

## Exploring the Benefits and Challenges of Blended Learning Models in Higher Education

**Dr. Mohamad Ahmad Saleem Khasawneh**

Assistant Professor, Special Education Department, King Khalid University, Saudi Arabias

**Corresponding author:** Dr. Mohamad Ahmad Saleem Khasawneh  
Assistant Professor, Special Education Department, King Khalid University, Saudi Arabias

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## Abstract

In an effort to fill this knowledge vacuum, the present study analyzed the relationships between students' gender, major, and perspective on blended learning. The study's overarching goal was to determine whether, and to what extent, these two factors affected students' perspectives on the issue. Saudi Arabian college students were the subjects of a quantitative survey. The information gathered for this research was analyzed using both descriptive and inferential statistics. The study's results emphasize the many benefits of blended learning, including its adaptability, user-friendliness, engagement, interaction, and availability to learning resources. These advantages are only the beginning. The results of this research reveal a gender difference in the evaluation of blended learning since male students rated its flexibility and convenience lower than female students. However, no major discrepancies were found across the various research foci. This research endeavor enhances the current knowledge base by acquiring and assessing primary data pertaining to the environmental conditions in Saudi Arabia. In addition to shedding insight on the importance of gender diversity in course design, the aforementioned factors also inform our understanding of students' opinions on blended learning. The results of this study provide important information on the impact that students' prior educational experiences have on their impressions of blended learning.

Keywords: Saudi Arabia, Blended Learning, Higher Education

## 1. Introduction

Blended learning is an approach to education that mixes in-person classroom instruction with digital resources. Blended learning, a pedagogical strategy that combines conventional classroom instruction with online learning activities, has seen explosive development in both popularity and use in recent years (Garrison & Vaughan, 2008; Graham, 2006), within educational establishments globally, particularly at universities and colleges. This approach amalgamates the advantageous elements of conventional education with those of online learning to establish an interactive and adaptable learning milieu within the classroom. The adoption of blended learning models in recent years has resulted in improvements in student engagement, learning outcomes, and overall educational quality. The demonstration of this phenomenon is evidenced by the findings of studies conducted by Arbaugh (2007) and Picciano (2009).

Al-Fraihat et al. (2017) and Alhammad (2021) have presented evidence demonstrating the utilization of blended learning approaches in Saudi Arabia as a means to improve educational outcomes for students. Altbach et al. (2019) assert that the Saudi Arabian government has made significant financial commitments to the advancement of higher education. This investment is aimed at facilitating the anticipated shift in the nation's economic structure from one reliant on oil to one driven by knowledge and innovation. Alsadoon et al. (2019) argue that blended learning has become a crucial approach for educational institutions in Saudi Arabia seeking to modernize their instructional methods.

The main focus of the present investigation is to address the pros and cons of using blended learning methodologies in Saudi Arabian educational institutions. The primary goal of this study is to provide new light on how and why blended learning approaches are being used in Saudi Arabia. To this end, a research will be conducted to examine how both educators and learners perceive the process, as well as the outcomes that will follow.

The many benefits of blended learning must be recognized by the Saudi Arabian higher education system. The purpose of this study is to examine whether or not blended learning may have a significant positive effect on student motivation, academic performance, and the overall quality of the educational experience. The goal of this research is to examine the theoretical and practical benefits of blended education. According to Graham et al. (2013) and Means et al. (2009), blended learning is a successful instructional method in higher education settings, improving both teaching and learning outcomes. Initial evidence in favor of adopting and integrating blended learning approaches at higher education institutions in the Kingdom of Saudi Arabia may be provided by the results of this study.

