Exploring the Impact of Gender, Campus, and College Affiliation on Health Sciences Students' Perceptions of Facilities, Equipment, and Digital Library Resources in an English-Medium Instruction University

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Abstract

The investigation into students' attitudes and satisfaction concerning college facilities & equipment and the digital library constitutes a consequential research endeavor, with potential ramifications for fostering positive impacts on students' overall success within the college environment. This study aims to assess the attitudes and satisfaction levels of freshmen students enrolled in health sciences programs during the COVID-19 pandemic in a Saudi university that employs English as the medium of instruction. To execute this inquiry, a meticulously designed questionnaire was formulated and subsequently disseminated electronically to students across three distinct campuses and various colleges, accounting for both male and female cohorts. Statistical analyses were conducted utilizing the Kruskal–Wallis test within the R statistical software.

The outcomes of this study reveal that the overall rating of students' satisfaction with facilities and the digital library slightly surpassed the average threshold. Notably, the digital library exhibited the lowest satisfaction levels among all students, with particular emphasis on aspects such as library training sessions, library databases, and the accessibility of databases. In the realm of facilities & equipment, significant disparities were discerned among campuses and colleges, although gender did not emerge as a differentiating factor. The study unveiled that college affiliation and gender functioned as significant predictors of student satisfaction in both the domains of facilities & equipment and the digital library.

The findings of this investigation assume significance as they underscore the nuanced impact of campus, college, and gender affiliations on students' attitudes toward the digital library and the facilities & equipment within their educational milieu. This research endeavor contributes valuable insights into the multifaceted dynamics that influence student satisfaction in these crucial domains, thereby informing strategies for enhancing the educational experience and success of health sciences freshmen students, particularly within the distinctive context of the ongoing pandemic.

Keywords: College education; higher education; education quality; student perception; gender differences

Introduction

In the year 2006, the Kingdom of Saudi Arabia exhibited a population of 24,000,000, experiencing an annual growth rate of 2.5%. A decade later, in 2022, the population surged to approximately 35,900,000, signifying a substantial 30% increase over the span of ten years. Consequently, a quarter of the population falls under the age bracket of 20 years or younger. This pronounced demographic expansion has engendered a heightened demand for human resources, particularly within the domain of health and medical professions. In response to this surge, both governmental and private universities have been established, offering programs in health sciences not only within Saudi Arabia but also in the broader region. The escalating competition among these institutions has precipitated the adoption of market-oriented strategies, wherein universities strive to distinguish themselves from their counterparts by providing facilities and equipment of exemplary quality. This strategic maneuver aims to attract a larger and more competitive pool of students.

Furthermore, the implementation of the Saudi Vision 2030 initiative marked a pivotal shift, overturning a previous prohibition on the imposition of tuition fees for post-graduate students in public universities. This policy alteration has empowered Saudi universities to levy tuition fees, thereby

augmenting their financial resources. The confluence of factors, including the introduction of tuition fees and the proliferation of universities, collectively incentivizes these institutions to enhance their facilities and meet or exceed the evolving needs of their student population.

Amidst this transformative landscape in Saudi higher education, the present study endeavors to elucidate the dimensions of student satisfaction pertaining to facilities & equipment and the digital library within a health science university—a domain of localized research that has hitherto received inadequate attention. Saudi universities grapple with the imperative of continually evaluating and enhancing the quality of their services and equipment to remain competitive on a broader academic stage and achieve heightened levels of student satisfaction (Azam, 2018). The measurement of student satisfaction assumes significance for higher education institutions, serving as a mechanism to remain abreast of deficiencies in both facilities & equipment and the digital library. This necessitates the deployment of surveys by higher education institutes to systematically identify challenges and fortify their standing within the fiercely competitive academic milieu (Chandramohan, 2019; Onditi and Wechuli, 2017; Kara et al., 2016).

