to the problem of increased student numbers and the limited capacity of classrooms. Additionally, it offers diverse learning resources and enhances communication and interaction between students and teachers. Its main advantage is that it allows students of different levels, ages, and schedules to learn in a suitable place according to their circumstances. Moreover, learning can be synchronous or asynchronous, inside or outside the classroom.

Despite the multiple advantages of e-learning, it has several shortcomings. These include the lack of direct communication between the elements of the educational process, the occasional lack of necessary infrastructure for its application, and the difficulty of conducting evaluations and ensuring their reliability. Hence, there emerged the need to introduce a new educational system, which is blended learning. This approach incorporates the characteristics of traditional classroom learning (face-to-face) with online learning in an integrated model. It aims to compensate for each of the limitations by utilizing available technologies. Blended learning represents an educational method that aims to help students achieve the targeted educational outcomes by integrating traditional teaching methods with various forms of e-learning inside and outside the classroom (Tayebnik & Puteh, 2013). Blended learning, as defined universally, is an instructional methodology that integrates conventional in-person instruction with online or digital learning resources (Ye et al., 2023).

Post-COVID-19, Blended learning is a rapidly growing field with great potential within the higher education system due to the tremendous development in using information and communication technology (ICT) in education. It represents a turning point in teaching and learning methods together. It enhances the ability to access better and more flexible educational systems. If implemented appropriately, it will open new opportunities for promising educational approaches, leading to a model transformation in the educational systems from traditional methods to new ones based on integrating information technology. It will raise the overall quality standards of the educational process and contribute to the engagement of more students in both the teaching and learning processes, as well as significantly improving the learning process outcomes. Moreover, it offers flexibility in implementing educational programs and enhancing specializations that meet the job market's needs (Deng et al., 2022; Cheriguene et al., 2022)

Many studies have addressed the importance of blended learning. They have all proven the effectiveness of the blended learning environment in developing educational variables to be measured, such as attitudes, concepts, educational attainment, and performance (Min & Yu, 2023). Despite the multiple reasons that drive students to enroll in such education, few studies have addressed the influencing factors in this type of education. The lack of comprehensive studies and integrated research projects conducted on this type of education in Saudi Arabia emphasizes the urgent need to study the factors influencing the demand for blended learning. This study will determine whether the planning and decision-making align with users' aspirations and expectations. Therefore, this study aims to provide documented principles and proposals practical in strategic planning to develop blended learning strategies.

2. STUDY PROBLEM

The research problem lies in the numerous and interconnected factors determining the demand for blended learning. These factors include student awareness, needs, and preferences provided by the study program, as well as temporal and spatial flexibility, readiness, technical expertise, and academic and technical support from the educational institution offering the study program. It also relates to everything related to the educational process, such as costs and institutional frameworks for the study program. Compared with other educational systems, especially the traditional model, the lack of clarity on these factors negatively impacts the development of this modern educational approach and delays its benefits.

3. STUDY IMPORTANCE

The importance of the research is in studying the specific factors determining the demand for blended learning in Saudi Arabia. Due to the scarcity of particular studies, it is focused on this aspect, especially in a country like Saudi Arabia, which is strongly committed to solidifying its position in this field of knowledge and education. It is consistent with "Vision 2030 for Saudi Arabia," which aims to expand the higher education sector in line with economic and social development requirements and to align the educational system's outcomes with the job market's needs (Council of Economic and Development Affairs, 2016). Furthermore, the importance of the research lies in presenting several hypotheses that collectively encompass a wide range of factors contributing to determining the demand for blended learning, which clarifies the diverse, multifaceted, and different aspects of the market for this type of education, its attractiveness, and its success factors. Thus, this will help stakeholders and decision-makers benefit from the research results when strategically planning to attract more students to blended learning programs and mitigate factors that may discourage their enrollment.

4. STUDY OBJECTIVES

This study aims to identify the factors contributing to the demand for blended learning among university students interested in enrolling in such study programs. Additionally, this study seeks to delineate differences in the study sample's opinions based on demographic factors such as gender, nationality, age, marital status, employment status, income level, place of residence, educational level, field of specialization, and experience level in computer and internet applications regarding the demand for blended learning across various dimensions. Because of this, the study will seek to answer the following two questions:

- a. What factors influence the demand for blended learning among higher education students in Saudi Arabia?
- b. Are there statistically significant differences in sample opinions based on demographic factors?

