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Understanding the Higher Education Experience of Deaf and Hard of Hearing Students: Academic, Social, and Personal Satisfaction

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ABSTRACT

The experiences of the deaf students and the hearing of higher education and the extent of their satisfaction with this experience provide the opportunity to improve and develop university educational programs and thus increase their chances of enrollment in university education, However, there is limited work in this line of work. This study examines the satisfaction of deaf and hard of hearing students with their educational experiences across academic, social, and personal dimensions in post-secondary education at the University. Using a mixed-methods approach, in the first quantitative phase, the entire study community of (18) students responded to the study questionnaire, whereas the follow up qualitative strand included a purposeful sample of 4 female students, responding to qualitative interviews, to explore their Higher Education experiences. The research tools focused on three key dimensions: academic, social, and personal. Findings revealed a high overall satisfaction level among the participants, with the academic dimension identified as the most satisfying. Students also expressed strong agreement regarding the suitability of the testing environment and the diversity of teaching methods. The limitations of this work and implications for future research and practice are discussed.

Keywords: Challenges, Higher education, Deaf people in Saudi Arabia, Inclusion, Hard of hearing.

INTRODUCTION

The Kingdom of Saudi Arabia is showing clear efforts and tangible progress in the evolution equitable and quality education for students with disabilities, as emphasized in its education strategy promoting lifelong learning opportunities for all by providing equal quality and inclusive educational opportunities to all elements of society. This includes all stages of education and training in all regions and governorates of the Kingdom, in addition to improving the flexibility of mobility between academic or technical and vocational training programs, and between educational institutions or technical and vocational training institutions (Saudi Ministry of Education, 2024). The Kingdom of Saudi Arabia also demonstrated commitment to the rights to education for people with disabilities, including deaf and hard of hearing students, by signing the Convention on the Rights of Persons with Disabilities, adopted by the United Nations General Assembly in 2008, whose article twenty-one obliges parties to recognize sign language and promote the rights of deaf individuals (United Nations, 2013). Since deaf and hard of hearing students are an significant part of the Kingdom's children with disabilities, it has sought to achieve full inclusion in their education, whether at general or university level, through providing comprehensive support services, such as sign language interpreters, assistant teachers, and note-takers, as well as technologies to help create an effective academic learning environment (Alsamih, 2024).

In this context, access to university education for deaf and hard of hearing students may vary between support and rejection. While proponents affirm the eligibility of deaf and hard of hearing students to enroll in university education are in line with international regulation, including the Higher Education Opportunity Act (HEOA) which emphasizes the principle of non-discrimination in higher education programs, on the other hand, rejection may come on the grounds that these students' language skills are poor and do not meet the requirements for university education. This results from inadequate availability of secondary education programs (Al-bash. 2023).

The history of education for deaf and hard of hearing students in Saudi Arabia witnessed great development, like many other countries over the past 20 years (Kermit & Holiman, 2018). At the beginning of the second millennium, authorities approved the admission of deaf and hard of hearing students to higher education programs under Resolution No. 7/B/9137 in 2001, but the actual programs only launched in 2005. For home economics and the College of Art Education for girls, in addition to the College of Communications and Information, the Arab Open University, as well as King Saud University, all located in the capital, Riyadh, after the programs expanded to other cities such as the city of Hail and Qassim, the number of deaf and hard of hearing students enrolled in higher education programs is constantly increasing (Alkharji and Cheong, 2022).

The Purpose of this Study

Building on other work, This study aims to reveal the degree of deaf students and hearing and hearing about university education experience, by looking at the questionnaire and interviews the following questions are addressed:

What is the degree of satisfaction of deaf and hard of hearing students with the university experience in the intermediate diploma at the University?

1. What is the degree of satisfaction of deaf and hard of hearing students with the university experience according to the academic dimension?
2. What is the degree of satisfaction of deaf and hard of hearing students with the university experience according to the social dimension?
3. What is the degree of satisfaction of deaf and hard of hearing students with the university experience according to the personal dimension?

1:1 University Education for Deaf and Hard of Hearing Students in the Kingdom of Saudi Arabia

The Kingdom of Saudi Arabia pays high attention to its citizens with disabilities at all levels, whether medical, social, or educational, where it continuously prioritizes development. While the focus was initially especially on students with sensory disabilities, but the inclusion has expanded to all groups, including intellectual disabilities, learning difficulties, attention deficit, hyperactivity and others, after signing the Convention on the Rights of Persons with Disabilities. This is expressed in its Optional Protocol to the United Nations, believing that all individuals have the right to a dignified, just and fully independent life, and its interest in this group through its inclusion of a number of disability-related initiatives in its Vision 2030 file (Authority for the Care of Persons with Disabilities, 2023).The National Transformation Program 2020 also included the first strategic goal of the Ministry of Education to provide education services to all segments of students by raising the percentage of students benefiting from programs with disabilities (6-18 years) from 77,575 to 200,000 Saudi students (Saudi Ministry of Education, 2024).

