Accessibility and Inclusion of Students with Disabilities in University of Dhaka: Transforming the University in Line with Sustainable Development Goals

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ABSTRACT

This study aimed to explore what constitutes an accessible and supportive environment for promoting inclusive education for all students with a particular focus on students with disabilities (SWDs) aligning with the plea of SDGs in the University of Dhaka. Thus, the general objective was to come up with a holistic understanding of inclusive education practices by comprehensive analysis of features related to accessibility, reasonable accommodation and Universal Design for Learning (UDL) for SWDs, also of exploring the scopes, limitations and challenges prevalent in the process. The objectives of the study required both confirmatory and exploratory approaches, thus demanding to adopt a mixed-method research approach that allowed researchers to choose a flexible 'within-stage-mixed model design' with emphasis on qualitative approaches of data collection and analysis. Semi-structured interview schedule as data collection instrument yielded qualitative data that was analyzed using descriptive and thematic analysis framework (Braun and Clarke, 2006). The findings shed light on the existing scopes, limitations and challenges in the learning environment of the university in addressing the learning needs of SWDs. The findings also produced valuable information for transforming University of Dhaka towards a recognized disable-friendly university with an impact ranking, as well as with a QS Star University Rating on Inclusiveness.

Keywords: *Inclusive Education, Sustainable Students with Development Goals (SDGs), Students with Disabilities (SWDs), Accessibility, Higher Educational Institutes (HEIs), QS Star Ranking, Universal Design for Learning (UDL), University of Dhaka, Disable-Friendly University,*

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Introduction and Background of the research

In recent times, huge research works have been conducted in developed countries on the accessibility and inclusion issues for SWDs studying in higher education (Halder&Argyropoulos, 2019; Haller, 2006; Moriña&Morgado, 2016; Stodden, Brown & Roberts, 2011). It was found that access to academic courses for disabled students used to be restricted because of limited access to campus buildings (Bolac, 2015). Fearns (1993) suggests conducting Access Audits on the campus for appraising the accessibility of buildings for disabled users. McGinty (2016) found a positive relationship between accessibility and inclusion in higher education. Rahaman (2017) explored that accessibility was the most important element for the effective implementation of inclusive education. The initiative of making a university accessible is ofvalue for uplifting its ranking as explored by Clarke (2007). O'Malley and Mitchell (2019) focused on accessibility for SWDs on newly introduced university impact ranking by Times Higher Education (THE) World University Rankings in 2019 that measure global universities' success in delivering Sustainable Development Goals (UN, 2015).

Universal Design for Learning (UDL) framework, which is an approach to teaching and learning that gives all students equal opportunity to succeed, is an efficient approach for designing flexible learning environment and accessible content (Murawski, 2001; Novak, 2016). Reasonable accommodation and support services are required for equal educational opportunities (WHO & WB, 2011). The goal of UDL is to use a variety of teaching methods to remove any barriers to learning. It's about building in flexibility that can be adjusted for every person's strengths and needs.

Disability is referenced in various parts of the SDGs (goals 4, 8, 10, 11 and 17) and there is considerable overlap with the articles of the UN Convention on the Rights of Persons with Disabilities (CRPD) where education and accessibility are counted as two major focuses. SDG(4) emphasizes inclusive and equitable quality education which is targeted to eliminate gender disparities in education and ensure equal access to all levels of education in a safe, nonviolent, inclusive and effective learning environment for the vulnerable, including persons with disabilities by 2030 (UN, 2015). These targets are completely parallel to the intentions of this research.

Besides, Education Policy (MoE, 2010) identified ensuring the rights of education of disabled people as one of the aims and objectives of education. This philosophy is also echoed in the ADP and 7th FY plan of Bangladesh which stressed equal access to an appropriate, relevant, affordable and effective education regardless of gender, age, physical or financial ability, ethnicity, autistic & disabled, impairment or HIV status (General Economics Division, 2015). This study is also aligned with Education Policy 2010, ADP and the 7th FY plan.