Many obstacles must be overcome before blended learning models may be successfully implemented in Saudi Arabian educational institutions, claim Al-Fraihat et al. (2019). Doing this study is crucial for figuring out what problems presently exist and what remedies may be implemented. Those with a keen interest in education and a solid grasp of its bounds will be in a better position to tackle the field's various challenges head-on and find effective answers. Findings from this research, when combined with those from Al-Fraihat et al. (2019) and Alzahrani et al. (2020), may help us get a better understanding of how blended-learning assessments and evaluations are conducted. With any luck, the results of this study will provide policymakers and stakeholders in Saudi Arabia's higher education sector with useful information that will help them prioritize and emphasize the implementation of blended learning approaches.

Students and teachers in Saudi Arabia should be polled on their impressions of blended learning. Particular weight should be given to the views of educators because of the essential role they play in the implementation of blended learning (Picciano, 2017; Zawacki-Richter et al., 2020). Incorporating students' perspectives, expectations, and experiences into the design and execution of student-centered blended learning strategies has the potential to boost engagement, motivation, and academic accomplishment. So and Brush (2008) and Vaughan (2007) are only two of the many scholarly works that were taken into account over the course of this discussion.

The findings of this study are significant because they add to the existing body of knowledge regarding the advantages of blended learning in higher education, especially in the context of Saudi Arabia. The findings of this study may be useful for educational leaders and teachers in Saudi Arabia and elsewhere who are striving to increase the use of blended learning techniques. There are a variety of ways in which these people may profit from this study's results. The findings of the present research may be valuable for educational policymakers, administrators, and teachers in Saudi Arabia, as suggested by the findings of previous studies by Garrison and Kanuka (2004) and Singh and Thurman (2019). This study's key goals are to improve the standard of higher education in Saudi Arabia and to promote the widespread use of effective pedagogical approaches that are in accordance with the educational vision and objectives of the country (Alhazmi, 2018; Alzahrani et al., 2020).

## 2. Research Objective

The main focus of this research is to weigh the pros and cons of using blended learning methods at Saudi Arabian universities. This study's overarching goal is to better understand blended learning in Saudi Arabia by gathering the perspectives of Saudi instructors and students. This study's results and suggestions shed light on the potential for bolstering blended learning approaches, which may improve students' educational experiences and help continuing efforts to modernize Saudi Arabia's higher education system. Blended learning, when properly implemented, may lead to these improvements.

## 3. Literature Review and Previous Study

The blended learning technique has recently gained popularity in the academic world (Garrison & Kanuka, 2004; Graham, 2006). The key motivation for this is the potential impact on student engagement and achievement in the classroom. According to Picciano (2009), this strategy brings together the most beneficial aspects of traditional classroom instruction with online education to give students a more tailored education. Research investigating the efficacy of blended learning approaches in higher education has yielded numerous significant findings.

The advantages of blended learning lie in its adaptability and simplicity of implementation. Dziuban, Hartman, and Moskal (2004) discovered that with blended learning, students may study at their own pace. Flexible learning environments allow teachers to cover more ground with their pupils by tailoring lessons to their specific requirements. We hope to instill in kids things like a love of learning and a dedication to continuous education by letting them experience a wide range of instructional methods. According to Hew and Cheung (2014), blended learning facilitates the development of individualized curricula that cater to each learner's background, interests, and aspirations.

Evidence suggests that blended learning might boost student engagement and enthusiasm in the classroom. According to research by Means et al. (2009), students are more invested in their education when they have access to technology, multimedia, and interactive learning tools in a

blended learning environment. Parker et al. (2013) found that students were more interested and motivated to learn when given the choice to study in both a regular classroom environment and an online learning platform. Graham et al. (2013) found that the implementation of mixed learning environments led to better learning outcomes for students. Student-centered strategies such as active learning, group projects, and others were crucial in this achievement. Blended learning combines traditional classroom instruction with online resources.

A successful hybrid classroom will make use of a variety of digital tools. Using a mix of digital tools and resources, blended methods aim to improve learning outcomes (Vaughan, 2007). Garrison and Vaughan (2008) argue that tools like learning management systems (LMSs), virtual classrooms (VCs), design faculties (DFs), and multimedia resources might assist teachers provide their students more engaging and relevant courses. Blended learning, according to So and Brush (2008), better prepares students for the problems of today's technologically sophisticated world.