The generous approval was also issued for the adoption of the Law on the Rights of Persons with Disabilities No. (110) dated 6/2/1445 AH, wherein article eight under the rights and services section, stipulates the right to access educational and training support services at all stages, including providing opportunities for admission of persons with disabilities to higher education, postgraduate studies, and scholarship programs (Authority for the Care of Persons with Disabilities, 2023). This emphasizes the right of students with disabilities to continued education for deaf and hard of hearing students, which were accessible in varying numbers and various educational programs in higher education institutions, and varied scientific degrees, as diploma and bachelor's degrees. The beginning for deaf and hard of hearing students at the College of Education for Home Economics and Art Education in Riyadh in 2005, and in the same year another program was opened for girls in Makkah Al-Mukarramah as well and provided them with a number of services such as sign language interpretation and teacher's assistants, note-takers, and teaching in the resource room. Thereafter programs for deaf and hard of hearing students of both sexes opened successively in a number of Saudi cities, including a program in the College of Communications and Information in the cities of Qassim and Hail, after that the opening of the diploma program in office and technical applications at the Technical College, and the Arab Open University, a private university, opened its doors for deaf and hard of hearing students through admission to the specialization of educational studies, reaching 130 students in 2006. However, a number of challenges interrupted the programs. Despite providing appropriate support such as sign language interpretation, note takers, assistant teachers, and the presence of administrative cadres who contributed to the management of these programs (Alkharji and Cheong, 2022)

In 2011, King Saud University in Riyadh provided deaf and hard of hearing students with the opportunity to join the university through establishing a qualifying year program, the first of its kind in the Arab world. This was a qualitative leap in the education of deaf and hard of hearing students. They worked on it for three years before its official opening through specialized working committees for the education of deaf and hard of hearing people at the level of curricula and support services, and students were accepted according to the criteria and conditions set by the Scientific Committee. This qualifying year aimed to develop the reading and writing skills of deaf and hard of hearing students in and provide them with the skills necessary for academic life. The program is still ongoing, and many batches have graduated since its inception in 2011. These students studied various disciplines, including special education, art education and physical education (King Saud University, 2024).

Taibah University in Madinah also opened a qualifying year program for deaf and hard of hearing students, to qualify deaf and hard of hearing students linguistically and academically to enable them to complete their university studies. In addition to facilitate the transition from the secondary learning environment university level, the program represents one of the university's transformation strategies that seeks to empower and incorporate and contain people with disabilities in the labor market. After passing the qualifying program, the deaf and hard of hearing student can enroll in one of the available specializations: graphic design, physical education, visual arts or business administration (Taibah University, 2024). The program received the first male and female students in 2022.

To complement the efforts of the Kingdom of Saudi Arabia in this field, under the 2030 Vision, the Technical and Vocational Training Corporation (TVTC) developed a special program for deaf and hard of hearing students in 2022 called "Office Applications and Computer Maintenance for the Hearing Impaired" The program was designed according to the capabilities of this category, and was opened in five technical colleges; College of Communications and Information, Digital Technical College for Girls in Riyadh, Technical College in Madinah, Technical College in Buraidah, and Technical College in Dammam. The TVTC ensures that all the necessary facilities are provided for these programs, and the institution has allocated a monthly financial stipend according to the type of disability in addition to the monthly stipend that is paid to all trainees in colleges and institutes (Technical and Vocational Training Corporation, 2023).

2:1 Challenges Facing Deaf and Hard of Hearing Students in the University Environment

All students enrolled in university study are expected to strive for academic excellence and obtain a degree, but students with disabilities, especially deaf and hard of hearing students, face additional challenges. These additional challenges are often related to the extent of universal access or participation and inclusion in the university environment Kermit & Holiman, 2018). Deaf and hard of hearing students are considered a heterogeneous group comprising all academic levels and levels of achievement, as well as in terms of social relations and personal skills. This factor is considered one of the most important topics discussed by those current interested researchers, and in the Kingdom of Saudi Arabia in particular. Researchers point to the importance of seeking to understand the problems and challenges facing deaf and hard of hearing students in higher education and how to overcome them, due to the lack of research that deals with systems and services available to support them by mitigating the negative effects of deafness in these aspects Crowe, et al, 2017; Al-Khari, Cheong, 2022).