Bangladesh is expecting 100-year-old institutions must change to respond to the new environment in its long journey of Vision 2041 (General Economics Division, 2020). The

finding of this study has looked at forward to contributingto theDU's master Plan and Higher Education Strategic Plan by making it more inclusive and accessible in line with vision 2041. Thus the study supports the university to achieve a rating in *The Times Higher Education Impact Rankings* as it assesses universities against the SDGs.

Research Objectives and Questions

The study hasconsidered three dimensions to be explored as general objective:

a) Accessibilities for SWDs [Perceived from three aspects: Physical/infrastructure accessibility, Curricular accessibility, Information accessibility];
b) Inclusive practices for SWDs [includes two aspects: *Reasonable Accommodation* in teaching and learning, and *Universal Design for Learning (UDL)*];
c) Showing way forward that could enable the University of Dhaka to be transformed as a disability-friendly accessible university.

To achieve the above dimensions of general objective, following research questions were formulated:

1. How do SWDs perceive the features of accessibility supporting their learning in University of Dhaka?
2. To what extent the infrastructure and learning environment (academic and administrative) are disability-friendly aligning with the guidelines of Universal Design of Learning (UDL)?
3. To what extent the existing curriculum and teaching practices are consistent with inclusive pedagogy?
4. What are the scopes, limitations and challenges of Reasonable Accommodation in University of Dhaka?
5. What will be the evidence based policies and strategies for transforming the University towards a world-class university with impact ranking aligning with SDGs?

Theoretical framework

For conducting this research, the conceptual framework was used to draw the possible preferred ideas that attempt to connect all aspects of inquiry for this study, with an aim to provide a better understanding of policy formation and reformation within the education system and relating this to inclusive education practices. This framework interprets inclusive education practices for SWDs at the University of Dhaka from three perspectives: assessing inclusive education, exploring issues of accessibility and disability, and critical eye model for analysis. In the beginning, the framework involved a lens, originated from UNESCO's (2001) Nine Golden Rules of inclusive education, to study inclusive education practices for SWDs at the University of Dhaka. These golden rules have particularly been considered to prepare the matrix and

adapt some related information and issues. The main purpose of the nine golden rules is to deal effectively with diversity in the classroom (Rieser, 2012). These nine rules are interdependent and interconnected, are: i) include all pupils; ii) appropriate communication in teaching; iii) classroom management; iv) lesson planning; v) individualized education plans; vi) provide support to individual students; vii) use assistive devices; viii) behavioural management; and, ix) working together. These rules emphasis the creation of an inclusive learning-friendly environment for all students at the institutional level, thus required to address the issues related to accessibility.

The framework has further incorporated the inputs–processes–outcomes model to deal with the issues related to educating SWDs at University of Dhaka. Here, assessing the accessibility to exploring the existing practices for SWDs, the framework introduced the System approach (Peters, 2007) of education that includes the essential framework for educating SWDs systematically considering input, process and output and deciding objectives, contents, methods and assessment (Salam, 2015).

The Framework, finally takes a criticality framework (Rahaman, 2017) that is underpinned by social constructivism (Vygotosky, 1978) integrating the landscapes of ecological view (Bronfenbrunner, 1979) and Critical Disability Theory (Devlin&Pothier, 2006; Vehmas&Watso, 2014) which have been introduced to investigate the issues related to disability in University of Dhaka. This framework critiques disabling structures within the educational landscape (such as segregated classrooms and inaccessible school environments) and suggests incorporating the voices and interests of persons with disabilities in decision-making processes.Thus, the analysis incorporated a critical lens that was developed by a modification of the process of criticality as proposed by Greenwood (2013). It can be mentioned that the theoretical and conceptual framework provides support to undertake certain positions on disability and education for doing research in the field of inclusive and special education (Rahaman& Sutherland, 2011).

Methodology

This study has mainly employed the qualitative approach. In this purpose, the data sources were document analysis, students with and without disabilities and university faculties. Purposive and convenient sampling techniques were used to collect data. Thematic Analysis (Braun and Clarke, 2006) technique was employed to analyze and present the collected data.