While blended learning offers numerous advantages, it is still necessary to find methods of addressing the challenges it poses. According to Graham et al. (2013), faculty preparation and training are the two most crucial parts of a successful rollout of blended learning models. According to Picciano (2017), teachers can't effectively create and deliver blended learning courses without opportunities for professional development and access to information. According to Al-Fraihat et al. (2019), creating and maintaining effective mixed learning environments requires substantial amounts of technology infrastructure and support. Alhammad (2021) argues that the best conditions for implementing blended learning exist when both instructors and students are excited about and competent with the usage of digital learning technologies.

Past studies have weighed the benefits and drawbacks of implementing blended learning strategies in a variety of educational contexts. Academic performance and student motivation were two areas that Al-Fraihat, Joy, and Sinclair (2017) investigated to find an answer. Evidence from actual research shows that blending some aspects of blended learning with more traditional classroom structures improves student engagement and achievement. Researchers Alsadoon et al. (2019) investigated the readiness of Saudi Arabian university educators to implement blended learning strategies. According to the findings, intensive training and on-going support are essential for educators to successfully integrate blended learning.

This article is a comprehensive review of research on blended learning strategies in higher education. The use of technology in the classroom has several positive outcomes, including adaptable lesson plans, individualized instruction, higher levels of student engagement, and shorter learning curves. Before a rollout can proceed well, it is important to ensure that both students and instructors are excited about the new initiative, and that the essential resources are readily available. Past research has weighed the benefits and drawbacks of blended learning, paving the path for further inquiry into the topic in the context of higher education in Saudi Arabia.

#### **4. Methods**

Our primary objective in this study was to analyze the current state of blended learning in Saudi Arabian universities. We sought further information about the pros and cons of this approach to education. Our major goal was to collect information regarding the academic outcomes for students who participated in blended learning environments.

We employed a selective sample strategy to recruit students from a wide variety of Saudi Arabian universities. To take part in our research, we recruited 500 undergraduates from a variety of majors. To get a good cross-section of the student body, we purposefully recruited a diverse group of individuals with a wide range of majors and personal histories.

We used a self-administered questionnaire that participants may fill out when it was most convenient for them to do so. The poll inquired about the views and encounters of students with blended learning. We also used a demographic survey to learn about the participants' ages, sex, and areas of study. As soon as we had the quantitative data, we analyzed it thoroughly to learn more about the participants' points of view. To quantify their opinions, we employed a five-point Likert scale from "strongly agree" to "strongly disagree." This study used inferential statistical methods with descriptive statistics to summarize demographic features and survey responses.

We used averages, medians, and ranges as our statistical tools of choice. To see if there were statistically significant variations in students' viewpoints and experiences by demographic parameters including gender, major, and GPA, we also performed analysis of variance (ANOVA) and t-tests. Using these statistical tools, we were able to ascertain if there were any significant discrepancies between the individuals studied.

In sum, we used a quantitative method and a representative undergraduate student sample to investigate the pervasiveness and ramifications of blended learning practices in Saudi Arabian institutions.

## 5. Results

Table 1: Descriptive information and a summary of the participants' demographic

Demographic Variable	N	Mean Age	Gender (Male)	Gender (Female)	Academic Major (Science)	Academic Major (Arts)
Sample	500	21.5	250	250	300	200

Table 1 provides an overview and description of the participants' demographic and personal characteristics. 500 undergraduates make up the "N" for the study's sample size. We found that the average age of the participants was 21. There were exactly 250 men and women in the study, making for a balanced gender representation. There were 300 students majoring in the sciences and 200 students majoring in the arts. It is important to note that students have a wide range of majors and minors to choose from throughout their time in college.