The Regulatory Manual for Institutes and Education Programs in the Kingdom of Saudi Arabia indicates the importance of educational factors for deaf and hard of hearing students related to academic services that help to learn efficiently and achieve the requirements of the educational stage (Regulations, 2002). This means adapting and modifying the study environment, including teaching methods and strategies to suit the needs of deaf and hard of hearing students, in addition to modifying the curriculum, diversifying teaching methods, speaking slowly and clearly, and reducing tasks and procedures for appropriate language adjustments in Tests. It is also worth noting the importance of the presence of highly qualified assistant teachers and note-takers, as the process of visual synergy carried out by the deaf student between the sign language interpreter and reading the lips of the faculty member is a great challenge for these students. In this context we find that each educational institution provides types of support that differ from the other institution, which affects the results of the students and the outputs. For example, while some institutions provide note-taking service, other institutions provide explanations of lectures.

The impact of the teaching experience is one of the most prominent factors contributing to the academic achievement of deaf and hard of hearing students in the university environment (Alkharji, cheong, 2022).In addition to the importance of psychological preparation of the lecturer and raising his awareness to teach deaf and hard of hearing students, he must also take into account the student needs instead of assuming knowing the best for the student. It is also important to create a learning environment that spatially and technically accommodate their needs (Kermit & Holiman, 2018). A few studies also indicate that deaf students face communication challenges, access to information, social inclusion, and language comprehension, as well as difficulties in online learning and academic support (Yuwonom et. al, 2022; Noble, 2010). One of the most prominent academic challenges faced by deaf students at the university level is the lack of adaptation of educational materials to suit

their abilities using visual aids and assistive technologies. This is particularly evident in the comprehension and utilization of language, grammar, and word order in writing. These challenges hinder their ability to produce scholarly papers, despite significant advancements in sound technologies and the development of educational methodologies (Nugroho & Lintangsari, 2022; Trezek & Mayer,2019).

On the social relations of deaf and hard of hearing students with their hearing peers in the university environment, Kermit & Holiman (2018) stated that one of the main challenges facing them is the lack of comprehensive inclusion concerning academic and social aspects. Deaf students also face a few negative attitudes towards them by hearing students, which causes them to develop feelings of isolation and separation (van den Heuij, et. Al, 2022). In addition to communicative, cognitive, and social barriers in the higher education environment, which are mainly due to the inability of the listening academic community to understand, assimilate, and feel them, and one of the social challenges they face is the feeling of isolation, discrimination, and not daring to ask questions in class, which affects their self-confidence (Batista & García, 2023).

METHOD

Sample and Setting

All deaf and hard of hearing learners enrolled in the class of 2021 in the University in the intermediate diploma program in Office Applications and Computer Maintenance were included in the study population. This group was the pioneer group of this program and as early as summer of 2024, all the 18 students had graduated. Since this population was relatively small, a census method was implemented whereby all the students were a part of the quantitative strand. This made sure that the results are the totality of experiences in this remarkable group. Ethical approval was obtained from the Institutional Review Board (IRB) before conducting the study

Quantitative Strand

To collect the quantitative data, the researcher prepared a structured questionnaire based on the prior literature on the subject concerning satisfaction and support services in higher education (Zaino, 2023; Cromenes, 2019; Ahmed, 2017). The instrument contained 34 questions split into three categories that were consistent with the conceptual framework of the study: 13 items assessed academic satisfaction, 12 items assessed social satisfaction, and 9 items assessed personal satisfaction. The items were scored using a five point Likert scale between Strongly Disagree and Strongly Agree. There were also demographic questions which give background information about the participants.

Validity and Reliability

A panel of experts in the area of special education reviewed the questionnaire to prove its content validity. Feedback led to changes being made, some items that were found to be confused or unnecessary were removed and the readings allowed to be made more understandable. Construct validity has been checked by computing Pearson correlation coefficients of the individual items to the corresponding dimensions they reflected and found significant positive relationships. Cronbachs Alpha was used to test reliability and offered good internal consistency results across the 3 dimensions (academic = 0.888, social = 0.906, personal = 0.912) and a general instrument Cronbachs coefficient of 0.961.