Results and Findings

Through thematic analysis technique (Braun and Clarke, 2006), four major themes (a.phyisical and curriculur accessibility, b. challenges of curriculur accessibility, c. creating a disability-freindly inclusive teaching-learning environment, d. reasonable

accommodation and modification) were emerged which are interrelated with each other. Later, some sub-themes were also extracted based on the major themes as holistic approch has been considered in analysing the findings.

Findings related to physical and curricular accessibility

In response to the question of whether the current learning environment including accessibility of the University of Dhaka is disability-friendly or not, non-disabled student participants (N=6) and teacher participants (T=3) responded with 'yes' in terms of the following contexts-

Infrastructure

The participants who responded yes to the question of whether the university is suitable to provide a disability-friendly environment and accessibility think that the infrastructure of this university is suitable for SWDs. In this regard, they have mentioned some things like facilities for wheelchair users, and lift systems. As stated by a student without disability from the Department of Sociology participants,

> *Our department has good facilities for the students who are wheelchair users.*

Similarly, another student participant from the Department of Islamic History and Culture also mentioned,

> *For students with disabilities, there are wheelchair and lift-accessible facilities.*

Another student participant from the Department of Management shared that the university has several arrangements and modified infrastructural accessibilities for the SWDs. She stated,

> *At Dhaka University, there are lifts, front seating, and beautiful classrooms for them in many departments.*

These findings are also supported by a few teacher participants (T=3). They have shared alike responses that the university has tried to make some special provisions for students who have some form of disability. One of them thinks that the infrastructural aspects of classroom facilities for the SWDs are okay. Another teacher participant mentioned that access to open access on this campus is another disability-friendly infrastructural feature. Although one of them has expressed that this campus is disability-friendly through his response, his statement doesn't indicate quite a satisfactory scenario as he wrote,

> *Though the prevailing infrastructure is not adequate, it's continuing to be developed.*

These data reveal that infrastructural accessibilities are provided for students who are mostly physically challenged and Visually Impaired (VI) students. Other than mentioning the availability of lifts, and open classroom facilities, no

other infrastructural provisions or conveniences have been mentioned.

Act and Policy

Regarding acts and policies for the SWDs in the university, participants have not been clear with their responses. Some participants (N=3) mentioned quota but haven't given much of their thoughts on how these are relevant to the acknowledgment. One of them mentioned that he does not know about this aspect and another 3 student participants left the place blank and haven't provided any specific answer.

Similarly, the teacher participants (T=3) also were not clear on this particular point as one of them stated,

> It's not clear to me, but some students are studying here I observe.

Another teacher mentioned adopting the SDG policies but was not precise in this regard. This showed that there is still a lot to work on in this distinct place.

Curriculum

The curriculum is another important feature of any educational institution to be a disability-friendly learning environment. Participants have mentioned some of the aspects of the curriculum they think are disability-friendly. As one of the student participants revealed,

> Our current curriculum is appropriate for all but Braille systems and other facilities can be added for students with disabilities.

Another student participant mentioned having brail books in their library for the VI students. The other student participant stated that the teachers use some strategic approaches as giving extra time for the SWDs.However, the teacher participants have mentioned an inclusive curriculum. Especially, the teacher participants (T=2) from the Institute of Education and Research have mentioned their inclusive curriculum as it has provision for SWDs and they do have two streams dedicated to them. One of them mentioned,

> We admit students here for special and inclusive education as we have two streams in this regard.

Likewise, another teacher from the department of sociology mentioned the curriculum is appropriate and flexible for SWD by stating, "..allowing Quota for them and assistant in the exam hall are friendly for these students."These reveal that although some of the departments have adopted inclusive curriculum, most departments have not introduced a curriculum that is disability-friendly yet for the SWDs.

