

The Elements of a Conducive Online Distance Learning Environment for Deaf Students

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The Southeast Asian Conference on Education 2023
Official Conference Proceedings

Abstract

A Conducive Online Distance Learning Environment poses a significant element in the education structure of Deaf students during this health emergency. It comprises several components that fulfill its role in creating an environment that enriches the learning of Deaf students. This study aims to identify the elements that promote learning in an online distance learning environment for deaf students. This pursuit is also anchored in discovering the learning profiles, learning experiences and challenges of Deaf students in the Online Distance Learning Environment. The study took place in a Deaf school which shifted to an Online Distance Learning set-up during the health emergency. Deaf students and their teachers were interviewed. Class observations were conducted to mirror the insights from respondents. Interestingly, the process of selecting significant statements, coming up with data categories and identifying the meaning behind the statements, the gathered data of this inquiry raised the “Four Scaffolds of a Conducive Distance Learning Environment.” This framework allows educators and other significant education stakeholders to create a Conducive Online Distance Learning Environment suitable for Deaf students, allowing them to consider its potentials and outcomes in the learning of Deaf students. The results of this displayed varied interesting elements shared by the Deaf students and teachers.

Keywords: Deaf Students, Learning Environment, Conducive Online Distance Learning Environment, Online Distance Learning

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Introduction

In a bigger perspective, Learning Environment is a right of the child. As mentioned in the Child Friendly Schools Manual, UNICEF, May 2009, the concept of Child friendly schools and safe and healthy environment is grounded from the Universal Convention on the Rights of the Child. An environment that provides safety and protection allows effective learning and better outcomes for the child's holistic well-being. This right is an obligation for the government to reduce the challenges related to physical, environmental, and even sexual threats happen to schools worldwide. Cheng in 2020 as cited by Alshammari & El Zaraqat in 2020 says that aside from schools continuing distance education during pandemic, providing learning resources and awareness of the pandemic and educating learners on public safety, this learning environment provides more important resources for learners such as “*mental health of students, and guiding students to practice activities and maintain a healthy life during the pandemic.*” (p.7). Schools help learners to overcome the challenges of becoming isolated physically.

There were some challenges discovered on learning environment in the Philippines, Toquero in 2020 discovered that Philippines do not have any provisions with persons with disabilities. The Philippines laid the provisions of “Bayanihan Act 2020” to allocate funds to help marginalized Filipinos during the pandemic. At the same time, the shift of distance learning was pushed through to support the general population of the students. This menial response for the continuity of education amidst the pandemic in the Philippines, gave rise to concerns and challenges on distance and online learning education, especially to deaf and hard-of-hearing students. Various studies shared the struggles throughout the distance or online learning set-up Hamilton et. al, in 2020 as cited by Smith in 2020 shares, “Teachers reported that almost 86% of their students had difficulties with internet access while 64% of students did not have appropriate technology devices needed for an online learning environment.” (p.168). Krishnan in 2020 finds that one of the challenges faced by hearing impairment students, was being emotionally affected – how a disabled student would cope in an online set-up and financial challenge with regards to the devices needed. Alsadoon and Turkestani in 2020 discovered that to adjust teaching approaches, teachers had difficulty with students' social presence because deaf students would tend to turn off their cameras. This would leave teachers clueless towards how to approach or adjust themselves in teaching. Students turning their videos off may be rooted to possible reasons such as poor internet bandwidth.

Findings

Varied responses revealed a variety of concepts in the aspect of a Conducive Online Distance Learning Environment through a framework called *Four Scaffolds of a Conducive Online Distance Learning Environment*.