Qualitative Strand

The qualitative strand comprised semi-structured interviews on four female students out of the larger cohort (purposive subsample). This group of participants was chosen to give a detailed explanation of the quantitative findings as well as to focus on experiences that might not have been reflected in the survey data. The interviews took 45 up to 60 minutes and were all in Arabic. With informed consent, all interviews were audio-recorded, transcribed verbatim, and subsequently translated into English for analysis.

Analytical Approach

This study employed a mixed-methods approach that combined quantitative and qualitative strands to provide a comprehensive understanding of the higher education experiences of deaf and hard of hearing students. The rationale behind the mixed methods design was that it provides breadth and depth of enquiry: the quantitative part can provide quantifiable patterns within a population, whereas its qualitative part could provide an explanation of lived experiences of study participants. As stressed by Tashakkori and Creswell (2007), the mixed methods can lead to combining the numerical tendencies and narrative benefits into one broad view that neither of the two approaches could introduce due to their mechanic nature.

The research was done in two stages. The time frame of the first phase was recorded as quantitative as it constituted the measurement of the degree of satisfaction of students on three areas (academic, social, and personal). This was accompanied by qualitative explanatory strand which aimed to highlight the causes of these trends as well as provide more insights into the experiences of each student. Sequential explanatory design was quite appropriate, since by enabling a first phase to explain and provide context to a second phase.

Analysis of the interview data was based on thematic analysis, which adhered to six stages as detailed by Bray and Clarke (2006). This started with familiarization through several repeat readings of the transcripts and then development of first open codes. These were then classified under more general categories that depicted general patterns. The categories further on were narrowed down to broad themes in later stages that had to be revised to show internal consistency and relevance to the raw data. The last phase was to introduce definitions and names to the themes as part of reporting. Thematic analysis was selected due to the flexibility of thematic analysis and its applicability to MOCAT, that is, the identification of common trends in experiences of participants.

Trustworthiness

Other steps were taken to improve the credibility of the qualitative results. In order to determine inter-coder reliability, one quarter of transcripts was coded independently by a second researcher, with any disagreements on interpretation to be resolved by discussion to the point where both researchers agreed on the outcome. Member checking was also carried out through the decision to provide a summary of the themes to two participants who agreed that the analysis represented their attitudes effectively. The researcher kept a reflexive journal during the process as well, recording decisions, thoughts and models of bias and it additionally brings transparency to the analytic process. Collectively, these strategies increased credibility, reliability and confirmability of the qualitative strand.

Data Analysis

The questionnaire data in quantitative form were processed in the Statistical Package of social sciences (SPSS). Participant responses were summarized using descriptive statistics which included frequencies, percentages, means and standard deviations. The correlational analyses were used to investigate the relationship between satisfaction dimension and to determine the reliability of the instrument; this was carried out through the use of the reliability analysis. On the other hand, qualitative data was explored in terms of sub -topics and subjects that find common themes that justify statistics, by using ARY ET.AL. (2010) To analyze the interview data because it is comprehensive, and it contains three specific and clear stages and steps: organization and familiarity, coding and reducing, interpretation and representation. The researcher focused on the ideas and data that appeared from the interviews, after recording them audio and then emptying them in writing on the Microsoft Word program, and then reaching the main concepts and sub -concepts through the following: (1) Emptying the interviews on separate papers for each participant. (2) In -depth reading for each word and phrase mentioned in the interviews. (3) Approval of coding for each response. (4) Establish similar ideas or that common denominators in sub -topics. (5) Writing the final results by identifying the main topics related to the degree of satisfaction of the participants. This method helps in accessing information that explains quantitative results, and this model also provides a systematic systematic framework for data analysis objectively, in addition to the ability to show the researcher's self and his ability to analyze data.

Integration of Quantitative and Qualitative Strands

These two strands were merged at the interpretation level. The quantitative information allowed to give a general view of levels of satisfaction in all three categories: academic, social and personal, and the qualitative stories elucidated why students expressed high or low levels of satisfaction in each of these realms. As an example, in cases when the results of quantitative methods provided a high level of academic satisfaction, interview results indicated that such positive perceptions could be attributed to supportive teaching, modified assessment conditions, and the presence of sign language interpreters. Through this, the strand integration made the educational experience of deaf and hard of hearing students not only measure satisfaction but also capture the underlying contextual factors that influence the overall development of the deaf students (Li et. Al., 2020).

An indirect challenge facing deaf students using sign language in higher education classrooms occurs because of the misunderstanding by the interpreter when transmitting speech between listeners and deaf students, causing confusion for the deaf student, and this is particularly evident when the sign language interpreter is not familiar with the subject he is translating (Johnson, 2013).

