

DOI: <http://dx.doi.org/10.34069/AI/2020.32.08.4>

Blended Learning Approach for Deaf or Hard of Hearing Students: Investigating university teachers' views

Blended Learning para estudiantes sordos o con problemas de audición: investigar las opiniones de los docentes universitarios

Received: May 17, 2020

Accepted: July 21, 2020

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Abstract

This qualitative study investigated the views of teachers at a university in the Riyadh Region toward blended learning for students who were deaf or hard of hearing. Adopting a phenomenological approach, semi-structured interviews were used to collect experiential data from three faculty teachers. The content analysis tool was also used. Participants experiences in using blended learning with students who were deaf or hard of hearing were overwhelmingly positive. Minor challenges incurred when implementing blended learning could be overcome when educators were committed to this type of instruction and created the required curriculum. Recommendations to increase higher education access and opportunities for individuals who are deaf or hard of hearing include training instructors in blended learning and issue binding university decisions for its use. These recommendations are consistent with Saudi Arabia's vision for digital transformation by 2030.

Keywords: Blended Learning Approach, Deaf or Hard of Hearing Students, university teachers' views.

Resumen

Este estudio cualitativo investigó las opiniones de los docentes de una universidad de la región de Riad sobre el aprendizaje combinado para estudiantes sordos o con problemas de audición. Adoptando un enfoque fenomenológico, se utilizaron entrevistas semiestructuradas para recopilar datos experimentales de tres profesores. También se utilizó la herramienta de análisis de contenido. Las experiencias de los participantes en el uso de aprendizaje combinado (Blended Learning) con estudiantes sordos o con problemas de audición fueron abrumadoramente positivas. Los desafíos menores incurridos al implementar el aprendizaje mixto podrían superarse cuando los educadores se comprometieron con este tipo de instrucción y crearon el plan de estudios requerido. Las recomendaciones para aumentar el acceso a la educación superior y las oportunidades para las personas sordas o con problemas de audición incluyen la capacitación de instructores en aprendizaje combinado y emitir decisiones universitarias vinculantes para su uso. Estas recomendaciones son consistentes con la visión de Arabia Saudita para la transformación digital para 2030.

Palabras clave: Enfoque de aprendizaje mixto, estudiantes sordos o con dificultades auditivas, opiniones de los profesores universitarios.

Introduction

E-learning begins to take the learning process out of its traditional structure and concept in which the teacher plays the main role in the process of

obtaining knowledge and directing it towards learners whose role is limited only to the receiving process - to a newer, broader concept

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in which the teacher becomes a planner for the educational process, and participates in designing the educational material. And he became a guide and facilitator of the learning process, while the learner becomes more effective, and active in the learning process and a user of modern technology from the Internet and computers. The idea of e-learning is built around the philosophy of education anywhere, anytime and it means that the learner can get educational materials whenever and wherever he wants (Zein,2006)

With the spread of e-learning patterns and increased demand for their use and employment in the educational process, some difficulties have emerged that may shift from their application or effectiveness and the absence of direct social communication between the elements of the educational process - teachers, students, and management - which negatively affects the social communication skills of learners. Also, the application of e-learning patterns requires an infrastructure of devices and equipment that require a high cost that may not be available often at different educational institutions and as a result of these difficulties the need for a new pattern that combines the advantages of e-learning with the advantages of traditional learning has emerged, which is called Blended learning (Salama, 2006).

The latest integration between face-to-face education and e-learning technology provides an introduction to integrated learning based on four elements: learning through information which requires students to read, listen, and learn through interaction which requires trying to experiment with simulation in interactive learning, and collaborative learning , And learning based on experience, and this requires face-to-face learning including representation of roles and applied interaction in the halls and study labs (Ismail, 2009).