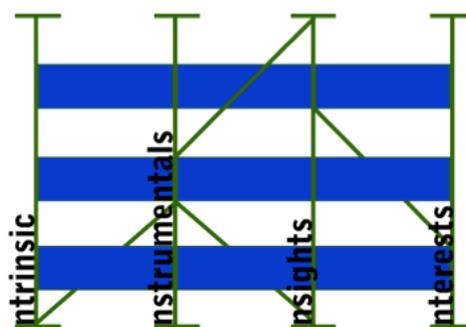


Figure 1: Four Scaffolds of a Conducive Online Distance Learning Environment

Intrinsic Domain: Learning Profiles of Students

The first research question unravels the different learning profiles, characteristics, behaviors and attitudes of Deaf students in an Online Distance Learning Environment. Several occasions were revealed in the study saying how students were able to deal with the demands. These may either be predictable instances where most of the student – teacher engagement occurs or can be unpredictable when certain changes in the Online Distance Learning Environment transpires. These events brought the idea of a Deaf Student as **Self – Regulated and Involve in microexpressions**. Zhao and Chen in 2016 mention *“In e-learning environment, students are responsible for their own studies and have to actively take part in the management of learning process. They have to set learning objectives, monitor and introspect their own learning processes, and evaluate learning outcomes”* (p.1). Sulisworo et. al., in 2020 suggests SRL positively supports students in Online distance learning. They suggest, *“In online or virtual learning, students who have a fabulous SRL will be able to bargain with the advancement of a learning environment that is diverse from their natural world. With a high SRL, the students can discover, select, utilize any data from the internet”* (p.205).

Being motivated is one of the dominant attitudes of students in online distance learning. Ergul in 2004 cited by Baturay and Yukselturk in 2015 says, *“high motivation, maturity and self-discipline are general characteristics of successful learners in distance education programs and self-efficacy of distance education was found significantly correlated to students’ academic achievement”* (p.4). A study by Wettergren in 2012 revealed that Motivation could translate to deadlines and goals for students he mentions, *“The feeling of moving forward, accomplishing goals along the way is central and has great impact on motivation”* (p.6). Wettergren in 2012 also states, *“The need for timely and qualitative feedback for teachers is also important in order to have motivated students”* (p.6).

Independence and Dependence Independence was highly described when Deaf students are situated in learning and accomplishing tasks. Students shared personal ways of handling tasks to be done including the use resources like the internet and other materials to make things possible for them. Dependence enters when things are out of control such as interconnectivity problems or any problem with platforms or learning materials use. Parents would come in to troubleshoot challenges or educate their children in navigation; buying materials in school wherein students were not allowed to go out because of health restrictions and others such as waking up. Teachers were also mentioned when students seek other people for their tasks. Queries would involve lessons or even technology-related sometimes. Gibbons in 2002 as cited by Sumbawati et. al. in 2020, mentioned the following characteristics for independence, *“1) independent in learning, namely being able to take full responsibility in analyzing, planning, implementing, and evaluating their own learning activities independently, 2) self-management, namely being able to identify what they need during the learning process , set individual learning goals, control their own time and efforts to learn, and organize feedback for their work, 3) have a desire to learn for the purpose of acquiring knowledge, motivation of independent learners to learn is very strong, and 4) problem solving to achieve learning outcomes best independent learners make use of existing learning resources and appropriate learning strategies to overcome difficulties that occur in the learning process”* (p.196).

Garbe, et. al. in 2020 defines the experiences of parents with children during the pandemic. Parents mention in terms of this experience like dealing with learner special needs. Parents know that special support is needed for them. Another significant result was the decrease of

parental involvement from primary to middle and more in secondary schools. Lepp et. al. in 2021 explains the presence of teachers during Online Distance Learning, revealing that some teachers upon the start of online distance learning tried to be at their best to be always there for the students, including giving them individual feedback and communicating with them from morning until late at night. Belgica et. al. in 2020 revealed, *“Almost all of the respondents sought the help from their parents, grandparents, siblings, or other family members during online classes, especially in manipulating their gadgets and in answering their activities. If a family member is not available to help, the activity is postponed or set aside until someone is available to help. This is a real and authentic scenario in accomplishing given homework and activities”* (p.107).

Perseverance and Flexible students found ways to overcome their challenges in interconnectivity problems, distractions from the environment and learning their lessons on their own. Based on Burkle and Innes in 2013, one respondent mentioned how technology helped in making possible for work and studying to happen. It was also mentioned that through materials given online it has driven one respondent to develop new strategies to be efficient with time. That an online learner experiences dynamic adjustment to fulfill its role in online distance learning. Students persevered in the online learning set – up. Cahapay and Rotay in 2021, these authors mentioned, *“Since a stable internet connection is highly needed but a challenge in remote learning, the students, especially those from marginalized families, cope by looking for good space and time”* (p.32). Emmanuel in 2011 as cited by Matswetu et. al. in 2020 implies, *“open distance learning success requires being a self-directed learner and the ability to study independently with a focus on specific learning goals”* (p. 3). In this study, participants were students from the marginalized areas of Zimbabwe expose to financial challenges and faces poor provisions in electricity, sanitation, food, and internet connections.