The construct of students' satisfaction can be delineated as a transitory attitude stemming from an assessment of their educational experience, the provision of services, and the quality of facilities (Elliott and Healy, 2001; Kara et al., 2016). Educational institutions often employ surveys as a method to gauge student satisfaction, aiming to ascertain students' perceptions of their overall college experience and identify areas necessitating improvement (Billups, 2008; Onditi and Wechuli, 2017). The complexity inherent in the concept of student satisfaction manifests across various dimensions. In the context of this study, the intention is to undertake a nuanced deconstruction of student satisfaction, focusing exclusively on facilities & equipment and the digital library through the utilization of a survey instrument.

Examining student satisfaction, particularly with respect to facilities & equipment and the digital library, proves challenging due to the absence of a singular factor indicative of service quality in both domains. The conceptualization is inherently multidimensional, encompassing several factors that are amenable to adaptation. Osman et al. (2017) elucidate that service quality integrates five fundamental perspectives: excellence, value, specifications, and expectations. The authors contend that services attain a high quality when they confer benefits upon consumers, align with predefined specifications, and either meet or surpass expectations. Accordingly, this study posits that a commendable service quality within facilities & equipment and the digital library

must adhere to these five key perspectives. The absence of such alignment poses a formidable challenge to the progressive trajectory of universities. This theoretical standpoint underscores the integral relationship between service quality and student satisfaction. Chandra et al. (2018) expound upon this relationship by asserting that service quality serves as a precursor to student satisfaction, with the provision of high-quality services contributing to increased satisfaction, and reciprocally, heightened satisfaction reinforcing the perception of good quality services.

In directing our study towards an examination of service quality concerning facilities & equipment and the digital library within a health science university, it is imperative to contextualize the research environment. The focal point of our investigation resides in the experience of freshmen students, for whom this academic undertaking marks their initial foray into university life. Crucially, these students engage in classes where English serves as the medium of instruction (EMI). This phenomenon is pervasive in non-English speaking countries and is influenced by various factors, including advancements in technology, processes of internationalization, and the overarching wave of globalization, particularly discernible in the realm of health science education (Coleman, 2011; Doiz, Lasagabaster, & Sierra, 2012; Hamid, Nguyen, & Baldauf Jr, 2013). In navigating this linguistic transition, students in such contexts encounter substantial educational challenges, ranging from inadequacies in resources and support to trade-offs between content and language and the implementation of pedagogical methodologies deemed inappropriate (Byun et al., 2011; Hamid et al., 2013; Kennedy, 2011; Kyeyune, 2010; Manh, 2012; Shohamy, 2012). Furthermore, a significant concern associated with EMI lies in the formulation of laws and curriculum goals, often characterized by a lack of effective communication between policymakers, educators, and students, coupled with an insufficiently nuanced consideration of available resources (Hamid et al., 2013; Kennedy, 2011; Kyeyune, 2010; Manh, 2012). Consequently, as we progress with our study, encompassing data collection and subsequent analysis, we remain attuned to the unique and multifaceted nature of this educational context.

The primary objective of the study is the examination of health sciences students' attitudes and satisfaction levels pertaining to college facilities & equipment and digital library services, with a specific focus on the period coinciding with the COVID-19 pandemic. Employing an analysis of rating scores, our investigation endeavors to portray the satisfaction levels across distinct academic institutions concerning the provision of facilities & equipment and digital library services. Notably, the initial inquiry centers on the potential disparities in

rating scores between male and female students, as well as variations among different campuses and colleges. Furthermore, the study seeks to delve into the influence of gender, college affiliation, and campus residency on the rating scores through the application of ordinal logistic regression analysis.

METHODS

To conduct the study, a questionnaire comprising two sections was designed. The first section collected information about the respondents, including their gender, campus, and college. The second section consisted of 33 statements, focusing on the digital library and college facilities and equipment. Respondents were asked to rate these statements on a five-point scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaires were distributed electronically during the second semester of the Academic Year 2020-2021. The method of data collection and analysis has been under IRB approval from King Abdullah International Medical Research Center (KAIMRC), on September 8th with reference number: RYD-20-419812-108479 as it complied with IRB regulations; and informed written consent were obtained from the study participants prior to study commencement.