Studies have also been conducted on the effectiveness of faculty members' using of blended learning methods. For example, Dessemani and Al-Amer (2017) found consensus among faculty members at King Saud University on their using of the Blackboard Management System to present curriculum, explanations and homework. The virtual classroom in the Blackboard system, which uses blended learning, depends on different types of verbal and nonverbal communication between teachers and students, which meets the diverse needs of students who are deaf or hard of hearing (Alzhrani, M. & Alzhrani. S., 2015). The main

obstacle to faculty's use of the Blackboard system is the increased burden on teachers. For example, although Mohammed (2015) confirmed the e-learning proficiency of the Faculty of Education, University of Dammam, Al-Mubarak (2018) reported that some faculty used open education resources in their teaching practices 10% of the time, despite enormous university support.

The application of blended learning in higher education for students who are deaf or hard of hearing emerged during a quasi-experimental study conducted by Al-Salem & Al-hathni (2017). This study focused on the effectiveness of knowledge trips through the web to increase academic achievement and motivation in the curriculum of teaching and learning strategies for students at King Saud University who were deaf or hard of hearing. Another study conducted by Al-Salem (2017) dealt with the reality of teachers applying virtual reality technology in the Institutes of Hope and Integration programs for students who were deaf or hard of hearing in Saudi Arabia. These studies support the implementation of the blended learning by a number of faculty and support staff in the Higher Education Program for Deaf or Hard of Hearing students. However, blended education still faces challenges. Al-Hawi (2015) showed that there is no administrative motivation for faculty members, in addition to low awareness of the importance of information technology and communication in teaching students who are deaf or hard of hearing students despite the technical capabilities. Mursi (2008) pointed to the existence of other obstacles to implementing blended education, including the lack of attention to standards for overall quality and the failure to conduct any development or necessary improvements.

Abdel Fattah & Doghmoshaimed (2018) aimed to identify the obstacles facing deaf students in employing e-learning at the Islamic University and ways to overcome them. To achieve the goals of the study, the descriptive approach was used. The study tool consisted of (70) items distributed in six fields (psychological, electronic, educational, economic, social, Recreation), and the study population consisted of deaf students at the Islamic University for the third semester of the 2017/2016 academic year, and the study sample consisted of (50) deaf students, where the validity of the questionnaire was verified and proven. Among the most prominent results of the study are the following: There are no statistically significant differences at the level of $\alpha \leq 0.05$ between the mean scores of the study sample on

the scale of obstacles: (psychological, electronic, educational, economic, social, and recreational) that deaf students face in employing e-learning according to variables (Internet experience, number Courses gained, number of Deaf people within a family).• There are statistically significant differences at the level of $\alpha \leq 0.05$ between the mean scores of the study sample on the scale of obstacles (economic constraints) facing deaf students in employing e-learning according to the variables (gender, specialization).

Problem Statement

There is a significant lack of in-depth studies regarding the core components of the blended learning. At the same time there is a need to gain experience and expertise to help students who are deaf or hard of hearing develop positive relationships with typical-hearing faculty and students (Seals, 2013). Gaps have been revealed between higher education aspirations regarding the using technical tools and the local educational reality for example, teaching faculty confirmed that flaws in the Blackboard design system were the main reason for limiting their use of this technology, and that the self-efficacy of using the technology was also influential (Al-Mousa, 2015). Hassan (2008) reported that because of the lack of Arab universities' experiences in e-learning, this type of education still faces challenges, requiring appropriate plans and strategies to address them.

Purpose

This qualitative study aims to explore the opinions of teaching staff towards blended learning for students who are deaf or hard of hearing at a university in Riyadh. The main question is: How do teaching staff describe their views on blended learning with students who are deaf or hard of hearing?

Significance

In its 2030 vision, Saudi Arabia has made education a priority because it contributes to the economic advances and technical infrastructure development needed to achieve national digital transformation. Consistent with this priority is the integration of students with disabilities into higher education, following other countries who have several decades of experience with integrated education, such as the U.S., Canada, Singapore and Japan (Mursi, 2008). Therefore, Saudi Arabia's strategic objectives are to provide citizens with the knowledge and skills necessary

to meet the requirements of the future labor market. The Ministry of Communications and Information Technology (MCIT) has undertaken pursuit of the Seventh Strategic Goal of the National Transition 2020 Program in all sectors of the country (Vision, 2018). The main focus of the National Center for e-learning is to build an integrated educational system based on modern technology and to establish a national center to achieve progress and excellence in education (Ministry of Education, 2018).