Students **become inquisitive**. Gilbert in 2015, *“Communication in terms of supportive comments, constructive criticism, and prompt feedback from instructors to students is a key component of online courses”* (p.27). Feedback was mentioned in several studies and shared how it exactly happens. Mupinga et. al. in 2006 discovered that Instructor feedback was one of the highest expectations of students in online learning wherein students felt the need of putting students at ease without missing anything and not feeling alone online. Smith et. al. in 2016, coined the term “learning coach” for parents, parents are much more involved to manage several responsibilities assigned to teachers. Parents have increased involvement with instructions for students with disabilities. Cahapay in 2020 mentioned the word “hands-on” for parents in online distance learning. Dettermers et. al. in 2019 as cited by Ribeiro et. al. in 2021 detailed parental involvement such as, *“can be seen as a form of quantitative help (e.g., doing homework, helping with questions) or qualitative help (e.g., organizing the tasks, helping with the creation of a no-distraction environment, supporting the search for answers)”* (p.17).

Mindful of Time and Being Organized revealed how learners made use of time to manage their engagements. Ahmad et. al., in 2019 mentions, *“Student’s academics are influenced by time managing skills. Both variables are strongly interrelated positively. If a student manage time effectively then his/her educational achievements are improved successfully”* (p.199). Alyami et. al. in 2021 revealed that nursing students who claimed to manage time and meet deadlines had high academic grades. In their study, students with high GPA would agree on making a to do list or having a calendar for their tasks at hand. In this study, some students discussed schedules they follow in handling their online distance learning. Teachers

mentioned how platforms such as Edmodo made students organized in such a way students visualize the tasks needs to be done.

Visually Reliant and Multifocal recounts how the Deaf students would entertain learning, or the resources use to learn in an Online Distance Learning Environment. Elevera et. al. in 2021, described the different circumstances under visual learning method such as, *“using images, pictures, colors, computers, and any other visual media to help them learn, ...Examples of visual learning methods are watching videos, a study by looking over things, using diagrams and charts to understand ideas and concepts, and many more”* (p.125). This study confirms how Deaf students learn in an Online Distance Learning Environment. Mention in the same study it is the highest learning method used by students. However, multifocal or paying attention to more than one visual resource poses risks. Alshawabkeh et. al., in 2021 discussed, *“When courses moved to the online distance learning format, students felt overwhelmed. The content that was on the screen was the same. The interpreter was on the screen but in a small box. The difference for the deaf students was that without being able to see the instructor the course content quickly appeared overwhelming and disjointed. They saw only the interpreter.”* (p.6). Thakur, et. al. in 2021 discussed the possible underlying reason for this reaction towards these materials. Based on their study using Symbol Digit Modality Test, hearing impaired children were much slower than normal schoolgoing children in terms of processing, slower in response time and prone to making errors in this test.

Deaf students **were identified distracted**. The experience of distraction has occurred in several instances. Some are direct distractions where students are directly involved in the situation or can be indirect distraction wherein students witness certain changes happening around as online distance learning continuous. Belgica, et. al. in 2020 in their findings discovered about Physical or digital distractions, and challenges in privacy wherein most families are crammed in a small house leaving no room intended for online class. Amadora in 2020 as cited by Belgica, et. al., in 2020 mentioned that devices get the attention of students than the ongoing online class. Cahapay and Rotas in 2020, showed that the home is one of the sources of distraction in Online Distance Learning. Baticulon, et. al. in 2020 adds, *“home is not conducive for studying because of small space and noise background”* it has been considered as domestic barrier.

Impulsivity

Hallowell in 2005 as cited by Garg in 2021 mentions that deviations from use of mobile phones and social media allowing students to switch interests and do activities concurrently may impact students focus and lead to increased impulsiveness. Maity and Mandal in 2017 shares regarding the Deaf and Dumb wherein, *“creativity and impulsivity are inversely correlated. If creativity increases, impulsivity decreases and vice versa”* (p.17). Fernandez and Chess in 1980 found that between multi-handicapped deaf and sole handicapped deaf, Impulsivity was one of the typical personalities of Deaf Children however it was strongly evident to multi-handicapped deaf children.