For the digital library, the following statements were included:

- Question 12: "The digital library website is user-friendly."
- Question 13: "The digital databases are available."
- Question 14: "The digital library databases are easily accessible for users."
- Question 15: "Library training sessions are provided."
- Question 16: "The digital library databases are adequate."

For facilities and equipment, the following statements were included:

- Question 17: "Facilities and equipment are always set up and functional to use in classrooms (including audio-visual)."
- Question 18: "Medical equipment is always set up and functional to use in the labs."
- Question 19: "Bathrooms within campuses are kept clean and maintained."
- Question 20: "The security level on campus is adequate."
- Question 21: "Parking and access are provided."

- Question 22: "The safety levels (first aid, fire extinguishers and alarm systems, secure chemicals) are adequate."
- Question 23: "Adequate facilities are available and accessible for those with disabilities or handicaps (ramps, lifts, bathroom furnishings)."
- Question 24: "Adequate facilities are available for sport activities."

Overall, the ratings on all questions were above average (see Table 1 for mean values).

A total of 1784 health sciences students from King Saud bin Abdulaziz University for Health Sciences participated in this study (Table 2). Of these students, 1084 were female and 700 were male, and they came from three campuses: Al Ahsa, Jeddah, and Riyadh. Additionally, they represented six colleges: College of Applied Medical Sciences (CAMS), College of Dentistry (COD), College of Medicine (COM), College of Nursing (CON), College of Pharmacy (COP), and College of Public Health and Health Informatics (CPHHI) (Table 2).

The statistical analysis was conducted using the R statistical software to examine the dependence of satisfaction scores, which indicate agreement with the aforementioned statements, on respondents' gender, college, and campus. Kruskal-Wallis tests were employed to compare rating scores between male and female students, as well as between campuses and colleges.

Furthermore, an ordinal logistic regression was performed for each statement to investigate whether any of the independent variables, namely gender, campus, and

Table 1: Average score for each question

Questions	Mean	Median	SEM
12	3,48	3,00	0,03
13	3,52	3,00	0,02
14	3,48	3,00	0,03
15	3,32	3,00	0,03
16	3,46	3,00	0,02
17	3,50	3,00	0,03
18	3,49	3,00	0,03
19	3,67	4,00	0,03
20	3,74	4,00	0,03
21	3,53	3,00	0,03
22	3,71	4,00	0,02
23	3,65	4,00	0,03
24	3,51	3,00	0,03

Note. SEM = standard error of the mean.

Table 2: Participants category

College	Number of Students
CAMS	632
COD	82
COM	500
CON	458
COP	49
CPHHI	64

Campus	Number of Students
Al Ahsa	254
Jeddah	531
Riyadh	999

college, could significantly influence and predict the rating scores. It is important to note that in this type of regression, each independent variable had a designated baseline level within their respective variable categories, specifically CAMS for the college variable, Al Ahsa for the campus variable, and females for the gender variable.

RESULTS

Digital Library

Table 3 shows no significant difference between male and female students in question 12 ($x2 = 0.75$, df = 1, p = 0.38), question 13 ($x2 = 0.22$, df = 1, p = 0.63), question 14 ($x2 = 0.43$, df = 1, p = 0.51). The effect was a significant difference in question 15 ($x2 = 4.08$, df = 1, p = 0.043, female = 3.28, male = 3.41), but not in question 16 ($x2 = 1.74$, df = 1, p = 0.18).

Furthermore, Table 4 show no differences found across the three campuses in question 12 ($x2 = 0.58$, df = 2, p = 0.74), question 13 ($x2 = 0.09$, df = 2, p = 0.95), question 14 ($x2 = 0.06$, df = 2, p = 0.96), question 15 ($x2 = 1.45$, df = 2, p = 0.48), and question 16 was not significant as well ($x2 = 0.14$, df = 2, p = 0.93).