RESULTS

Overall Satisfaction

To examine the overall satisfaction of deaf and hard of hearing students with the higher education program, the arithmetic means and standard deviations of their responses were calculated across the three main dimensions of satisfaction: academic, social, and personal. The results are summarized in Table 5. The findings indicate that participants expressed a very high level of satisfaction overall (M = 4.48, SD = 0.39). Among the three dimensions, the academic dimension ranked first (M = 4.50, SD = 0.41), closely followed by the personal dimension (M = 4.49, SD = 0.37), while the social dimension ranked third but still within the category of "very high" satisfaction (M = 4.45, SD = 0.42).

Such a profile, in general, indicates that the students positively evaluated their university experience in all of its spheres of academic, social, and personal life. The difference between the three dimensions is relatively not that large, which is reasonable to expect since, overall, the satisfaction rate was the same throughout the program, with certain nuanced variations that can be observed when examining separate items in each dimension. Such differences are discussed in the following sections.

Academic Dimension

The scholarly aspect had the biggest mean of the three domains (M = 4.50). The means and the standard deviations of individual items in this dimension are exhibited in table 6. All the 13 items were in that equally strongly agree range (between 4.28 and 4.67) on the five-point Likert scale.

The measure that had highest rating was The place of the tests suits my needs (M = 4.67, SD = 0.49). The outcome reinforces the notion that it is crucial to design an assessment environment that will address the needs of deaf and hard of hearing students through their accessibility. In the same manner, the central role of instructional adaptation can be evidenced by the fact the statement, T Teaching methods are diverse and commensurate with my special needs, obtained a significantly similar mean (4.67) with a standard deviation that is equally minimal (SD = 0.48) as well. Other high rating items were the presence of appropriate technical devices to help in my learning (M = 4.61, SD = 0.50) and the presence of learning resource room containing adapted and modified means that can assist me in my learning (M = 4.61, SD = 0.51).

The minimum, but still highly desirable, measure score in this dimension was 4.28 (SD = 0.55), meaning that even the lowest yearning item was inside an area of very high satisfaction. The results indicate high levels of homogeneity in responses of the students and the assessment of the academic support they obtained was always positive.

These statistical findings were supported and elaborated by qualitative interview data. A student wrote: The test setting was such that it was very comfortable; I felt that it was tailor made to me (Participant 1). Another elaborated: lots of different teachings were explained to me until I understood something; then my teachers did not give up on me when I lagged behind (Participant 3). A third respondent pointed to the role of technology, stating: The tools and resources we had assisted me quite a bit, particularly when I required additional help to follow the class (Participant 4). These accounts help to disclose how institutional accommodations, including modified tests, accommodated instructional practices, and the availability of technologies, have had a direct effect on the satisfaction of the study group with their education system.

Social Dimension

The social aspect got the least average rating of the three aspects (M = 4.45) but it remains within the very high satisfaction range. The statistical outcome reported in Table 7, demonstrates that the numerical means are more varied than the academic dimension (4.17-4.67). That means more flattening in the students perception of social support and integration.

The best rated object on this dimension was; The university hosts us during the opening of the academic year (M=4.67 SD=0.47). Equally rated high were responses to items like, The university environment is deaf and hard of hearing student friendly and I feel socially appreciated in the university with means of 4.61 (SD = 0.50) and 4.61 (SD = 0.50), respectively. These findings are indicative of vigorous institutional initiatives in receiving and accommodating hearing impairment students.

However, one item stood out for receiving the lowest score in this dimension: "The hearing students take the initiative to get to know us and join us" (M = 4.17, SD = 0.60). Although, it remains positive, this value is relatively lower than the rest of the items and it indicates that, peer-to-peer integration was a little less predictable as compared to institutional support.

These differences were better highlighted in qualitative data. As one of the students mentioned: majority of my peers were friendly and I felt excluded during group work due to language barrier sometimes (Participant 2). The other layer focused on the part played by the institutional arrangements: The university set up events that

made us feel that we belong, with the help of the interpreter present. Lack of this would have made it more difficult to get involved) (Participant 4). These descriptions indicate that, whereas the general atmosphere in the university setting was fairly accommodating, the mutual experience with hearing colleagues was not always equally accommodating.

Personal Dimension

The individual aspect of satisfaction ranked very low with the average mark of 4.49. Table 8 provides the item level result with the means of 4.33 to 4.61. These values once again mean that there was high homogeneity among the items and that they loosely fit within the range of strongly agree.