Limited body movements

The pandemic has already created a huge blow in the physical activity of Deaf students which can contribute to sedentary behavior. Petersen, et. al. in 2021 discussed that schools were largely affected by the health restrictions of COVID-19. One of their findings was the

Changes in Physical Activity, sedentary behavior increased due to lack of activities like going to school or meeting classes. This was then replaced with more sedentary activities like watching TV. Added to this, risk in social interaction was also mentioned as part of increasing sedentary behavior.

Instrumental Scaffolds: Supports that impacts the Deaf Students

Media Used

Participants narrated how Learning Materials, Learning Space, Parents and Teachers have been part of their Online Distance Learning Environment and provided benefits or challenges. Learning materials were the primary resource mentioned in the Online Distance Learning, the different responses from participants built the idea of media multitasking, defined by Wallis in 2010 as, *“engaging in more than one media activity at a time.”* Participants narrated on how this incidence would occur during online learning such as using two devices at a time, attending class using laptop and using phone to communicate; as classes transpire, they are often engaging to two materials simultaneously: teachers would often sign in class and open their videos and present PowerPoints at the same time. It also occurs when students are doing tasks, they use their phones to research while answering tasks on the laptop. Soldatova et. al., in 2020 proves the media multitasking among 14–17-year-old. They found that students were mostly engaged in medial multitasking in average of 5.43 hours an average time online on weekdays and weekends which was suggesting great consumption of media for adolescence. They added that high media multitasking is genuinely evident in youth. *“On the one hand, adolescents choosing media multitasking as a strategy in digital environment appeared to be more productive, including in the context of random task performance, though not faster than less media multitaskers. On the other hand, greater impulsivity, and lower indices of executive functions, working memory, information processing is typical for media multitaskers.”* (p.368). This proves that media multitasking reflects a natural occurrence to adolescents although it poses risks in engaging to such. Martín-Perpiñá et. al., in 2019 enumerated the media multitasking done when adolescents do their homework, it is usually accompanied with the use of mobile phones which was observed having the highest means. This was a common behavior during Online Distance Learning wherein majority of the students’ mentioned phones as a secondary device when learning.

Participants raised thoughts on the different kinds of instances they engage in media such as communicating, learning, answering homework, copying notes, and attending class. These insights were similar results from the study by Kumalawati et. al., in 2021 which they discussed, *“During the Covid-19 pandemic, all lecturers and students used E-Learning to support the existing teaching and learning process. E-learning is a learning model that utilizes information technology facilities in distance learning / online. Online learning is done using information technology using electronic devices, namely laptops, computers, and gadgets with internet media. Distance learning or online is an alternative to modern learning methods”* (p.5). Similarly, a case study of teenagers enumerated the various activities that teenagers are involved as they utilize technology. Yan in 2020 shares, *“classroom learning, group projects, dance tutorials, environmental club, affinity group, home-work assignments, online test preparation, virtual workouts, listening to music, pick-ing up hobbies, and interacting with peers.”*

Learning Space

Participants gave a picture on how their learning space is in the absence of the physical classroom. Personal spaces were described as spaces situated on personal rooms or study rooms allotted at home while shared spaces describe that online distance learning were situated in spaces that the student was not alone. Rotas and Cahapay in 2020 mention that most students were challenged in learning at home, students were having difficulty with their learning spaces because they failed to recognize home as a conducive place to study. Belgica in 2020 categorized home as source of physical distraction. Primary students admit distractions and cannot focus on their learning spaces because of things happening around them and things they see from other classmate's learning space. Barrot et. al. in 2021 shared, *"More specifically, the greatest challenge that students experienced was related to the learning environment, particularly on distractions at home, limitations in completing the requirements for certain subjects, and difficulties in selecting the learning areas and study schedule"* (p.9). Day in 2021 notes, *".... On the other hand, many students did not have a quiet home space. They did not have a desk, their environment was noisy, there were domestic chores and childcare responsibilities, and there were distractions on the Internet when students were online all day"* (p.6). In personal spaces, Aristovnik et. al. in 2020 discussed, *"When studying isolated at home, students may face a lack of self-discipline or inappropriate learning environments which evoke a feeling of work overload and consequently a higher level of stress "* (p.9). To conclude this, Fabito in 2020 said, *"Unlike in a school setting, where learning is more conducive, students were not adequately prepared to go online learning at home. The abrupt decision to go online due to the ECQ brought about by the COVID-19 pandemic has become an eye-opener in terms of the lack of preparedness of students and faculty members to go online"* (p. 453).