5. PREVIOUS STUDIES

Many studies have addressed blended learning and its impact based on different definitions. Blended learning combines online learning activities with traditional classroom sessions, utilizing resources optimally to enhance student learning outcomes and address important institutional issues (Garrison, 2004; Min & Yu, 2023). It is commonly defined as an approach that integrates the advantages of conventional classroom instruction and online learning (Matukhin et al., 2014). The most widely accepted definition of blended learning is the combination of traditional (face-to-face) and e-learning types of education (Graham, 2006).

Studies on blended learning have identified several factors that may contribute to adopting blended learning (Li & Zhu, 2023). Among these factors is the need to balance work and family commitments with the desire to continue education. Since many students are trying to do multiple responsibilities, including work and family obligations, flexible schedules in blended learning programs influence their decision to enroll in study programs (McKenna et al., 2020; Lo et al., 2021). According to a report on manhood learners' priorities, the availability of evening or weekend classes is the second most crucial factor for enrollment (after academic reputation) for this student group, highlighting the importance of face-to-face interaction, even if it is during non-traditional times (Noel-Levitz, 2009). As indicated by a research survey, over 80% of potential students above 25 mentioned that they would consider online education, compared to 48% of respondents aged between 18 and 25. In other words, working people are intensely interested in online education (Eduventures, 2005).

Blended programs are desirable to students who face challenges in accessing traditional on-campus programs regularly. For example, the University of Illinois Springfield reported that 38% of students enrolled in its blended programs live outside Illinois, and 85% reside outside Sangamon County, where the campus is located (McCracken, 2009). Hence, blended programs do not necessarily replace traditional on-campus programs or aim to attract more students on a full-time basis to the campus. Instead, they complement existing traditional programs by reaching new students who can occasionally visit the campus but not regularly (Hanover Research Council, 2004).

The blended learning model offers advantages over both traditional and online models. It provides more flexibility and accessibility for teachers and students with direct face-to-face communication. Blended learning is considered an effective and low-risk strategy to address transformative changes brought about by technological advancements in higher education (Hancock & Wong, 2012; Pashine, 2022).

Moreover, blended learning has cost benefits for educational institutions, faculty members, and students. With increasing demand for higher education, institutions must be able to provide education to more students within limited space. When blended learning reduces onsite time by at least 50%, universities that struggle to maximize classroom space can save many resources (Pashine, 2022). Blended learning can effectively reduce infrastructure-related costs and maintenance. Building or renovating new facilities is often related to economic conditions, reducing the possibility of expansion and renovation (Betts et al., 2009). A study stated that facilities are second only to faculty in campus expenses, and maintenance, facilities, and renovation costs can account for about 70% of the building's lifecycle costs (Carlson, 2009).

Blended learning also offers more flexibility in faculty schedules, better utilization of lecture time, and access to educational resources. It can save both instructors' and students' expenses by

minimizing travel, resulting in savings in transportation and parking fees (Pashine, P. D., 2022). It enables faster and lower costs of reaching more learners (Graham et al., 2003).

In addition, a study using the Technology Acceptance Model (TAM) and the Information System Satisfaction Model (ISSM) identified various elements that could impact students' perceptions in a blended learning setting. The elements encompass student characteristics, instructor characteristics, course features, infrastructure characteristics, perceived benefits, simplicity of use, and the level of comfort linked to the utilization of technology in education. (Lu et al., 2012).

Education must also be accessible to individuals whose lives have become more complex due to work and family requirements. Transportation costs to and from campus are becoming a growing concern. Information is no longer limited to what is available in the library but what can be instantly accessed online by students who use technology extensively in their lives (Betts et al., 2009).

A study has identified three elements that can influence students' perceptions in a mixed learning environment: educational variables, motivational factors, and learner variables. The first category of factors that influence educational variables include the quality of instructors and learning activities, the level of learning assistance, and the magnitude of the study load. The second category of factors, known as motivational factors, is influenced by reinforcement, course importance, interest, self-efficacy, influence, and control over the learner. The third category of factors, learner variables, is influenced by a student's prior experience with online courses, computer confidence, preferred learning method, and typical learning time. (Lim & Morris, 2009). Additionally, it has been found that other factors, such as students' self-discipline levels, organizational and administrative support, and student responsiveness, are related to student perceptions in a blended learning environment (Graham et al., 2003).