Teaching-learning Methods

Participants (N=4, T=3) mentioned that the teaching-learning method is being implemented following the nature of the disabilities of students. Also, teachers provide lecture notes in

braille or audio recordings after lectures. Student participants stated:

> *The teaching-learning method is conducted in braille, some time for students with visual impairment the lectures are recorded for them, and teachers take special care of SWDs during class time and what they need to understand, where they face difficulties understanding.*

A teacher participant of IER responded by highlighting:

> *As an academic institute, IER adopts special teaching-learning methods and techniques for its students.*

The data showed that teaching methods have been adopted for the inclusion of SWDs in the classroom. Although participants stated the implementation of methods, it has not been mentioned the specific method of teaching and learning activities.

Assessment Accommodation

The provision of accommodation during assessment has been expressed in participants' (N=4, T=3) responses. They mostly responded by stating that giving extra time in exams and stenographers to students with visual impairment. As one non-disabled student participant mentioned:

> *Teachers are kind to SWDs during exams, they are provided with extra time, and stenographers are allowed for students with VI.*

Similarly, a teacher participant of IER mentioned:

> *In IER, special students appear in exams by their stenographer and they are given extra time.*

The data revealed that some sort of accommodation or flexibility is given to SWDs, mostly students with VI during assessments. However, there was no mention of assessment accommodation for students with hearing impairment or other disabilities.

Seminar and Central Library

In the central library, there are facilities for SWDs such as wheelchair access and separate sections. In this regard, participants (N=1) stated by responding: " *..there is wheelchair access for SWDs in the central library"*.

Another participant (N=1) highlighted *"there are separate sections for SWDs in our central library"*.

Similar sentiments have been expressed in teachers' responses "*Space and facilities for the special child*", though what sort of facilities are available for SWDs were unmentioned in

teacher participants' statements.

Adoption of a Strategic Plan for Teaching SWDs (Teachers' response)

To teach SWDs in an inclusive classroom, teachers must adopt alternatives as well as a strategic plan for the successful inclusion of SWDs in teaching-learning activities. About this, participants (T=7) responded by employing strategic plans such as: providing time to understand contents, further asking questions for the betterment of their comprehension, and explaining contents separately for SWDs.

As one participant responded:

> *I try to use methods that are convenient for the students. For example, in the case of visually impaired students, if any video or presentation is shown, it should be explained to them separately.*

The data showed that methods that are suitable and convenient according to the needs of SWDs are being adopted. Further explanations of contents or lectures have been given to them to make sure they comprehend the topics. Another participant mentioned:

> *In class, I try to make sure they understand, give them time at the end of each class according to their needs, and also reassure them mentally that I am there for them in any need.*

Besides, teachers ask questions to SWDs as a way to motivate them more, *"I ask him/her separately and explain more".*

Findings related to Challenges of Curricular Accessibilities

In the reflective questions of the survey questionnaire for students without disabilities, most of the participants responded negatively about any courses they take during their major that are not disable-friendly. Whereas a few participants (n=11) mentioned a few courses in which SWDs cannot perform well. Some aspects have emerged in the participants' statements - difficulties in understanding course-related contents, difficulties in performing practical and lab work, lack of appropriate teaching materials, and lack of inclusive pedagogical practices of teachers.

Difficulties in performing practical work

The students without disabilities mentioned the courses where the SWDs have the most trouble taking courses that contain empirical or hands-on work. A participant from the Department of Islamic History and Culture specified that they've some courses where they are required to go to architectural sites of Islamic history to gain good knowledge about culture and architecture. He explained writing,

> *We need to prepare observation reports of our field trips followed by our visits. It becomes very difficult for our classmates with any kind of disability to visit these places to collect data or do any applied task that demands experimental or experiential tasks.*

Another student from the Sociology department agreed with this field trip-related issue mentioning the subject Monograph. He stressed in his response,

> *It is nearly impossible for them to perform well in this course because of the practical work it needs during the course.*

Students largely mentioned these practical work-related challenges for VI students. As computer courses are nowadays a vital course that has been made compulsory in most of the departments, this has come out as one of the problematic courses for the SWDs. A student from the Institute of Education and Research (IER) indicated a specific course on computers that requires practical work in the computer lab. He emphasized that the VI students face the most difficulties here with the lab work. He wrote on his response sheet,

> *In this course, we are taught various types of computer-related work. Students with visual impairment do not learn well because they cannot see and their performance also reflects their difficulties with the course.*

It has emerged from the above responses that students with visual impairments mostly face difficulties with practical work.