Finally, we analyzed rating scores across the academic groups and the questions. As a result, as in Table 5, there was no significant main effect of academic group in question 12 ($x2 = 7.41$, df = 5, p = 0.19), in question 13 ($x2 = 10.36$, df = 5,

Table 3: Male and female on digital library services

Question	X^2	df	p-value
12	0.75	1	0.38
13	0.22	1	0.63
14	0.43	1	0.51
15	4.08	1	0.043
16	1.74	1	0.18

Table 4: Campuses on digital library services

Question	X^2	df	p-value
12	0.58	2	0.74
13	0.09	2	0.95
14	0.06	2	0.96
15	1.45	2	0.48
16	0.14	2	0.93

Table 5: Academic groups on digital library services

Question	X^2	df	p-value
12	7.41	5	0.19
13	10.36	5	0.065
14	7.71	5	0.17
15	4.06	5	0.54
16	9.73	5	0.083

p = 0.065; although the effect was marginally significant, no pairwise comparisons turned significant, all p's > 0.1), question 14 ($x2 = 7.71$, df = 5, p = 0.17), and question 15 ($x2 = 4.06$, df = 5, p = 0.54). Question 16 resulted in marginally significant effect ($x2 = 9.73.96$, df = 5, p = 0.083), but posthoc comparisons resulted in no significant differences (all p's > 0.2).

Ordinal regression

As shown in Table 6, in the prediction of the rating scores in question 12, we found that COM was a significant predictor (Estimate = -0.25, standard error = 0.12, z-value = -2.13, p = 0.032, OR = 0.77). The gender was a marginally significant predictor (Estimate = 0.18, standard error = 0.11, z-value = 1.69, p = 0.091, OR = 1.19). No other predictors resulted in significant effects (all p's > 0.1).

In question 13, there was a significant predictor COM (Estimate = -0.25, standard error = 0.12, z-value = -2.13, p = 0.033, OR = 0.77). In question 14 there was a significant predictor of COM (Estimate = -0.26, standard error = 0.12, z-value = -2.25, p = 0.024, OR = 0.76). In question 15 there was a significant predictor of gender (Estimate = 0.27, standard error = 0.10, z-value = 2.62, p = 0.008s, OR = 1.31). Finally, in questions 16 there was a significant predictor of COM (Estimate = -0.29, standard error = 0.12, z-value = -2.49, p = 0.012, OR = 0.74). The gender was also a significant predictor (Estimate = 0.24, standard error = 0.11, z-value = 2.36, p = 0.018, OR = 1.28). No other predictors were significant (all p's > 0.1).

Facilities and equipment

As in Table 7, we found no significant differences between male and female students in question 17 ($x2 = 0.92$, df = 1, p = 0.34),

Table 6: Prediction for digital library services

Question	Predictor	Estimate	Standard Error	Z-Value	p-value	Odds Ratio
12	COM	-0.25	0.12	-2.13	0.032	0.77
12	Gender	0.18	0.11	1.69	0.091	1.19
13	COM	-0.25	0.12	-2.13	0.033	0.77
14	COM	-0.26	0.12	-2.25	0.024	0.76
15	Gender	0.27	0.10	2.62	0.008	1.31
16	COM	-0.29	0.12	-2.49	0.012	0.74
16	Gender	0.24	0.11	2.36	0.018	1.28

Table 7: Male and female on facilities and equipment services

Question	X^2	df	p-value
17	0.92	1	0.34
18	0.92	1	0.34
19	0.40	1	0.52
20	3.17	1	0.074
21	0.001	1	0.98
22	3.78	1	0.052
23	5.73	1	0.016
24	24.33	1	<0.001

Table 8: Campus differences in facilities and equipment services

Question	X^2	df	p-value
17	0.29	2	0.86
18	2.42	2	0.29
19	5.49	2	0.064
20	6.37	2	0.041
21	9.6	2	0.008
22	3.44	2	0.17
23	5.46	2	0.065
24	4.75	w2	0.093

question 18 ($x2 = 0.92$, df = 1, p = 0.34), question 19 ($x2 = 0.40$, df = 1, p = 0.52), question 21 ($x2 = 0.001$, df = 1, p = 0.98). But there was a significant difference in question 20 ($x2 = 3.17$, df = 1, p = 0.074, female = 3.71, male = 3.82), question 22 ($x2 = 3.78$, df = 1, p = 0.052, female = 3.67, male = 3.79), question 23 ($x2 = 5.73$, df = 1, p = 0.016, female = 3.6, male = 3.74) and in question 24 ($x2 = 24.33$, df = 1, p < 0.001, female = 3.41, male = 3.71).