Although blended learning has immense promise, it is liable to various problems and challenges. Initially, preconceived notions of students or teachers may pose significant obstacles. A study noted that in the absence of any technology, the teacher must be in the same place with their students to build an educational atmosphere. In contrast, such technological constraints no longer exist (Norberg, 2012). Furthermore, the absence of institutional acknowledgment of the exerted effort and the existence of cultures that do not foster this form of education can cause instructors to feel unsupported in their endeavors to innovate in this field (Stewart et al., 2011).

Unlike the traditional model, blended learning requires high discipline and responsiveness from the student. A study on new students found that some did not take online learning seriously because they were not accustomed to using it previously (Al-Jarf, 2005). In his study, Alhammad (2021) claims that blended learning works best when teachers and students are excited and proficient with digital learning technologies.

Some other factors influencing the adoption of blended learning present challenges related to the increased 'burden' of education that comes with the need for basic literacy in information technology skills and online communication skills, not only for students but also for teachers who need training to facilitate interaction and online education, as well as the production of high-quality digital educational materials, which also need to be sufficiently efficient to help students with the problems they may face (Marianne & Charlotte, 2014). Before beginning to teach using the blended learning model, the success of remote students is contingent upon their proficiency in technical abilities and familiarity with the communication platform. Additionally, the functionality and reliability of the selected platform are crucial factors to consider (White et al., 2010).

Many universities have begun offering this style of education¹, which combines synchronous and asynchronous online education using virtual classrooms and traditional education (face-to-face) through traditional classrooms, providing students with direct access to faculty members (Lidstone & Shield, 2010).

Blended learning has also started to spread in the Arab world², particularly in the Gulf region. Some universities have begun using this model to benefit from its many advantages as a modern, advanced, time-saving, cost-effective method suitable for many student categories and costs. It accommodates more applicants while enhancing the quality of the educational process (NMC Horizon Report, 2015).

The stability of the internet connection represents a constant problem that hinders continuous communication; this is particularly important in the early days of learning (Shield et al., 2005).

Also, the level of technical skills of the members involved in the educational process is fundamental, as a study on blended Learning in Saudi Arabia found that the technical abilities of Saudi students and instructors represent a significant challenge for the implementation of blended learning as they had not practiced online education, many students may work to acquire the required skills to learn in a blended learning environment effectively (Lebaikan & Troudi, 2010).

Conversely, a study determined that students at a technical institution in Saudi Arabia had a notably favorable impression of learning English in a blended learning setting. This perception is ascribed to various causes, including the advantages of blended learning, the system's simplicity, instructor attributes, the depth of information, and the appropriateness of learning activities (Alaidarous & Madini, 2016).

6. IMPLEMENTING THE BLENDED LEARNING IN SAUDI ARABIA

The education sector in Saudi Arabia faces an increasing demand to provide additional educational opportunities due to the number of the population under the age of 29, who represent more than 51% of the total population (The General Authority for Statistics (GASTAT), 2022), and also because this type of education can overcome the limitations of admission resulting from the increased demand on the supply in higher education institutions to accommodate all applicants in the traditional education model. Moreover, as a large country in terms of geographical area, with many communities far from the main population centers, blended learning can deliver educational services to remote areas, thereby reducing regional disparities.

In recent years, blended learning has emerged as a popular approach to education in Saudi Arabia. It offers a modern and flexible solution to meet the needs of Saudi Arabia's ambitious Vision 2030, which aims to rapidly develop the quality of education to have more qualified graduates with the skills and knowledge necessary to keep up with global changes. Combining traditional classroom-based instruction with technology-enhanced methods, such as online learning, offers students a personalized and engaging learning experience that prepares them for the future.

The COVID-19 epidemic has prompted educational systems in Saudi Arabia to explore different approaches to blended learning involving in-person and online training. The government increased

¹For example, Boston University, Brown University, IE Business School, and Pennsylvania State University.