Difficulties in understating contents

SWDs face difficulties in understanding course contents. Participants from the department of Accounting and Information Systems (AIS), Department of Applied Chemistry, and Institute of Education and Research (IER) mentioned some courses in which SWDs experienced problems that are mostly related to mathematics. One participant from the AIS department highlighted,

> *Math questions or mathematical parts of our course are complex and it takes time to solve the solutions. As the allotted exam time is equal for everyone, it is particularly hard for students with disabilities to solve the math problems in the course.*

Another participant from IER also asserted by responding,

> *In our research course, the mathematical section is hard for students with disabilities.*

Participants' statements pointed out that the limitation of given time in exams impedes SWDs from making good performance in exams. Besides, the mathematical problems are difficult enough to understand for SWDs compared to students without disabilities. Apart from the

mathematical part of the selected courses, SWDs face difficulties in comprehending the contents of chemistry subjects which are complex for them. One participant from the applied chemistry department highlighted,

> *Our course contents are complex enough for general students. It takes time to understand those contents. So it must be difficult for students with disabilities too.*

Indeed, it is noticeable in participants' responses that SWDs experience difficulties in comprehending the course contents related to mathematics and chemistry.

Lack of appropriate teaching-learning material and resources

Students without disabilities shared some courses where they think the teaching-learning materials are not appropriate for the SWDs. Although they did not specify the course names, they shared these issues from an in-general perspective. One of the students from the Institute of Education and Research (IER) mentioned that the materials used for some course contents are not helpful for the SWDs. She mentioned,

> *Lack of suitable and appropriate teaching material is another hindrance in some courses that causes bad performance of SWDs.*

Teaching-learning materials hold a very inevitable importance to facilitate the students as learners but findings from the participants have pointed to the inadequacy of inclusive teaching and learning resources as well as materials as a noteworthy obstacle for most SWDs.

Findings related to creating a disability-friendly inclusive teaching-learning environment

For the successful inclusion of students with disabilities in the existing educational institutions, a disability-friendly teaching-learning environment needs to be created. Most of the participants (n= 74) responded in the reflective section of the questionnaire regarding scopes for initiating a disability-friendly teaching-learning environment for SWDs. The following themes have emerged from participants' responses:

Infrastructural Development

The development of the university and residential hall infrastructure have been mentioned in participants' responses. Most participants (students without disabilities) (N=42) highlighted the infrastructure development as a noticeable recommendation for creating a disability-friendly learning environment. Participants asserted on specialized washrooms increasing library facilities, ramps for students with physical disabilities, and VI reading room, particularly for SWDs. participants responded by stating,

> *For students with disabilities, the infrastructure of departments and institutes*

should be developed. It can be done by establishing ramps and stairs in buildings so that they can be easily accessible for them. Besides, a reading room can be arranged for them. Extra library facilities should be provided.

Another participant added,

In each department, a lift must be established for easy accessibility

Similar sentiments have been expressed by teachers' participants. Faculties (T= 6) noted that the infrastructure development in each department of the university should be developed for different types of disabilities.

Developing suitable infrastructure for different types of disabilities.

For students with physical disabilities, wheelchair accessibility has been mentioned as a major initiation in faculties responses,

Wheelchair accessibility can be given to students with physical disabilities as they have difficulties walking.

Apart from the development of departmental and institutional infrastructure, students without disabilities (N= 4) recommended the development of residential hall infrastructure. Many SWDs reside at university residential halls which were not established as disability-friendly. Following this fact participants stated,

Residential halls must be developed for SWDs. Most of the washrooms in the halls are not suitable for them.

Regarding the development of the infrastructure of residential hall there were no recommendations mentioned in faculty responses. However, it has come out as a noteworthy factor in students without disabilities' responses.