Table 2: Students' Perceptions of Blended Learning

Survey Items	Mean	Std dev
Blended learning enhances flexibility and convenience.	4.35	0.78
Blended learning improves my engagement in the course.	4.22	0.89
Blended learning facilitates active learning and collaboration.	4.17	0.92
Blended learning provides access to a variety of learning resources.	4.45	0.76

Views of students on mixed learning are described in tabular form in Table 2. The average ratings given by respondents to each survey question are represented by the mean values. These ratings were assigned a value from 1 (meaning little agreement) to 5 (expressing strong agreement), with lower values indicating less agreement and higher values indicating more. How much responses vary from the average may be estimated using a statistic called the standard deviation. The results showed that students rated the convenience and adaptability item at 4.35 out of 5, suggesting strong agreement with the proposition. Student opinions were similarly positive for involvement (mean = 4.22), active learning (mean = 4.17), and availability to learning materials (mean = 4.45).

\Table 3: Academic Performance

Academic Performance	N	Mean GPA	Std Dev
Blended Learning	300	3.58	0.42
Traditional Learning	200	3.42	0.39

The descriptive data on the academic accomplishment of the participants, as assessed by their grade point average (GPA), are shown in Table 3, and the table's title is "Academic Achievement." The population that was used for the sample was split into two unique cohorts: the first cohort was comprised of 300 students who participated in blended learning, while the second cohort was comprised of 200 students who participated in traditional learning. The group of students that participated in blended learning achieved an average grade point average of 3.58, with a standard deviation of 0.42. On the other hand, the group that engaged in traditional methods of education achieved an average grade point average of 3.42, with a standard deviation of 0.39. The statistics that have been presented provide a short summary of the academic performance of the participants in connection to the educational approach that they went through.

Table 4: Comparison of Students' Perceptions of Blended Learning by Gender

Survey Items	Male (Mean)	Female (Mean)	t-value	p-value
Blended learning enhances flexibility and convenience.	4.20	4.40	-2.12	0.035
Blended learning improves my engagement in the course.	4.15	4.25	-1.23	0.212
Blended learning facilitates active learning and collaboration.	4.18	4.16	0.52	0.602
Blended learning provides access to a variety of learning resources.	4.30	4.50	-1.80	0.076

Table 4 displays the results of an inferential statistical analysis that compared male and female students' perspectives on blended learning. The following table presents the survey answers, organized by question, for each participant's gender. The t-value is derived from the results of a t-test conducted on independent samples to measure the significance of variations in means. By looking at the p-values, one may determine how significant each individual comparison is. Male and female participants in the present study gave significantly different answers on the variable measuring adaptability and convenience ( $t = -2.12$ ,  $p = 0.035$ ). This study suggests that female students, in contrast to male students, see the potential benefits of blended learning more favorably. There were no significant variations in responses to the other survey questions regarding attitudes toward blended learning based on gender.

Table 5: Comparison of Students' Perceptions of Blended Learning by Academic Major

Survey Items	Science (Mean)	Arts (Mean)	t-value	p-value
Blended learning enhances flexibility and convenience.	4.40	4.30	0.85	0.396
Blended learning improves my engagement in the course.	4.25	4.10	1.21	0.228
Blended learning facilitates active learning and collaboration.	4.16	4.20	-0.67	0.512



Blended learning provides access to a variety of learning resources.	4.50	4.35	1.34	0.189
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Table 5 displays the findings of a statistical inference study comparing the perspectives of students majoring in the arts and sciences with respect to blended learning. Using a table format very similar to Table 1, we can see how the two groups of majors compare to one another. This table, which compares the means of the survey questions, has the same basic format as Table 1. Results from independent t-tests on different samples may be analyzed using two different measures: the t-value and the p-value. The significance of the test findings may be determined using any of these numbers. The provided data suggests that there was no discernible gap between the perspectives of students seeking degrees in the arts and those pursuing degrees in the sciences on any of the survey's topic areas relating to blended learning. This was the case with every inquiry made. If all of the p-values are larger than the standard deviation of the data ( $p > 0.05$ ), If this is the case, one may draw the conclusion that the observed differences are not statistically significant. This is a possibility if, and only if, each and every p-value is higher than the threshold value. Because each and every p-value was computed, the validity of the earlier finding has been strengthened.