²For example, Khalifa University in the United Arab Emirates, Zayed University, the American University in Dubai, Hamdan Bin Mohammed Smart University, the Arab Open University, the Saudi Electronic University, and the American University in Cairo.

investment in digital infrastructure to ensure Internet availability for students and instructors. In Saudi Arabia, Internet use reached 98.6% of its population in 2022 (CST, 2022). Some universities have started implementing online education in the last decade. KAU is a pioneer in using e-learning to improve students' educational experiences. It was also the first university to simultaneously accept enrollment in online programs from male and female students. (Aljaber,2018). On 2005, KAU established the first Deanship for e-Learning and Distance Education (DeLDE) in Saudi universities. Its mission is to provide "varied and outstanding educational services through the effective and efficient implementation of modern technologies in e-learning and e-learning education based on national and international quality standards" (DeLDE, 2016). It aims to "provide diverse and distinctive educational services in response to the increasing demand through the effective recruitment of modern technologies in e-learning and e-learning education in accordance with local and international standards of quality" (DeLDE, 2019).

In recent decades, education has needed more development and improvement to meet the world's requirements. Therefore, many universities have started massive initiatives for e-learning education to increase the ability to provide better educational opportunities for students and overcome the restrictions of attendance inside the campus. From here, blended learning emerged, combining both traditional and e-learning education systems, suitable for all student categories, especially those who aspire to earn a degree without leaving their jobs or struggling with their commitments.

Expanding blended learning enhances the dissemination of higher education and encourages more workers to engage in it while continuing their studies in various regions of Saudi Arabia. It also contributes to reducing students' costs and minimizing expenditures. Therefore, the blended learning program provides an education that keeps pace with the spirit of our times. It offers education based on educational technology and the Internet according to international standards and traditional lectures (face-to-face). The need for this type of education is to face the increasing pressures on universities and enhance their capacity in specialties that meet the needs of the labor market while maintaining their educational quality.

Furthermore, blended learning programs have become a favored and efficient solution for working students with flexibility in both time and space. Given that implementing the program requires meaningful investment in technological infrastructure and support (Al-Fraihat et al., 2017), it is significant to investigate what drives students' demand for blended learning and if there are any significant differences from the impact of demographic characteristics.

7. STUDY METHODOLOGY

The study data was collected by distributing a questionnaire to students regarding the factors that contribute to determining the demand for studying in a blended learning mode based on its temporal and spatial flexibility, the importance of the readiness and technical expertise of the educational institution, the academic and technical support provided, and its meeting of students' needs and preferences, as well as its costs and institutional framework. The study primarily formulated 36 factors according to the literature on the subject and the results of previous studies. Attention was also paid to collecting demographic data of the study sample due to the belief that the demand for blended learning is greatly influenced by multiple demographic factors and many other vital factors previously mentioned.

The study sample consists of 1142 students, distributed among students studying at KAU in Saudi Arabia during the Spring of 2024. The majority, 875, are regular students, who are the focus of the study, while the remaining 267 are e-learning students.

8. STUDY ANALYSIS

The questionnaire was prepared to collect information on demographic factors and clarify the sample's opinions regarding the factors affecting the demand for blended education by distributing it to students electronically. Then, the data was coded and entered into the computer through the statistical package (SPSS) to achieve the study's objectives. Descriptive and inferential statistical methods were used to express the study's outputs and to discover differences in opinions towards the factors influencing the demand for blended learning studies. Frequencies, percentages, arithmetic means, and standard deviations of the participant's responses in the study sample were monitored and presented in detail. The study used the following:

- Factor analysis and Cronbach's alpha coefficient: to measure the validity and reliability of the questionnaire through Pearson's correlation coefficient to measure internal consistency.
- Arithmetic means and standard deviations: to describe and determine the responses of the study sample toward the scale factors and to categorize these factors from the participant's point of view.
- Analysis of variance: determining the differences affecting the study sample's responses to the scales according to demographic data.

The study used the following tests:

- Nonparametric Kruskal-Wallis test.
- Nonparametric Mann-Whitney test.

9. STUDY RESULTS

This section provides a comprehensive analysis of the quantitative data, presenting the main results of the research according to the preliminary data collected using a questionnaire designed to gather demographic information as well as the sample's opinions on factors affecting the demand for blended learning. For regular students, the study conducted the following:

- Descriptive Statistical Analysis of Sample Attributes:

Table 1 provides a statistical description of the demographic variables of the students participating in the study, all of whom are studying at the university. It indicates that more than half of the sample are females (56.6%), more than 88.6% of them are aged between 18 to 30 years, 13.5% are married, the vast majority (83.1%) reside in Jeddah city, 84.3% do not work, 29.6% have a monthly income less than SR3000, 75.3% are in the bachelor's phase, and more than 42.2% of the sample study in scientific and health specializations. The data also showed that 2.1% had not previously studied in an e-learning education program, and 92.1% of the students have medium or higher experience in computing and internet applications.