Roles of Parents and Teachers

Aside from performing traditional responsibilities, they extended way beyond especially in the advent of accepting that technology will be a huge part of their learning journey. Ribeiro et. al. in 2021 defined the forms parental involvement and the time parents spent. Involvement would take into forms like Monitoring child attention in the classes and school tasks realization, supporting task realization and ensuring that deadlines are accomplished. Aside from school – related responsibility, Cahapay's finding in 2021 adds Connecting with the child physically and emotionally was one emerging experience of parents with their children during COVID-19 crisis. Tus in 2021 also mentioned about the responsibilities of parents such as *"supporting and reinforcing the school's discipline plan, supporting child's learning by providing nutritious meals and adequate time for sleep, discussing the importance of a good education in their child, and identifying a regular time and place in their home for child's homework, monitoring their child's television viewing habits, monitoring child's homework, and ensuring their child's excellent attendance at school, monitoring and encouraging children to read, attending special programs in schools and parent supports group."* He adds parent involvement had a significant relationship with academic performance.

There were more roles discovered and played during this shift in learning by teachers. Mayasari and Kemal in 2020 defined *"teachers are also required to be able to design as they should teach students even with distance learning," "role of the teacher as a demonstrator here is that the teacher still uses strategies or methods to deliver distance learning even in the Covid-19 outbreak. Learning media is a tool for teachers in implementing learning. With*

the media, it makes it easier for teachers to deliver material to students so that it is easier to understand the material, especially in subjects,” “teacher motivates students,” “teachers manage learning when teacher classifies students and group students” and “teachers evaluate level of success that has been achieved.” These points were similarly mentioned by the Deaf students. These roles were also present even with face-to-face class and were put in higher rate in online learning especially in technology.

Communication between teachers and parents was highly vital during the pandemic. Stelitano et. al., in 2020 mentioned, *“strategies as regular text messages to parents or students with reminders about things to do, daily emails, or weekly phone calls with individual students would likely be more helpful than sending weekly packets without reminders.”* Hodgman et. al. in 2021 adds, *“teachers were expected to “meet with their students,” “be available at scheduled times to respond to student questions,” and “communicate with families about expectations for students or distance learning resources”* (p.2). It reflects that teachers are far more than part of academics, they also provided support to families especially parents in continuing Online Distance Learning at home.

Insights Scaffold: Experiences of Deaf students

Experiences may either positive or negative experiences of Deaf students during Online Distance Learning. **Social Advantages** explains how Deaf students find this environment as a source of support, enjoyment and where they can meet companions. Most responses center on talking with friends, classmates and teachers and the experience of meeting and seeing them. These interactions were similarly mentioned by Su et. al., in 2005 enumerating interactions such as, *“Content-related instructional activities (such as summarizing key points, asking/responding to questions, giving feedback, and instructor participation in class discussions) were widely used in most of the courses”* (p.8). Minocha in 2009 emphasized, *“use of social media in distance education is important as they ease student-student interaction and increases motivation of the learners”* (p.2740). This would also represent the responses in the study wherein aside from zoom, messenger was frequently used in asking questions between student-teacher and even talking with their classmates. The idea of “social” in the study was also the experiences of students as they ask questions or clarifying lessons to their teachers.

In a study by Alodwan in 2021 for higher education students the researcher coined **e-learning’s advantage as a prime mover of “education for all”** making it possible to continue education. Gherges in 2021 defined advantages of e-learning compared to face-to-face learning. He mentioned three advantages such as convenience, time efficient and accessibility. Kurniawati and Priyanto in 2017 stresses the idea that mobile learning allowed stimulate students to complete task together, motivation and high interest in learning is tantamount to increase in learning outcomes and it allowed students who are afraid and silent to be bold in the learning process using technology. Paudel in 2021 added that online education gauged towards independence, flexibility and has been a source of knowledge and authentic information at their home. Neuhauser in 2002 as cited by Slower and Mandernach in 2018 implies, *“online and traditional classroom settings are equally effective.”*

Several challenging experiences dawned. Learning space challenges, interconnectivity challenges, **personal challenges, learning material challenges, learning challenges.** Belgica et. al. in 2020 mentioned the similar challenges. Fabito et. al in 2020 discovered challenges mostly on technology, internet reliability and accessibility. It is a concerning

barrier of students in the online learning that aside from students, teachers also experience a challenging course. Dianito et. al. in 2020 defined adversity in communication where students found difficulty in communicating with instructors and classmates, students also felt they could not participate to some activities in their online distance learning leading to social exclusion, and adjustment wherein students failed to anticipate changes in this kind of set – up.