Furthermore, Table 8 shows no differences found across the three campuses in question 17 ($x2 = 0.29$, df = 2, p = 0.86), question 18 ($x2 = 2.42$, df = 2, p = 0.29), question 19 ($x2 = 5.49$, df = 2, p = 0.064; note that all pairwise comparisons were non-significant: all p's > 0.086). There was a significant main effect of campuses in question 20 ($x2 = 6.37$, df = 2, p = 0.041) and posthoc pairwise comparisons revealed a significant difference between RY and JD (p = 0.044, RY = 3.80, JD = 3.65), but not between RY and AA (p = 0.91; AA = 3.75) and JD and AA (p = 0.38). Question 21 was significant as well ($x2 = 9.6$, df = 2, p = 0.008). Posthoc comparisons revealed a significant difference between RY and AA (p = 0.009, RY = 3.52, AA = 3.72), and between JD and AA (p = 0.039; JD = 3.46), but not between RY and JD (p = 0.59). Question 22 was not significant ($x2 = 3.44$, df = 2, p = 0.17), as well as question 23 ($x2 = 5.46$, df = 2, p = 0.065; no pairwise comparisons were significant: all p's > 0.12), and question 24 ($x2 = 4.75$, df = 2,

p = 0.093; no pairwise comparisons were significant: all p's > 0.09).

Finally, as in Table 9, we analyzed rating scores across the academic groups and four questions. As a result, there was a marginally significant main effect of academic group in question 17 ($x2 = 10.74$, df = 5, p = 0.057; posthoc pairwise comparisons revealed no significant differences: all p's > 0.1). Furthermore, we found significant differences in question 18 ($x2 = 11.48$, df = 5, p = 0.042). Posthoc pairwise comparisons revealed a significant difference between CON and COM (p = 0.026, CON = 3.57, COM = 3.38), while all other comparisons were not significant (all p's > 0.15). There was a significant main effect in question 19 ($x2 = 11.20$, df = 5, p = 0.047), but posthoc pairwise comparisons revealed no significant differences (all p's > 0.2). There was a significant main effect in question 20 ($x2 = 12.84$, df = 5, p = 0.024), but posthoc pairwise comparisons again revealed no significant differences (all p's > 0.2). There was a significant main effect in question 21 ($x2 = 23.35$, df = 5, p < 0.001). Posthoc pairwise comparisons revealed a significant difference between COM and CAMS (p = 0.007, COM = 3.37, CAMS = 3.61), COM and CPHHI (p = 0.007, CPHHI = 3.78), and marginally significant difference between COM and COP (p = 0.067, COP = 3.83), while all other comparisons were not significant (all p's > 0.2).

There was a significant main effect in question 22 ($x2 = 14.69$, df = 5, p < 0.012). Posthoc pairwise comparisons revealed a significant difference between COM and CAMS (p = 0.04, COM = 3.63, CAMS = 3.79), while all other comparisons were not significant (all p's > 0.2). There was again a significant main effect in question 23 ($x2 = 17.34$, df = 5, p = 0.003). Posthoc pairwise comparisons revealed a significant difference between COM and CAMS (p = 0.016, COM = 3.55, CAMS = 3.73), while all other comparisons were not significant (all p's > 0.2). Finally, there was a significant effect in question 24 ($x2 = 14.49$, df = 5, p = 0.012). Posthoc pairwise comparisons revealed a significant difference between COM and CAMS (p = 0.019, COM = 3.43, CAMS

= 3.63), while all other comparisons were not significant (all p's > 0.2).

Ordinal regression

As summarized in Table 10, in the prediction of the rating scores in question 17, we found that COM was a significant predictor (Estimate = -0.33, standard error = 0.12, z-value = -2.92, p = 0.0034, OR = 0.71). Gender was a marginally significant predictor as well (Estimate = 0.19, standard error = 0.10, z-value = 1.92, p = 0.054, OR = 1.22). No other predictors resulted in significant effects (all p's > 0.1).