Transportation and Navigation Facilities

The mode of transportation and their disability-friendly features have been mentioned by students without disabilities (N=13) as well as faculties (T=2). Most of the participants noted the need for adequate accommodations for many students with disabilities who do not have adequate transportation facilities on campus. Many students with disabilities do not have adequate facilities on campus for transportation. In that case, they recommended necessary facilities that should be user-friendly for them. As one of the participants (students without disabilities) recommended,

Some signs should be used on roads or paths that make it easy for them to navigate the campus.

Also, mentioning the challenges that the SWDs face during navigation in the campus area, the participants suggested making reasonable accommodations and modifications to their disability-friendly movement on the university campus. Supporting this, one of the said

> *Many SWDs do not get the convenience of transportation on campus, there have to be proper arrangements for that.*

One of the faculties also wrote down the point of providing easy movement facilities for the SWDs. The participants (students without disabilities, T=12) have also suggested several departments and institute-specific movement and transit plans for the campus. They have also proposed to provide SWDs with necessary mobility aids for their smooth movement on campus.

- ***Providing Teaching Material according to the Needs of SWDs***

Teaching material is an integrated part of teaching-learning activities. SWDs varied in their needs because of their disabilities. Appropriate teaching material according to their needs must be provided by the university and teachers. Participants (Students without disabilities, N=34; faculties, T= 9) suggested providing teaching material according to the needs of SWDs.

Most of the participants highlighted the introduction and provision of study material in braille for students with visual impairment. Participants (students without disabilities) stated,

> *Students with visual impairment can be provided with teaching material written in braille as they are unable to see like us.*

Another participant added,

> *Being equipped with audiobooks can be taken as a necessary step for creating a disability-friendly learning environment.*

Similarly, faculty participants (T=3) illustrated,

> *Prepare audio and braille study material for blind students.*

The aforementioned data indicated that participants felt a dire need for disability-friendly teaching and learning material for SWDs.

Apart from the provision of teaching material in braille and audiobooks, faculty (n=2) mentioned assistive technology for making learning easier. About this, they said

> *Braille printers can be given for braille support. Also, text-to-speech software can be installed for SWDs.*

Although participants gave their assertion on providing leaching material based on the needs of the SWDs, the statements revealed that participants mentioned the need and support of learning

material solely for students with visual impairment.

Findings related to Reasonable Accommodations and Modifications

Classroom Activities and Assessment

Participants have suggested some points of certain changes. Some of them need some alteration and some don't need any changes to the standards or changing the course's core objectives. The arrangements that need no alteration are categorized in this section of findings labeled as reasonable accommodations and the ones that demand specific adjustment are labeled as modifications. Some of the suggestions for reasonable accommodations include flexible seating arrangements for the SWDs, extended time in the exam hall, and special residential arrangements.

> *Adopting modern technology and methods for better learning should be helpful for them.*

Participants also mentioned some reasonable modifications regarding the assignment and task-related modifications and curriculum-related modifications. As one of the students without disability noted in the response form,

> *Some separate special forces can be arranged for them.*

The need of modifying an inclusive curriculum also has been mentioned by the participants where it has been stressed that SWDs should obtain a grade or be assessed that differs from the students without disabilities according to the special conditions and nature of their disability. Different assessment methods for students with disabilities can create a disability-friendly learning environment according to the participant's responses.

Training Programs for Different Personnel:

The urgency of training regarding inclusive pedagogy for teachers and attitudes and others for students without disabilities as well as other personnel on the campus has been another focal point of supporting SWDs and has also been reflected by the participants (students without disabilities and faculties). Conducting classes with teachers who are trained in special education, and trained office staff has also been responded to. Some of the statements from the responses of the participants including suggestions for training programs are mentioned below:

> *The authority should train the course teachers for Inclusion capacity. Training for the staff and other students who do not have any disabilities should be created to know and treat them well.*

Some of the faculties also pointed out that the incentives included training programs for SWDs on different skill-based capacities to support them for their betterment.

More incentives and training should be rendered to motivate these students to participate in academic and co-curricular activities.