Table 1: Statistical Description of the Demographic Variables

Demographic variables	Category	Frequency	Percent
Gender	Female	495	56.6%
Age	18-30	771	88.6%
Marital status	Married	118	13.5%
Place of residence	Jeddah	727	83.1%
Job	Unemployed	738	84.3%

Monthly income	Less than 3000	259	29.6%
Educational level	Bachelor's	659	75.3%
Academic specialization	Scientific and health	369	42.2%
Nationality	Saudi	819	93.6%
Experience in computing and Internet applications	Medium or higher	806	92.1%
Previously studied in an e-learning	No	18	2.1%

- Factor Analysis and Validity and Reliability Measurement of the Questionnaire:

The factors used in the questionnaire were classified into three areas related to the blended learning program. Factor analysis was conducted for all variables with similar traits in one location, which helped explain differences in all questionnaire factors. The retained factors are those whose individual saturation exceeded 0.40 and appeared logical. Three main areas were identified, each comprising several factors as follows:

The first area (Advantages of the Blended Learning Program) included thirteen factors (13 high-saturation factors) revolving around the academic quality of the program, such as the academic reputation of the educational institution offering the program, the diversity of specialties and the market demand for them, accreditation of the program by employers, the added value of the blended learning program distinguishing it from the traditional education program, the ability to meet the program's admission requirements, the availability of a clear description of the blended learning program and its courses, the accessibility to educational resources, and the use of new and innovative teaching methods with transparency in assessment methods.

The second area, "Attractive Elements of Blended Learning for Target Groups," included fourteen (14 high-saturation factors) revolving around the needs of the targeted groups and student preferences, which include the availability of internet services, having a computer, tablet, or smart device, level of expertise in using computers and internet applications, availability of online systems and courses for the program, consideration of family, social, and work commitments, flexibility of times and locations for traditional and virtual lectures, prices of internet services and tablet and smart devices, and the cost of the program with the adoption of accessible and straightforward methods along with the application of competitive pricing policies for blended learning programs compared to other educational programs.

The third area, "Elements of Success for Blended Learning," contained nine factors (9 high-saturation factors) revolving around the readiness and academic and technical support for the blended learning program, which includes providing courses to prepare students for the program, the presence of academic advisors in blended learning programs to offer online guidance, regular presence of the instructor in the e-learning environment, meeting the special needs of students and considering individual differences among students and their different learning methods, providing motivation for studying and executing activities in the e-learning environment with technical support provided.

The questionnaire was evaluated using Cronbach's alpha coefficient analysis to measure the validity and reliability of the questionnaire, as it includes criteria for measuring the internal consistency of the questionnaire. Through this, it is possible to recognize the consistency of all the questionnaire

factors regarding concepts and visions. The Cronbach's alpha coefficient for all aspects of the questionnaire was 0.913, and the validity coefficient was 0.956, considered a high number for this type of study and indicates that this questionnaire is an effective tool for measuring the consistency of the study's areas.

9.1 Study Hypotheses

Based on previous studies, a model containing thirty-six factors was designed, in addition to collecting demographic data for the sample. The study identified the questions and hypotheses necessary to test the importance of different factors in determining the demand for blended learning. The study formulated hypotheses to achieve the research objectives as follows:

The first hypothesis related to (factors of study areas): Several factors of different natures contribute to determining the demand for blended learning.

The second hypothesis related to (the impact of demographic factors on demand for blended learning according to study areas): There are no statistically significant differences in the effects of demographic characteristics in determining the demand for blended learning.