In question 18, there was a significant predictor COM (Estimate = -0.32, standard error = 0.12, z-value = -2.80, p = 0.005, OR = 0.72). Gender was also a significant predictor (Estimate = 0.30, standard error = 0.10, z-value = 2.94, p = 0.003, OR = 1.36). No other predictors resulted in significant effects (all p's > 0.1).

In question 19 there was a significant predictor of COM (Estimate = -0.24, standard error = 0.12, z-value = -2.15, p = 0.031, OR = 0.78).

In question 20 there was a significant predictor of COM (Estimate = -0.28, standard error = 0.12, z-value = -2.45, p = 0.013, OR = 0.75). The gender was also a marginally significant predictor (Estimate = 0.18, standard error = 0.10, z-value = 1.79, p = 0.072, OR = 1.21).

In question 21 there was a significant predictor of COM (Estimate = -0.36, standard error = 0.12, z-value = -3.15, p =

Table 9: Academic groups differences in facilities and equipment services

Question	X^2	df	p-value
17	10.74	5	0.057
18	11.48	5	0.042
19	11.20	5	0.047
20	12.84	5	0.024
21	23.35	5	<0.001
22	14.69	5	0.012
23	17.34	5	0.003
24	14.49	5	0.012

Table 10: Prediction for facilities and equipment services

Question	Predictor	Estimate	Standard Error	Z-Value	p-value	Odds Ratio
17	COM	-0.33	0.12	-2.92	0.0034	0.71
17	Gender	0.19	0.10	1.92	0.054	1.22
18	COM	-0.32	0.12	-2.80	0.005	0.72
18	Gender	0.30	0.10	2.94	0.003	1.36
19	COM	-0.24	0.12	-2.15	0.031	0.78
20	COM	-0.28	0.12	-2.45	0.013	0.75
20	Gender	0.18	0.10	1.79	0.072	1.21
21	COM	-0.36	0.12	-3.15	0.0016	0.69
21	CPHHI	0.43	0.23	1.84	0.064	1.54
21	Jeddah Campus	-0.32	0.14	-2.25	0.024	0.73
21	Riyadh Campus	-0.30	0.13	-2.24	0.024	0.74
22	COM	-0.37	0.12	-3.21	0.0013	0.69
22	Gender	0.26	0.10	2.53	0.011	1.3
23	COM	-0.42	0.12	-3.64	<0.001	0.65
23	Gender	0.33	0.10	3.24	0.001	1.4
24	COM	-0.46	0.12	-3.94	<0.001	0.63
24	Gender	0.61	0.11	5.87	<0.001	1.85

0.0016, OR = 0.69). The CPHHI was a marginally significant predictor (Estimate = 0.43, standard error = 0.23, z-value = 1.84, p = 0.064, OR = 1.54). Finally, Jeddah campus was a significant predictor (Estimate = -0.32, standard error = 0.14, z-value = -2.25, p = 0.024, OR = 0.73) and also Riyadh campus (Estimate = -0.30, standard error = 0.13, z-value = -2.24, p = 0.024, OR = 0.74).

In question 22 there was a significant predictor of COM (Estimate = -0.37, standard error = 0.12, z-value = -3.21, p = 0.0013, OR = 0.69). The gender was also a significant predictor (Estimate = 0.26, standard error = 0.10, z-value = 2.53, p = 0.011, OR = 1.3).

In question 23 there was a significant predictor of COM (Estimate = -0.42, standard error = 0.12, z-value = -3.64, p < 0.001, OR = 0.65). The gender was also a significant predictor (Estimate = 0.33, standard error = 0.10, z-value = 3.24, p = 0.001, OR = 1.4). No other predictors were significant (all p's > 0.1).

Finally, in question 24 there was a significant predictor of COM (Estimate = -0.46, standard error = 0.12, z-value = -3.94, p < 0.001, OR = 0.63). The gender was also a significant predictor (Estimate = 0.61, standard error = 0.11, z-value = 5.87, p < 0.001, OR = 1.85). No other predictors were significant (all p's > 0.1).