Interest Scaffolds: Elements promoting learning in an Online Distance Learning Environment

Interests' domain pertains to ideas of desirable and undesirable preferences. The elements mentioned build a Conducive Online Distance Learning Environment. Pertaining to things that encourage, engage, and motivate learning. Responses were classified as **Academic and Emotional/Social support**; Things that make learning better. Responses were grouped according to **Learning Access/Supports, Learning Spaces, Classroom Routines/Schedules, learning topics, breather/breaks**; Activities they like during Online Distance Learning, these were classified as either **Subject-Related or Task-Related**; Needs in Online Distance Learning were grouped according to **Social Needs, Material Needs and Learning Needs**. As Deaf students and Teachers identified these things comprising the Conducive Online Distance Learning Environment, Respondents were driven through a perception of people having strong inclinations is based on the principles of William Glasser's Choice Theory (1998). Choice Theory was defined as, *"I believe we are genetically programmed to try to satisfy four psychological needs: love and belonging, power, freedom, and fun. All our behavior is always our best choice, at the time we make the choice, to satisfy one or more of these needs."* Choices were rooted from how we behave towards things we encounter around us. Glasser adds that certain behaviors are anchored through our memories. Our memories perform in a very complicated way which Glasser describes, *"We struggle to feel as good as we can and as much as we are able, try to avoid feeling bad"*.

Applying Choice theory in education centered on classroom management. Praveen and Alex in 2018 adapted the Choice Theory wherein varied concepts were taken into consideration such as Teachers are believed to understand that the feeling of survival can be satisfied only when a safe and sound environment is arranged to be conducive to online learning. Glasser in 2001 as cited by Manoj and Anoop in 2018 believes, *"For managing the class better, a teacher must arrange lighting, seats, air circulation, etc. which in turn will be conducive to classroom learning"* (p.8095).

Chan – Anteza in 2020 made a Quadratic Element of a Conducive Classroom Environment that comprises of Structured Course Curriculum or the organized instructional content, Empowered students – students who are motivated, engaged, increased responsibility and can identify own interests, passion, and strengths, Flexible Classroom Setting or the idea that learners have the choice to find a "learning space" and Enabled Teachers who are competent in areas needed for students. The vision of Chan – Anteza was not far from the elements identified in the study.

Conclusion

This important information allows us to recognize our learners and to have an intensive eye to evaluate these things and build an environment that nurtures the learning profiles and supports that were mentioned as beneficial to build a Conducive Online Distance Learning

Environment. Teachers can be provided with an opportunity to create activities and events in the Online Distance Learning Environment that will make students Independent, Self-Regulated, Persevering, and Inquisitive and consciously eradicate things that can make Deaf students Dependent, Distracted, Impulsive and restricted in body movements.

The experiences in the study are representations of the lived experiences of Deaf students. The study unraveled that a Deaf student is not only affected “during class.” Deaf students and teachers shared that home, personal feelings, and encounters towards learning now, learning profiles, and family dynamics influences student’s learning. Experiences allowed the students to be changed through these and changes yield positive or negative outcomes. In these times, let us strive to acknowledge these experiences and let us also help Deaf children to embrace and understand the idea that positive and negative learning experiences do not dictate success or failure in learning. People around these children must continue to empower them to do their best. The institution, government, and education sector must resolve challenges and respond to the growing needs of this novelty in education.

The preferences are expressions of active participation of Deaf students. Deaf students are capable of identifying, distinguishing and expressing their preferences. The study opens opportunities to directly respond on how to improve the current Online Distance Learning Environment. It represents Deaf learners are fully aware of learning, and recognize things bound to success. Preferences reflect materials, activities, or events. Significantly, in-person learning is primarily conducive for them. Participants mentioned that Online Distance Learning has been a solution to this health emergency restriction. This study calls education advocates and stakeholders to set this as a reminder to honor learning environment. Advocates and stakeholders must listen to these responses to be true to their responsibility in guaranteeing the Deaf learners of quality education.

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