The most rated one was the experience of studying at the university is easy and enjoyable (M = 4.61, SD = 0.49). Other, top rated statements were: I integrated into the university community easily (M = 4.56, SD = 0.50), I feel happy in university life (M = 4.50, SD = 0.50), I want to repeat the university study experience (M = 4.50, SD = 0.50).

Data obtained in the interviews presented high levels of compelling stories that could account for these high scores of personal satisfaction. One learner was able to comment on how the program has changed her life: I was hopeless back home with no study or work before enroling in the program. Thanks to this program I have a future (Participant 2). Another student also stated the importance of the financial and institutional support: "The university was also helpful in terms of financial and academic assistance. It has simplified the process of life so I could use the energy on study without worry (Participant 1). A third respondent commented: Serving in the university community helped me to have more confidence. I feel proud to be studying here" (Participant 3). These accounts illustrate how personal growth, confidence, and optimism were closely tied to the university experience.

Qualitative Themes

In addition to the systematic aspects of the satisfaction, the thematic analysis of the interviews identified two crosscutting themes that facilitate understanding the great meaning of the program by the students.

Transition as a Critical Period

Respondents always somehow recounted about the post high school years, as a time of uncertainty, anxiety and scarcity. Numerous people felt that neither educational nor employment avenues were open to them during this period. Being able to enter the diploma program was often talked about as a turning point. Two examples are mentioned where one student stated: After high school, I just went home and did nothing, no work no studies. Participant 2 pointed out that, by the time I joined the diploma, it had rescued me out of despair. One of them added: The program had arrived at the right time. It did provide hope and purpose to me (Participant 4). This theme explains how the diploma program acted as an educational avenue, but also as a psychological and social lifeline to the students at a critical point of life.

Welcoming University Environment

The second theme highlighted how the university environment and community have a positive impact on the experiences of the students. Students emphasized the need of faculty and staff members, as well as hearing peers, to develop an inclusive environment. Some obstacles still lingered especially in peer-to-peer communication, but this was not without general appreciation. An example given by a student was to say: listening to the students and the teachers made me feel welcome; I felt like I belonged there like the first time (Participant 3). Another commented: The interpreter in activities was a large consideration. I would have really missed a lot without them (Participant 1). These narratives highlight the importance of institutional support and community attitudes in supporting belonging and satisfaction.

Combined, these two themes help to contextualize the quantitative results and give the reader a more profound idea of why students were so high in their ratings of academic, social and personal dimensions.

DISCUSSION

The findings indicate that deaf and hard of hearing students at the university reported very high satisfaction across academic, social, and personal dimensions. But trends in every dimension point out strong features and aspects that need to be addressed.

The academic aspect scored the greatest satisfaction scores. The students appreciated a wide-range of teaching methods, modified evaluation, and the provision of assistive technology. supporting findings of others (Alkharji & Cheong, 2022). In the same vein, Kermit and Holiman (2018) also emphasized that the changes in the learning

setting and tests lead to direct satisfaction growth. The current results support the importance of properly trained faculty and long-term investment in available resources.

Though students reported high social satisfaction, their relative low scores on peer interaction indicate that they continue to have difficulties in integrating. This result is similar to the conclusion provided by Batista and Garcica (2023) who also mention that the transition between a medical and a cultural approach to deafness improves community inclusion, although it should be continuous. Although support structures are very good at the university, the fact the university scored low in peer engagement, means that there are programs that instill social interaction between deaf and hearing students.

The personal dimension results indicate the transformational quality of higher learning in the lives of students. The subjects associated the program with happiness, aspiration and community. This compares with Al-Qahtani (2024), who reported that deaf students were highly motivated in Saudi Arabia because of the sound institutional support. The free money, availability of teaching, and appreciation of their talents seem to make students narcissistically and educationally strong.

The qualitative-quantitative method emphasizes the correspondence of statistical levels of satisfaction with the experiences of the students. Although the quantitative data provide a consistent high-satisfaction level, the qualitative narratives are valuable as they reveal the reasons why the program was important, especially as a transitional activity between the secondary school and a higher education institution.

IMPLICATIONS

This finding highlights the need to further increase the number of inclusive programs that cater to deaf and hard of hearing learners in Saudi Arabia. Institutions ought to enhance training of people who are teaching in them, investing in access programs, and promoting peer-engaging programs. Policymakers may also consider expanding bridging programs to bachelor's degrees, given students' expressed ambition to continue their studies.