DISCUSSION

This study aimed to explore students' attitudes towards college facilities, equipment, and the digital library during the COVID-19 pandemic through an electronically delivered survey. The survey included eight statements related to facilities, equipment, and the digital library, and the following noteworthy results were observed:

- Gender and college affiliation had a clear effect on student satisfaction. The ordinal regression analysis revealed that both variables shaped students' experiences and perceptions of the health science university.
- Overall, students expressed high satisfaction with the security level on campus, with students in the Riyadh campus reporting even higher satisfaction.
- The digital library services received the lowest satisfaction ratings among all students, particularly in terms of library training sessions, library databases, and database accessibility.
- Students in the Al Ahsa campus reported higher satisfaction with provided parking and access.
- Students in the College of Nursing (CON) expressed higher satisfaction with the setup and functionality of medical equipment in the labs.

- Students in the College of Applied Medical Sciences (CAMS) reported higher satisfaction with facilities and equipment, particularly in terms of campus security, safety measures, facilities for individuals with disabilities, and sports facilities.

Furthermore, discernible patterns in student satisfaction regarding digital library aspects emerged, with these aspects being perceived less favorably by both male and female students. Specifically, the provision of library training sessions constituted a notable area where satisfaction levels were lower. Students' attitudes toward the digital library across all campuses and colleges, however, displayed comparatively lower levels of satisfaction when juxtaposed with their sentiments regarding facilities & equipment. This disparity in satisfaction was particularly pronounced concerning various digital services, encompassing the availability of sufficient training sessions, accessibility and adequacy of research databases, and the creation of a user-friendly and easily navigable interface for the library website. Female students, in particular, exhibited lower satisfaction levels with digital services, indicating a perceived inadequacy in support and services from library personnel. Conversely, male students reported higher satisfaction levels, particularly in terms of the support received from library administrative staff. It is noteworthy that these satisfaction outcomes were surprising given the unified provision of a digital library accessible to all students through the BlackBoard® platform online.

These differences among students, considering gender, colleges, and campuses, necessitate examination within the frameworks proposed by Osman et al. (2017) and Azam (2018) regarding student satisfaction. As elucidated earlier in the discussion on Osman et al.'s (2017) theory, service quality in education is construed across four key perspectives: excellence, value, specifications, and expectations. The observed variations in student satisfaction concerning digital libraries and facilities & equipment are attributed to the distinct approaches adopted by each college and campus in addressing these five key perspectives. For example, students in the College of Applied Medical Sciences (CAMS) displayed higher satisfaction levels regarding campus security and the adequacy of safety measures within the college. Their contentment was derived from experiencing excellent services beyond their expectations from security personnel, encompassing aspects such as first aid provisions, fire extinguishers, alarm systems, and secure chemicals. Similarly, students in the College of Nursing (CON) expressed heightened satisfaction with the consistent

setup and functionality of medical equipment in laboratory settings, with their contentment arising from a confluence of the aforementioned four key perspectives.

Moreover, Azam's (2018) framework introduces a more comprehensive hypothesis, asserting that student satisfaction is underpinned by three key aspects: academic services, administrative activities, and physical evidence. While physical evidence pertains to tangible aspects of an institution, academic services encompass assurance, responsiveness, empathy, and reliability, aiming to ensure a satisfactory college experience. Administrative services, as exemplified by digital library and facilities & equipment, play a pivotal role in shaping and enhancing student satisfaction. Therefore, the observed differences among students are influenced significantly not only by the physical evidence associated with the digital library and facilities & equipment but also by the level of academic services and administrative activities.

In essence, the inquiry arises as to whether administrative staff across all colleges and campuses uniformly delivered academic services characterized by assurance, responsiveness, empathy, and reliability. While it might be presumed that students across all campuses encountered similar physical evidence, the reality is that their experiences with administrative and college services varied, thereby influencing their levels of satisfaction. As reflected in Azam's framework (2018), the multidimensional nature of student satisfaction explains that administrative activities constitute integral components alongside academic and physical factors in the attainment of student satisfaction.