Following the responses, the participants have highlighted these training programs that may help with supporting such a learning environment that will promote accessibility and inclusion for students and disabilities at the University of Dhaka.

Developing Positive Attitudes among Teachers and Peers

Creating an inclusive teaching-learning environment depends on the positive mindset of teachers and peers toward SWDs. Regarding this, participants asserted developing a positive attitude among teachers and peers by saying,

Collaborative attitudes of teachers, peers, and students have to be sympathetic to SWDs' needs. A positive mindset needs to be present among teachers which will serve as emotional support. As SWDs pass the class time mostly with us like we are their peers, so we have to be attentive to their needs.

Additionally, participants expressed that a positive attitude can be created by arranging seminars and symposiums. They responded

Departments or institutes can arrange seminars or symposiums in which experts in inclusive education can give speeches that will broaden others' minds toward SWDs and inclusive education. It also helps develop a positive attitude toward them.

The data pointed out that arranging seminars can be a way for creating awareness and positive attitudes among teachers and students towards SWDs and inclusive education. Besides, the positive attitude of peers strengthens SWDs mental stability.

Individualized/ Specialized Monitoring and Mentoring:

A special monitoring system can be introduced for students having disabilities that can also create a disability-friendly learning environment. Some of the participants (students without disabilities, N=23) also mentioned individual monitoring for SWDs according to their needs and the nature of their disabilities. As one of them responded,

Teachers should care for them individually and monitor them according to their special needs.

Appointing individual mentors has been stated by the participants (students without disabilities, N=16) to support the SWDs and to create an inclusive learning environment. Appointing specific teachers as mentors for individual students who have any kind of disability seemed a prolific way to assist the SWDs. Mentoring can assist them with progressive data which will specify and show their progress from time to time. As another student suggested,

> *Individual teachers may be appointed as mentors for them.*

These data indicate the recommendation of monitoring and mentoring both where the SWDs can be observed, and tracked, and their success indicators regarding their learning can be measured in an inclusive learning environment.

Provision of support services

Providing financial and emotional support has been expressed in non-disabled student participants' (n=18) responses. Financial assistance can be provided using stipends and allowances. Regarding the financial support, participants stated:

> *For Students with disabilities, the university administration can make a system for providing special allowances.*

Similarly, another participant mentioned:

> *Financial assistance can be provided to them by giving them scholarships and stipends.*

Besides, the provision of financial assistance can be done by creating scope for university-based paid-job for SWDs. Concerning this a student participant mentioned:

> *University authorities can create scope, like university-based paid jobs solely for SWDs, and can assign them for those job posts. In this way, both financial and mental support can be given to them*

The aforementioned data revealed an exceptional suggestion for making a disability-friendly learning environment which is creating a scope of a paid job at university for strengthening SWDs' financial condition. Aside from the provision of financial support, emotional support has been emphasized in participants' (N=4, T=1) responses. Emotional support can be provided to SWDs by arranging counseling sessions by which their mental strength can be increased. With this, one of the participants responded by stating:

> *Counseling programs can be arranged to increase their mental strength which will be motivated them more.Counseling programs should be arranged and made those accessible (N)*

One teacher participant similarly mentioned:

> *To give SWDs emotional support counseling programs can be arranged by the university authority.*

The aforementioned data pointed out that final assistance and emotional support can be a drive for increasing the mental strength and motivation of SWDs. University authorities can take into consideration the provision of stipends, and allowances as well as arranging counseling sessions.

Policy Formation for creating disability- friendly environment

Many participants (N=23) stated by suggesting "*specific policy should be formulated at the central level of the university to make the learning environment inclusive and disability-friendly*". Following the statement, it can be said that policy formation can navigate the existing university's learning environment to an inclusive learning environment.

Similar sentiment has been expressed in teacher participants' statements:

> *The specific policy can be formulated as a step' for creating a disability-friendly learning environment.*

Although participants have mentioned making policy regarding a disability-friendly environment, the statements were somewhat ambiguous in the sense of in what context the policy formulation should be created.