Methodology

It was relied on teachers perspectives regarding their experiences in using blended instructional strategies with students who were deaf or hard of hearing. We sought to understand the context and environment of participants through on-site, semi-structured interviews and the review of supplemental documents. These phenomenological data were analyzed and interpreted to construct meaning (Swan, 2017).

Participants and data collection procedures

Semi-structured interviews were conducted with three teaching staff at a university in the Riyadh Region, those who were teaching deaf or hard of hearing students. During the interviews, several questions were asked which focused on aspects of blended education, and a guidebook was prepared to ensure that all topics were covered. The duration of each interview was 40 to 45 minutes and recorded using an iPad. All recordings were then shared with participants to ensure that recorded data were as accurate and detailed as possible. Data were collected through the method of document collection and analysis, and a descriptive document was obtained for a curriculum which is taught to students who are deaf or hard of hearing.

Study approval was obtained from the Scientific Research Ethics Committee. The study sought to achieve the ethical principle known as "independence" as described in Creswell (2012). Participants were given the full right to decline participation.

Researchers formed the primary tool for data collection by constructing semi-structured interview questions, interviewing and unloading, collecting and analyzing documents. During this research, researchers employed their experiences and relationships.

Data Analysis

After each interview, data and documents were analyzed according to SWOT (strengths, weaknesses, opportunities and threats). The researchers relied on the ideas, opinions and experiences that emerged in the interviews and documentation to make comparisons with other phenomena to determine the actual situation. The process used to identify main concepts and sub concepts was: downloading written transcripts of interviews, in-depth reading of each word and phrase in interview transcripts, coding each response and using a form of thematic analysis by to combine similar ideas based on common denominators into sub concepts then transferring these into main concepts.

Results and discussion

Collected data was classified into three main topic categories: the reality of blended learning in terms of its strengths and weaknesses with students who are deaf or hard of hearing in higher education programs, challenges of blended learning and opportunities for success and opportunities with blended learning.

The reality of blended learning

The first topic touched on the reality of blended learning in higher education program for students with hearing impairments, by concentrating on exploring the views and opinions of teaching faculty. The subject was analyzed based on strengths and weaknesses in the use of blended learning.

Strengths. Participants agreed that the most prominent strengths of blended learning with students who were deaf or hard of hearing is the application of principles of comprehensive design for learning, by providing presentations and learning materials in the curriculum within the Blackboard in advance. This saved time and effort for both teachers and students and also provided students with opportunities to prepare. This is consistent with Fathema and Shannon (2013) who showed that the Blackboard management system is mostly used to download lessons and give assignments/homework. Participant M1 explained that his use of blended learning with students who are deaf or hard of hearing depends on the nature of the material being offered, this helps him use the blended learning with bachelor's degree student better than higher education students who need direct discussions. Through participant responses, it became clear that participants had positive

personal judgments regarding technological adaptations to their courses because it allowed faster delivery of information, increased interaction and student motivation as well as the freedom of expression for students who were deaf or hard of hearing. Participant (M1) gave an example of his personal experience in using the digital book. This is supported by many studies which have shown that online discussions are useful in developing cognitive competence. Also students have expressed that online discussions help them express their opinions freely (Fathema, Shannon & Ross, 2015).

Most participants agreed that integrated education provided flexibility in the presentation of information, participation and expression of understanding in various forms (e.g., downloading scientific material from digital platforms, identifying difficulties faced by students from the students themselves, and giving indications about appropriate mechanisms to adapt the curriculum). This flexibility allowed a certain percentage of the curriculum to be used for specifying the blended learning to meet quality standards, which has provided teachers with academic freedom, and freedom of movement outside the classroom. This was illustrated by Jeffrey and Young (2002) who found that blended learning contributed to the restoration of independence and academic freedom to teaching faculty. This flexibility also contributes to the involvement of students in the characterization of the curriculum, the evaluation process, the selection of teaching strategies, and considering students' views. In his response to a question about the benefits of blended learning, one participant said:

My participation in this research made me recognize the benefits of this type of learning. This is what pushed me to search for this type of education, and I have found two studies dealing with this aspect of learning. I found that this type of education would be useful, and I got to know how to benefit from it, and how to employ it well. My experience here has been very positive, but that does not mean there were no challenges.