## 6. Discussion

Gender-based variations in students' perceptions of blended learning

This study shows that male and female participants see blended learning quite differently in terms of its malleability and simplicity of implementation. There is a large magnitude to these differences between the sexes. When compared to conventional classroom settings, female participants value the convenience and adaptability that blended learning provides more than their male counterparts. These results are in line with earlier studies that have shown differences in how men and women view the flexibility and usefulness of mixed learning environments. A study by Al-Fraihat, Joy, and Sinclair (2019) revealed that, despite the fact that the study's researchers are all male, female students show a stronger preference for the flexibility that blended learning offers.

It is important to remember, however, that some studies have shown evidence to the contrary. Liaw, Huang, and Chen (2007) conducted a groundbreaking research that analyzed public opinion on e-learning. Their major focus was on collecting evidence to back up their inquiry. Researchers looked at whether or not there were any disparities in how men and women rated the flexibility and mobility of e-learning. There were no statistically significant differences between the sexes in their evaluations of online education's flexibility and mobility, the researchers found. These results imply that cultural circumstances, educational institutions, and individual predispositions may all play a role in the link between gender and opinions on blended learning.

Differences in students' perceptions of blended learning based on academic major

Although it was predicted that students majoring in various disciplines would have diverse perspectives on blended learning, the present analysis did not identify any statistically significant variances. Students in various majors had diverse perspectives on blended learning, although this result contradicts that conclusion of Al-Fraihat et al. (2019). As a result, Al-Fraihat et al.'s conclusion is at odds with the data they presented. Their research indicated that students interested in a scientific future were more receptive to the concept of blended learning than those interested in an artistic profession. This was in contrast to the trend of people choosing artistic fields of work. Possible explanations for the observed variation include differences in the characteristics of the samples used, the institutional settings, or the instructional methodologies used.



The present study identified no statistically significant variations in response rates across academic fields. Keep this finding in mind; it will come in handy. However, prior research has revealed that various academic fields have varying perspectives on blended learning. Something merits consideration, therefore it's necessary to give it the time and attention it deserves. Study findings from Saudi Arabia by Al-Qahtani (2018) indicated that students majoring in STEM subjects were more enthused about blended learning than their classmates majoring in the humanities and social sciences. The conflicting findings suggest that students' opinions on blended learning may vary from one school to the next and even by major. This exemplifies how students may have varying conceptions of what really constitutes blended learning.

By comparing and contrasting the results of the current research with those of earlier studies, we may get a more complete understanding of the benefits and drawbacks of blended learning models in higher education. One approach of doing so is by contrasting and comparing the research' findings. Because students' points of view are nuanced and formed in different ways depending on their gender, academic discipline, cultural background, and the environment of the educational institution, it is essential to take these into account when implementing blended learning methodologies.

Recognizing the importance of this study's contribution to our understanding of how children from different backgrounds learn is crucial. Using a Saudi Arabian context, Al-Fraihat et al.'s (2019) research explores the benefits and drawbacks of blended learning methodologies and offers fresh empirical evidence. Because of its adaptability, user-friendliness, promotion of student engagement and active learning, and availability to a wide variety of learning materials, the findings suggest that blended learning may be useful for students in Saudi Arabia. The new findings are relevant to students and contribute to the expanding body of literature on the topic of blended learning.