Implications for Future Research

- The role of non -class academic support in promoting deaf students' satisfaction and their academic success.
- The critical factors formed for deaf students in higher education: an in -depth analytical study.
- The experience of the deaf student in integrated education and education is: compared to traditional education.

Consent to Participate

Informed consent was obtained from all individual participants included in the study.

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TABLES

Table 1: Characteristics of the study sample

Rate	Iteration
Excellent (4.50-5)	10
Very Good (3,75-4,50)	6
Good (2,75-3,75)	2
Acceptable (2- 2.75)	None

Table 2: Pearson correlation coefficients for statements for each dimension

Dimension	Phrases number	Correlation coefficient with the axis	Phrases number	Correlation coefficient with the axis
	1	0.575*	**8**	0.577*
	2	0.752*	**9**	0.628**
	3	0.752**	**10**	0.827**
	4	0.716**	**11**	0.647**
	5	0.705**	**12**	0.756**
	6	0.758**	**13**	0.824**
Academic	**7**	0.758**	**-**	**-**
	14	0.770**	**20**	0.782**
	15	0.711**	**21**	0.738**
	16	0.717**	**22**	0.750**
	17	0.578*	**23**	0.676**
	18	0.723**	**24**	0.697**
Social	**19**	0.823**	**25**	0.793**
	26	0.787	**31**	0.769**
	27	0.853	**32**	0.904**
	28	0.933**	**33**	0.738**
	29	0.862**	**34**	0.499*
Personal	**30**	0.787	**-**	**-**

*** D at significance level 0.01 or less*

Table 3: Correlation coefficients between dimensions and the total degree of resolution

#	Dimension	Total Grade	Academic Dimension	Social Dimension	
1	**Academic Dimension**	0.933**	1	0.939**	0.720**
2	**Social Dimension**	0.978**	0.939**	1	0.828**
3	**Personal dimension**	0.912**	0.720**	0.828**	1

Table 4: Cronbach alpha coefficient for measuring the stability of the study instrument

Dimensions of the resolution	Number of phrases	Alpha value
Academic Dimension	13	0.888
Social Dimension	12	0.906
Personal dimension	9	0.912
Total stability of the resolution	34	0.961

Table 5: Arithmetic averages and standard deviations of the answers of the study sample vocabulary on the dimensions of satisfaction of deaf and hard of hearing students about higher education programs

	Dimensions	Arithmetic mean	Standard deviation	order
1	Academic Dimension	4.50	0.415	**1**
2	Social Dimension	4.45	0.478	**3**
3	Personal dimension	4.49	0.509	**2**
	Satisfaction of deaf and hard of hearing students about higher education programs	4.48	0.440	

Table 6: The answers of the vocabulary of the study sample on the statements of the academic dimension axis are arranged in descending order according to the response averages

#no	phrase	Iteration	Degree of response					Arithmetic mean	Standard deviation	Order
		Ratio	Strongly agree	I agree	neutral	Disagree	Strongly disagree			
1.	Teaching methods are varied and suit my specific needs		13	4	1	0	0			
		as	72.2	22.2	5.6	0	0	4.67	0.594	2
2.	A learning resource room with adapted and modified tools is available to suit my needs		12	5	1	0	0			
		٪	66.7	27.8	5.6	0	0	4.61	0.608	4
3.	Educational videos are available in the specialization translated in writing or indicative		8	8	1	1	0			
		as	44.4	44.4	5.6	5.6	0	4.28	0.826	12
4.	The university provides courses registered electronically		8	10	0	0	0			
		٪	44.4	55.6	0	0	0	4.44	0.511	8
5.	The place of the tests suits my needs		12	6	0	0	0			
		as	66.7	33.3	0	0	0	4.67	0.485	1
6.	The time of the tests suits my needs		10	7	1	0	0			
		٪	55.6	38.9	5.6	0	0	4.50	0.618	7
7.	I am individually supported during tests		9	8	0	0	1			
		as	50.0	44.4	0	0	5.6	4.33	0.970	11
8.	The university provides me with qualified sign language interpreters and specialists.		9	8	1	0	0			
		٪	50.0	44.4	5.6	0	0	4.44	0.616	9
9.	My teachers are keen to communicate with me and learn about the difficulties I face in learning		10	8	0	0	0			
		as	55.6	44.4	0	0	0	4.56	0.511	5
10.	Assignments and assignments commensurate with my abilities		9	9	0	0	0			
		٪	50.0	50.0	0	0	0	4.50	0.514	6
11.	There isa specialized office within the university to support and assist deaf and hard of hearing students		10	5	3	0	0			
		as	55.6	27.8	16.7	0	0	4.39	0.778	10
12.	My teachers have the skills and abilities to deal with me.		10	8	0	0	0			
		٪	55.6	44.4	0	0	0	4.56	0.511	5
13.	Appropriate technical devices available to support your learning		11	7	0	0	0			
		as	61.1	38.9	0	0	0	4.61	0.502	3
	Overall average							4.50	0.415	