According to participant M2, an advantage of blended learning was that students could manage requirements of the educational process outside the classroom because of the university's technical programs and continuous support; also this type of education improved students' academic level by preparing them psychologically before the lecture, in a way that increased positive interactions, in ways not available in traditional curriculum designs.

Participant also M2 said, "The university has provided students with great services, such as downloading programs electronically instead of paper, which is going to save time and effort. It will also help students to finalize their work online."

An additional benefit of blended learning mentioned by two participants was that blended learning improved the linguistic level of students who are deaf or hard of hearing through the use of mental mapping, reading comprehension and visual tools. A lecture was also given on how to use the Blackboard during office hours or in the first lecture of the semester, and the university is keen to explain this through the establishment of courses related to the academic process directly, online, in addition to ongoing technical support. However, participant M3 said there was no need for this type of course because there is a guide to using Blackboard. This opinion was supported by Hode, Behm-Morawitz & Hays (2017) suggesting the system is easy to learn, given the availability of usage guidelines. In addition, with blended learning the university has opportunities to assist students who are deaf or hard of hearing with free programs that support them throughout their education.

Another strength was the course description document, which was analyzed as part of this study. The teachers mentioned a list of eight electronic references as sources of learning, including what was on the internet, social media, as well as what is available in the Blackboard system to meet the diverse needs of students (S. Alzhrani & M. Alzhrani, 2015).

Weaknesses. Participants agreed that the most important reasons for not using blended learning with students who are deaf or hard of hearing was poor technical expertise, of both students and teachers. Some participants were able to overcome this obstacle by giving an introductory lecture to students about the importance of blended learning, and the advantages of using the Blackboard system. This weakness is consistent with results from Hode et al., (2017) indicating that many teachers do not use Blackboard due to its complexity and their lack of technical competency. One participant said that the lack of attendance of faculty members in technical courses was the reason this technique was not used in teaching, since the timing of courses is different from the times university professors lecture, despite the fact that the university provides online training in the evening.

Participant M3 said that relying on traditional paper and pencil assessment methods would negatively affect academic achievement of students who are deaf or hard of hearing. She added: "Conducting the assessment by using paper and pencil with deaf or hard of hearing students is very negative as it contributes to the failure of students, this traditional method does not create a successful generation." She also said: "The failure to implement the strategies of teaching and evaluating deaf and hard of hearing students from special education departments, despite their theoretical knowledge, contributed to the low level of achievement for these students, despite the fact that the teaching staff instruct their students to use different types of strategies when they come down to the field and deal with future teaching situations. This illustrates the gap between reality and what is expected."

With regard to the role of translators (for spoken language), participants agreed that the inability of some translators to deliver the information correctly during lectures made it unlikely that students who are deaf or hard of hearing would acquire the information unless material was obtained in advance or translations were reviewed by teachers and included on Blackboard, to be viewed at any time.

Challenges of Blended Learning

Participant M1 said that lack of internet access or poor internet speed for some students were the most important challenges facing teachers in implementing blended learning. Participant M3 said that higher education systems limit teachers' ability to use blended learning, and that the negative view of blended learning and Blackboard was one of the biggest challenges. He added, "The lack of knowledge and experience in the use of assistive technologies such as the Smartboard, although it is available at the University, and the lack of tools for the use and operation of instructional technical aids, has been a challenge factor for teaching staff in using blended learning."