9.2 Analysis of Trends towards Factors Influencing the Demand for Blended Learning

Upon establishing the first hypothesis, the study analyzed the opinions of the sample regarding the importance of the proposed factors influencing the determination of the demand for blended learning. The study calculated the weighted average of the sample's responses for each questionnaire factor to classify the answers under specific categories, using a five-point Likert scale to measure opinions. The scale criteria for each factor of the questionnaire were utilized by giving graded responses to assess the importance rate of each factor in determining the demand for blended learning. This analysis was used to analyze the results using specific measures as follows:

- Not important at all (1-1.79),
- Unimportant (1.8-2.59),
- Neutral (2.6-3.39),
- Important (3.4-4.19),
- Very Important (4.2-5.00)

The following was obtained by calculating the weighted average and standard deviation for all factors of the questionnaire:

- I. Factors of the Advantages of Blended Learning: It was found that the direction of the sample's opinions about the importance of factors in this area ranges from "Important" to "Very Important," and that the general trend of the sample tends to "Very Important" with a weighted average of (4.5) and a standard deviation of (0.663), which means that the majority of the sample supports the importance of factors such as: the academic reputation of the educational institution offering the program, diversity of specialties and the size of labor market demand for them, accreditation of the program by employers, the added value of the blended learning program that distinguishes it from the traditional education program, the ability to meet the program's admission requirements, the availability of a clear description of the blended learning program and its courses, the accessibility to educational resources, and the use of new and innovative teaching methods with transparency in evaluation methods, in determining the demand for blended learning programs.
- II. Factors that attract blended Learning to target groups: It was found that the trend of the sample's opinions on the importance of the factors in this area ranges between "important"

and "very important" and that the general trend is dominated by the trend of "extremely important" with a weighted average of (4.45) and a standard deviation of (0.615), indicating that the majority of the sample supports the importance of factors such as Internet availability, owning a computer, tablet, or smart device, the level of expertise in using computers and Internet applications, availability of electronic systems and courses for the program, considering family, social, and work commitments, flexibility of times and places for traditional and virtual lectures, prices of internet services and tablets and smart devices, and the cost of the program with the adoption of accessible and straightforward methods along with the application of competitive pricing policies for blended learning programs compared to other educational programs—all these factors affect the demand for blended learning programs.

- III. Factors of Success for Blended Learning: It has been shown that the direction of the sample's opinions regarding the importance of factors in this area is 'Very Important,' and thus the general trend is 'Very Important' with a weighted average (4.48) and a standard deviation (0.707), meaning that the majority of the sample supports the importance of factors such as: providing courses to prepare students for the program, the presence of academic advisors in blended learning programs to offer guidance electronically, regular presence of the instructor in the e-learning environment, meeting the special needs of the students, considering individual differences among them and their different learning methods, providing motivation for studying and performing activities in the e-learning environment with technical support—all these influence the demand for blended learning programs.

9.3 Analysis of the impact of demographic factors on the blended learning demand

The second hypothesis was tested by conducting comparative tests to determine whether there were statistically significant differences in the opinions of the study sample according to their demographic data. The comparative tests conducted for the three previously mentioned main study areas yielded the following:

- 1) There were no statistically significant differences across all main study areas in determining the demand for blended learning concerning the following demographic factors: students' majors, marital status, monthly income, place of residence, status of employment, level of expertise in computing and internet applications, and use of online learning.
- 2) There were statistically significant differences between males and females regarding their attitudes towards the importance of factors in all areas (Advantages of Blended Learning), (Attractive Elements of Blended Learning) and (Elements of Success for Blended Learning), favoring female students due to higher average of this group in all area (4.26), (4.18) and (4.24) respectively.
- 3) There were no statistically significant differences according to the age groups of students and their current educational situation regarding their attitudes towards the importance of factors in the areas of (Advantages of Blended Learning) and (Elements of Success for Blended Learning) in determining the demand for blended learning. However, there were statistically significant differences in the importance of factors in the area (Attractive Elements of Blended Learning) Because the average of the age group (31-38) differs from the average of the age group under 25 years, as the age group (31-38) has a greater demand for integrated education. Postgraduate students have a greater influence on requesting integrated education due to the higher rate of this group (4.3) than bachelor's students.
- 4) There were no statistically significant differences according to the nationality of the students and the type of their high school certificate regarding their attitudes towards the importance of factors in the areas (Advantages of Blended Learning) and (Attractive Elements of Blended Learning) in determining the demand for blended. However, there are statistically significant differences in the importance of factors in the field of (success elements for blended learning)

in favor of students of Saudi nationality because their average is higher (4.25). This is in favor of the students of literary specializations because there is a significant difference between their averages and the averages of the scientific department, as the students of the literary specialization have a greater desire.