A contributing factor to these discernible differences lies in the context of English as a Medium of Instruction (EMI). This study elucidates that for students, it marks their initial exposure to EMI at the college level, having been accustomed to receiving instruction in Arabic, along with other services, during their high school education. The transition to an English-dominated educational environment entails challenges, necessitating an awareness of the socio-economic factors inherent in the EMI context. This encompasses considerations of the relationship between English and the local language, the efficacy of EMI policies, and the myriad factors influencing the adoption of EMI (Tollefson & Tsui, 2004; Coleman, 2005, 2011; Crystal, 2011; Lo Bianco, 2010; Wilkinson, 2012). In the specific context of this study, students exhibit varying socio-economic backgrounds, with differences in prior schooling, family wealth, and support. Moreover, the language of instruction in facilities & equipment and the digital library is exclusively English, contributing to the dynamic relationship between English and the local language.

Furthermore, the adoption of EMI within classrooms and colleges lacks a standardized approach, resulting in diverse experiences for students with no prescribed guidelines on how to navigate this linguistic shift. Hence, the distinctive context of EMI emerges as a pivotal determinant shaping the observed differences in satisfaction levels among students.

The study has engendered several recommendations warranting consideration for the enhancement of student satisfaction in the academic setting. Primarily, it is proposed that a continuous and comprehensive dialogue between students and faculty be established, employing alternative research tools such as focus groups, to delve into the underlying reasons for potential variations in satisfaction levels, especially discernible between male and female cohorts or across diverse academic groups. This approach seeks to provide a nuanced understanding of the factors influencing student satisfaction and facilitate targeted interventions.

Secondly, leaders at both the campus and college levels are urged to engage in an in-depth exploration of students' satisfaction levels. This entails adopting a holistic perspective to grasp the intricacies and dynamics of student contentment within the broader institutional context. Such an investigative stance is pivotal in identifying specific areas of concern or success and tailoring strategies accordingly.

Furthermore, there is a pertinent need for increased investment in training sessions targeting administrative staff. These sessions should emphasize the provision of services with heightened empathy and reliability, ensuring that administrative personnel are adept at delivering valuable support to students. The aim is to cultivate a service-oriented approach that aligns with the diverse needs and expectations of the student body.

Lastly, recognizing students as the primary clientele of the university, it is imperative to bolster their awareness of available university services. This can be achieved through the implementation of informative workshops, providing students with practical insights into navigating university resources and services. Additionally, fostering a culture of continuous participation in the evaluation and assessment of services is advocated. This participatory approach not only empowers students to actively contribute to the enhancement of their educational experience but also reinforces a collaborative and feedback-driven relationship between students and the university.

Conclusion

Drawing insights from the present study and its analysis of student satisfaction, it can be deduced that universities have

the capacity to not only meet but surpass students' satisfaction levels amid the challenges posed by the COVID-19 pandemic. This accomplishment is contingent upon the provision of high-quality facilities, equipment, and digital library services. The findings of this research bear implications for key decision-makers within educational institutions, offering strategic guidance for incorporating the enhancement of digital services and equipment quality as integral components of initiatives aimed at aligning with students' expectations. Emphasizing the importance of continuous evaluation, educational institutions are urged to routinely assess students' satisfaction levels, particularly in the context of the ongoing COVID-19 pandemic or any other comparable health crisis, to gain insights into prevailing student attitudes and to effect improvements accordingly.

Furthermore, future research endeavors should be undertaken to juxtapose the outcomes of the current study with those derived from investigations conducted under normal conditions devoid of the disruptive influence of the COVID-19 pandemic. This comparative analysis would illuminate potential variations and nuances in student satisfaction levels between the pandemic and non-pandemic scenarios, providing a more comprehensive understanding of the factors at play. Additionally, it is recommended that other universities within the Saudi academic landscape replicate and disseminate similar studies, thereby contributing to a broader pool of benchmarks. Such a collaborative approach would facilitate a more nuanced comprehension of students' perspectives on facilities and digital library services during the COVID-19 pandemic or analogous health crises, fostering a collective and informed response to the challenges faced by educational institutions.

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