In addition, increasing administrative and teaching workloads reduces professors' enthusiasm for creativity and diversity in the use of the integrated learning methods. Badenhorst and East (2015) noted that the development of blended learning was a challenge for faculty because it required them to develop new skills and to learn how to design curricula. However, they recognized its benefits, such as the communication options, and allowing more

student-centered learning. Traditional instructional methods help students obtain a degree, while blended learning goes beyond the degree to prepare students for the business market through training and professional linking functions, which is in line with the vision of Saudi Arabia 2030.

Participant M1 stated that continuing to design and present curriculum content in traditional ways is difficult for students who are deaf or hard of hearing to understand. Therefore, faculty members should work to design curriculum consistent with diverse student needs. This can be done through blended learning, which provides various approaches and strategies for communicating information, and is one of the best educational models in the world, because it provides face-to-face and online learning courses, and provides an innovative approach to common classroom problems.

Opportunities for successful blended learning

One participant said there was a chance for the success of blended learning, provided that teaching faculty were required to train a certain number of hours on the use of blended learning, and to also make teaching faculty promotion contingent on the use of blended learning. Participation M3 agreed that a reduction in up to 9 teaching hours might support this. Participants also agreed on the importance of enacting university regulations that encourage and support teaching staff to use blended learning with students who are deaf or hard of hearing. One participant said:

"There must be a binding decision by the university to use blended learning in teaching by 20%. Universities around the world have taken a big step in digital education, and we are still in the first stage of blended learning and have not yet reached full education, so we must prepare ourselves for the future transition."

One participant said there is a great opportunity for successful blended learning by organizing committees responsible for implementing curriculum content, translating it into sign language, in addition to preparing videos provided with sign language inserted into presentations, and making them available on the Blackboard for students who are deaf or hard of hearing. This could be done by taking advantage of sign language interpreters' availability during the summer, or by enriching the digital content of the curriculum.

All participants stressed the need for partnership agreements with the Education Technologies department to design blended electronic curriculum for students who are deaf or hard of hearing. One participant said:

"I and a lot of the teaching staff in the special education department, are not aware of the benefits of blended learning & technology, and if we really recognize the benefits of it, we would compete with each other to use it. Some consider the blended learning as an extra burden, but that's not true, blended learning is a professional way to organize the educational process, and if students feel that the teacher is organized and offers them an educational process in an organized manner, then their method of dealing with the material will be positively different, and I personally have noticed that on the ground."

The university teachers interviewed reported positive experiences using blended learning with their students who were deaf or hard of hearing. Notable challenges were students' limited technical expertise and Blackboard use. However, these challenges were overcome by giving introductory lectures to students which prepared them for the blended curriculum. This is consistent with Cavanagh et al. (2017), who pointed to the need to prepare students regarding the idea of blended learning, the nature of the blended curriculum, why it is presented this way, how face-to-face and online components will connect, when and where the class meets, the types of technology used, and teacher and student expectations. These concerns could be answered with a training course for students, which includes a comprehensive description of the blended curriculum.

A key strength agreed upon by participants is that blended learning contributes to flexibility in applying the principles of comprehensive educational design, increasing students' enthusiasm for education, diversity in information delivery methods and multiple options for student expression and evaluation. The Rochester Institute of Technology studied a sample of more than 1000 students who were deaf or hard of hearing to identify whether blended learning provides educational opportunities and equal access to learning materials. Students who were deaf or hard of hearing made it clear that blended learning provided an easier way to share information with peers and teachers, as compared to traditional classroom environments (Mercado, 2013). In the curriculum description paper, the critique for improving curriculum ideas, a point addressed by

the National Commission for Academic Accreditation and Assessment was sent indirectly to teaching faculty, directing the increased use of technology as one component of blended learning to enhance curricular teaching. This is consistent with the study by Mursi (2008) which indicated positive associations between the achievement of total quality in the results of universities and their intensification in the use of blended learning. With regard to the second topic, which was the challenges of blended learning from the teaching faculty's perspective, the discussion focused largely on the ability to use the Blackboard system, and the need to disseminate the use of this technology, given their positive effects in improving the academic performance of students.