- 5) All 1142 students in the sample (regular and online learning) were used to compare their demand for blended learning. There were no statistically significant differences between students studying in regular or online learning regarding their attitudes toward the importance of factors in the area (Advantages of Blended Learning) and (Elements of Success for Blended Learning). In contrast, significant statistical differences were found in the area (Attractive Elements of Blended Learning) favoring online learning students due to the higher average for this group (4.29).

10. CONCLUSIONS AND RECOMMENDATIONS

This study aimed to identify the factors determining the demand for blended learning in Saudi Arabia by measuring the effectiveness of several factors determining the demand for blended learning in the country.

The study collected data from a sample of 1142 KAU students through a questionnaire that revolved around students' perceptions of blended learning in terms of academic quality advantages and elements of attraction related to students' needs and preferences. The focus of these study results was on the 875 regular students. In addition, the study considered the aspects of success represented in readiness, technical expertise, and academic and technical support.

The study addressed several important questions related to the effectiveness of various factors in determining the demand for blended learning, categorizing thirty-one factors into three main areas: Advantages of Blended Learning, Attractive Elements of Blended Learning, and Elements of Success for Blended Learning.

The study's results confirmed the significant importance of factors in the (Advantages of Blended Learning) area centered around academic quality, such as the academic reputation of the educational institution offering the program, the diversity of specialties, and the market demand for them, the accreditation of the program by employers, the added value of the blended learning program that distinguishes it from traditional learning programs, the ability to meet the admission requirements of the program, the availability of a clear description of the blended learning program and its courses, the accessibility to educational resources, and the use of new and innovative teaching methods with transparency in assessment methods.

The study also found significant importance for factors of Attractive Elements of Blended Learning in determining the demand for it, revolving around student needs and preferences such as availability of internet services, ownership of a computer, tablet, or smart device, level of expertise in using computers and internet applications, availability of learning management systems and courses for the program, consideration of family, social, and work commitments, flexibility of times and places for traditional and virtual lectures, prices of internet services and smart devices, and the cost of the program with the adoption of accessible and transparent methods along with competitive pricing policies compared to other educational programs.

Furthermore, the study confirmed the significant importance of factors associated with the Elements of Success for Blended Learning related to readiness and academic and technical support for the blended learning program, which includes providing courses to qualify students for the program, the presence of academic advisors in blended learning programs to offer online guidance, regular

presence of the instructor in the e-learning environment, meeting the special needs of students, considering individual differences among students, and their different learning methods, providing motivation for studying and performing activities in the e-learning environment with technical support.

The study used comparative tests for the three main study areas and found no statistically significant differences in most demographic factors (students' nationalities, marital and employment status, educational level, ages, monthly incomes, places of residence, level of expertise in computing and internet applications, and prior use of e-learning) regarding the factors contributing to the demand for blended learning.

However, the study found significant differences in a few demographic factors across some of the three main study areas, where significant differences were found in the importance of factors in the area (Elements of Success for Blended Learning) favoring females and Saudi students and Literary students. The study also found significant differences in the importance of factors in the area (Attractive Elements of Blended Learning), favoring females, e-learning learners, postgraduate students, and students aged between (31 and 38). The study also found significant differences in the importance of factors (Advantages of Blended Learning) favoring females only.

Therefore, females, e-learning students, literary students, postgraduate students, students aged between (31-38), and Student nationality play an essential role in determining the demand for blended learning, indicating that they have a higher inclination towards the demand for blended learning.

Based on the results obtained from this study, the study recommends the following:

- Conduct further studies in the future on other factors that may contribute to determining the demand for blended learning and increase its popularity, and address them from different aspects, such as the economic, social, behavioral, and psychological aspects, for instance, the relationship between blended learning and feelings of achievement, success, academic excellence, understanding performance, honing educational talents, or whether blended learning contributes to the student's ability to work and think creatively and enjoy extra leisure time, or whether it serves as a tool for saving money and effort to perform other tasks.
- More studies on the same topic should be conducted to reach new results and generalize them. The same study on the same subject should be undertaken in other universities in Saudi Arabia to discover the factors that affect the demand for blended learning in these areas and to clarify the differences in the opinions of the sample in studies conducted in larger and smaller cities.

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