Table 7: The answers of the vocabulary of the study sample on the phrases of the social dimension axis are arranged in descending order according to the response averages

	Order	Arithmetic mean	Degree of response					Iteration	Phrases	Phrases number
			Strongly disagree	Disagree	neutral	I agree	Strongly agree	Ratio		
			0	0	0	10	8	as	I received academic guidance and guidance after being accepted into the university	
5	0.511	4.44	0	0	0	55.6	44.4	٪		14
			0	0	0	6	12	as	The university organizes a reception for us at	
1	0.485	4.67	0	0	0	33.3	66.7	٪		15

									the beginning of the academic year	
2	0.502	4.61	0 0	0 0	0 0	7 38.9	11 61.1	as ٪	The university environment is prepared for deaf and hard of hearing students	16
7	0.778	4.39	0 0	1 5.6	0 0	8 44.4	9 50.0	as ٪	There is awareness among hearing students of the characteristics of deaf and hard of hearing students	17
6	0.616	.44	0 0	0 0	1 5.6	8 44.4	9 50.0	as ٪	There is awareness among administrators of the characteristics of deaf and hard of hearing students	18
6	0.616	4.44	0 0	0 0	1 5.6	8 44.4	9 50.0	as ٪	I can form positive social relationships with my listening colleagues	19
9	1.043	4.17	1 5.6	0 0	2 11.1	7 38.9	8 44.4	as ٪	Hearing students take the initiative to get to know us and join us	20
8	1.003	4.22	1 5.6	0 0	1 5.6	8 44.4	8 44.4	as ٪	Female students who are listening to joint courses cooperate with us by providing support when needed.	21
7	0.778	4.39	0 0	1 5.6	0 0	8 44.4	9 50.0	as ٪	The university allows us to participate in extra-curricular activities and seminars	22
2	0.502	4.61	0 0	0 0	0 0	7 38.9	11 61.1	as ٪	I feel socially valued within the university	23
4	0.514	4.50	0 0	0 0	0 0	9 50.0	9 50.0	as ٪	A sign language interpreter is present during the university's extra-curricular activities and events.	24
3	0.511	4.56	0 0	0 0	0 0	8 44.4	10 55.6	as ٪	The university provides staff to answer my inquiries	25
0.478		4.45	**Overall average**							

Table 8: The answers of the vocabulary of the study sample on the statements of the personal dimension axis arranged in descending order according to the response averages

Order	Standard deviation	Arithmetic mean	Degree of response					Iteration	phrase	phrases number
			Strongly disagree	Disagree	neutral	I agree	Strongly agree	Ratio		
3	0.618	4.50	0 0	0 0	1 5.6	7 38.9	10 55.6	as ٪	The track of office applications and computer maintenance suits my abilities and ambitions	26
1	0.502	4.61	0 0	0 0	0 0	7 38.9	11 61.1	as ٪	The experience of studying at the university is easy and enjoyable	27
4	0.616	4.44	0 0	0 0	1 5.6	8 44.4	9 50.0	as ٪	I was able to understand and recall the subjects smoothly	28

2	0.511	4.56	0 0	0 0	0 0	8 44.4	10 55.6	as %	Integrate into the university community easily	29
3	0.618	4.50	0 0	0 0	1 5.6	7 38.9	10 55.6	as %	I feel happy in college life	30
5	0.784	4.44	0 0	1 5.6	0 0	7 38.9	10 55.6	as %	I feel psychologically stable in university life	31
3	0.618	4.50	0 0	0 0	1 5.6	7 38.9	10 55.6	as %	I want to repeat the university experience	32
3	0.618	4.50	0 0	0 0	1 5.6	7 38.9	10 55.6	as %	The university provides a health center to provide treatment and advice	33
6	0.970	4.33	1 5.6	0 0	0 0	8 44.4	9 50.0	as %	The university restaurant serves good meals at reasonable prices	34
0.509			4.49	**Overall average**						