Deneui and Dodge (2006) investigated the relationship between the performance of college students in the virtual environment, and their performance in the blended learning class. They aimed to identify the impact of Blackboard systems on students' performance, as blending traditional and effective web-platform learning which provided unrestricted access to anything the teacher uses in the classroom, including, course notes, interactive presentations, audio or video lectures, and e-mails from teachers and students. This study found a significant positive correlation between the use of blended learning and test scores.

The third topic focused on the success of implementing blended learning with students who were deaf or hard of hearing, the need to organize committees, enact the necessary regulations for the use of blended learning education with students who were deaf or hard of hearing and to make partnerships with the Department of Educational Technologies, along with supportive government policies. Cavanagh et al. (2017) noted the implementation of a successful blended learning curriculum required coordination between the goals of the university, teaching faculty and students. To achieve this, a set of requirements must be identified that can help guide officials in implementing blended learning initiatives, these requirements are: organizational objectives, administrative compatibility, organizational capacity, common vocabulary and definitions, qualifying the teaching staff, providing training courses for teaching staff, and providing the support for students and teachers to use the Internet.

Blended learning provides a number of opportunities to reduce face-to-face lecture time. There is also a need to integrate blended learning

with technology, and to implement the curriculum activities outside the classroom. Many studies agree that technology-based education contributes to financial rationalization, reduced transportation and childcare costs, achieving quality that depends less on the teacher's skills, and allows access to courses not otherwise locally available (e.g., Badenhorst & East, 2015; Cavanagh et al., 2017; Doughlby, 2002).

One of the most prominent weaknesses revealed by the study was the limited use of blended learning, not exceeding 10%, derived from an academic document describing a curriculum for students who were deaf or hard of hearing. This reflected the view of the teaching faculty in the special education department toward blended learning who saw it as no more than an additional instructional strategy, rather than as a necessity in the context of advances in communication and information exchange and the technical progress in all subjects including education. The curriculum document analysis revealed a lack of understanding of the importance of blended learning for students who are deaf or hard of hearing. This requires intensive diversification of educational inputs to stimulate the largest number of senses of education. Al-Mubarak (2018) also showed the reluctance of many teaching faculties to use diverse learning sources in their instruction, despite the support they receive from the university.

Conclusions and recommendations

This is one of the first qualitative Arabic studies to use personal experiences from university teachers in Saudi Arabia and document review to explore using the blended learning with students who are deaf or hard of hearing. Personal experiences can provide an insight of teaching faculty perspectives on using the blended learning with students who are deaf or hard of hearing, which cannot be gained by quantitative methods alone. Study findings provide researchers, policymakers, and practitioners with a better understanding of the realities and constraints of implementing blended learning.

Participants agreed that their experience in using blended learning with students who are deaf or hard of hearing were positive, and any challenges could be resolved. There were also many potential opportunities for expanding the use of blended learning with students who were deaf or hard of hearing in the presence of government policies that support this kind of learning. Therefore, there is an urgent need to implement

an action plan based around blended learning and in line with the digital transformation sought by the vision of Saudi Vision 2030 (2020). So we should

Emphasize the importance of blended learning with teachers to facilitate curriculum access and enhance motivation in students with different learning needs.

Make promotion of teaching faculty contingent on the effective use of blended learning with students who are deaf or hard of hearing.

Revise curricula to be consistent with blended learning.

Modify trends towards technological innovations in general, and digital systems in particular, by raising awareness of their importance and how to benefit from them.

Intensify scientific research efforts related to use the blended learning throughout all universities.

Modify education policies and providing regulatory measures to support blended learning in line with the vision of Saudi Arabia 2030.

Digitalize the curricula for higher education students who are deaf or hard of hearing.

Minimize obstacles and resistance to blended learning by conducting training courses with teaching faculty and staff.

Adapt successful international practices in blended learning to facilitate the implementation process in other countries.

To adopt blended learning and increase the percentage allocated in the description of the curriculum to be an essential, not an optional component.

Designate a department at the university for training and follow-up, to encourage the using blended learning and to help teachers overcome challenges they face.

Conflicts of interest

We declare that we have no conflicts of interest.

Data availability statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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