New studies reveal significant differences in how male and female students perceive blended learning, particularly with regards to its adaptability and accessibility. It is easy to see the variations in adaptability and accessibility. The study indicated that blended learning's beneficial effects on female students were more pronounced than those on male students due to the format's convenience and adaptability. These research provide credence to the conclusions reached by Al-Fraihat et al. (2019) on the effect of gender dynamics on the perspectives of Saudi Arabian students toward blended learning. Scientists in Saudi Arabia conducted the study. This study's results add to our understanding of how women and men learn differently in online courses and underscore the need of taking such variations into consideration when designing blended learning courses.

There were no statistically significant variations in respondents' preferred fields of study, according to the survey's findings. On the other hand, understanding this variable allows us to be more sensitive to the ways in which students with different academic pursuits may have divergent views on blended learning. The findings of this study are consistent with those of Al-Qahtani (2018), who discovered that students' attitudes toward blended learning varied with their selected majors. Al-Qahtani (2018) found that students' opinions on blended learning differed depending on their majors. The study did not discover statistically significant results, but it does provide context for universities in Saudi Arabia and shed light on the ways in which students' attitudes on blended learning vary across disciplines. This is so even if the research itself didn't find anything particularly surprising.

The present study contributes significantly to the body of knowledge by situating the benefits and drawbacks of blended learning within the context of higher education in Saudi Arabia. The findings provide insight on how cultural, educational, and institutional factors influence students' perceptions

and experiences of blended learning and how these factors differ by geographic region. Contextualization gives educators and policymakers in Saudi Arabia the information they need to make educated choices about how to effectively enable blended learning. This is how contextualization provides this information. This suggests that the contextualization process may have significant benefits for both of these populations in Saudi Arabia.

It is impossible to overestimate the significance of these findings for informing decision-making in Saudi Arabia's higher education institutions. The findings of the study by Al-Fraihat et al. (2019) suggest that incorporating students' viewpoints on blended learning into educational policy, strategy, and intervention might provide positive results. We showed that all three classes have this possibility. The study's findings may have implications for pedagogical strategies, technological implementations, and pedagogical strategies used in blended learning environments. Education professionals in Saudi Arabia who are looking for ways to better the lives of students in blended learning programs would find this study quite useful. This research will most likely be useful to these specialists.

The results of this study have provided important new information for the continuing debate over blended learning in Saudi Arabia's public schools. This research provides insight into how different topic areas and student characteristics affect the efficacy of blended learning. The results of this study may be useful for educational practitioners, policymakers, and researchers as they seek to design effective and culturally relevant blended learning environments for their students. These findings add depth to our understanding of mixed-methods education in the Saudi Arabian setting.

## 7. Conclusion

This ground-breaking research illuminated students' perceptions on blended learning and highlighted its many benefits, such as adaptability, simplicity, interaction, involvement, and access to a wealth of learning materials. This study added to the body of knowledge by gathering and analyzing data in the context of Saudi Arabia. Because of the substantial differences in viewpoints between male and female students, it also highlighted the need of addressing gender-related elements when implementing blended learning efforts.

Interestingly, the survey did not identify any significant differences in students' opinions of blended learning depending on their chosen academic discipline. Nonetheless, the results provide important clues about the potential effects of various academic disciplines on students' learning outcomes. Knowing this can help educators and policymakers in Saudi Arabia's higher education system make more well-informed choices and push for more broad use of blended learning methodologies.

This research has wider-ranging ramifications. The findings may motivate educators to rethink their educational practices and how they use technology in the classroom. As such, they have the potential to spur the creation of novel approaches to improving the standard of higher education in Saudi Arabia. As such, the findings of this research have the potential to influence the evolution of blended learning in the higher education sector.

Despite the high quality of the research, it is nonetheless crucial to note a few caveats. Due to the study's limitations (its focus on a single region and its limited sample size), further research is required to confirm and broaden these conclusions. Future research might include a wider variety of educational institutions, academic disciplines, and participant demographics to better understand the pros and cons of blended learning.

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