Besides, legal actions should be taken for inappropriate behavior and attitude towards SWDs, if necessary. This particular suggestion was highlighted in one participant's (N) responses:

> *If SWDs' are mistreated or any students show misbehaving towards them, departments and institutions should take legal actions to punish those who show such sentiments or behavior.*

Scopes of Research

Research is a good option in cases of bridging knowledge gaps and transforming how experts operate. A few students without disabilities (N=12) also acknowledged this vital issue. They have stated that research on disabled students should be done to know about their issues and work for their enhancement. A student participant suggested,

> *More research needs to be done on disabled students.*

Teaching-learning system of the university can also be boosted by research as it can also provide more insights into successful instructional technologies and other institutional as well as reformational ideas to support them. This thought was reflected in one of the students without disabilities' responses as mentioned below,

> *Research should be done on them for their betterment regarding teaching-learning.*

These data show the importance of research on disabled students and how it can support them. As research works are also important at the university level, students without disabilities as well as academicians also can involve themselves with these research works. Furthermore, SWDs also can be part of the research works directly or indirectly as these also can help with the quality of the work.

In summary, the data revealed a significant number of suggestions for creating a disability-

friendly learning environment. The development of the existing infrastructure of departments and institutions has been emphasized in the participants' responses. Besides, importance has been given to the modification of teaching methods and assessment systems, the development of positive attitudes of students, peers, and teachers towards SWDs, and the provision of financial and emotional support to SWDs to motivate them. Although the importance of research work should have been emphasized more, it has been acknowledged by a few participants. This also is an important finding of the study which shows this area hasn't been explored much yet and a lot can be done here to support the SWDs and create a disability-friendly as well as the inclusive environment in the University of Dhaka.

Discussion and Recommendations

Infrastructural Accessibility

Regarding infrastructure accessibility, the majority of teacher participants (72.2%) agreed that SWDs should have access to the infrastructure of universities. On the other hand, responses from students without disabilities (57%) and teachers (50%) responded in disagreement in terms of the current accessibility to infrastructural amenities of the University of Dhaka. Also, it is evident from teachers' responses that nearly 34% of teachers were not sure whether the current infrastructural system is accessible or not, which is higher than the response choice of 'Disagree' (28%). From the reflective responses in survey questionnaires of this category, only 6 students without disabilities participants out of 103 and 3 teachers participants stated that the current infrastructural system of the university is accessible for SWDs which is less compared to the close-ended responses.

Availability of resources and facilities for SWDs

From the survey questionnaire responses, there was a noticeable percentage score regarding having the available resources and facilities for SWDs. Most of the respondents (Teachers 50%, Students without Disabilities 54%) responded to the response choice of 'Disagree' regarding this category. Moreover, nearly 80% of SWDs strongly disagreed that they don't get enough resources for their disabilities. These findings are also aligned with the qualitative finding of the 'Lack of appropriate teaching-learning material and resources' in which participants (N=8) highlighted that the lack of suitable and appropriate teaching material was the hindrance in some courses that causes bad performance of SWDs.

In contrast, regarding the use of necessary assistive devices in the classroom, most participants showed positive responses. Nearly 50% of students without disabilities and 83% of teachers showed agreement which revealed that SWDs get the scope of using their necessary devices for teaching-learning activities.

Adequate policy and strategies for SWDs

Regarding adequate policy and strategies for the SWDs in the university, participants have not

been clear with their responses in both sections of the survey questionnaires. From the Likert scale response, 50% of teachers showed that they are not sure whether there are enough policies and strategies for SWDs. This finding has also been reflected in qualitative analysis of 'Act and Policy', where participants (T=3) are now much acknowledged of the available policies for SWDs in the university. Further, nearly 40% responded to 'disagree' regarding this category which indicates that there are not sufficient policies and strategies for students with disabilities according to the teachers.

Providing additional time for SWDs in classroom teaching-learning

Teachers provide additional time for SWDs in understanding learning contents which has been expressed positively both in the findings of quantitative and qualitative analysis. For the findings of quantitative data, the results showed that 55% of students without disabilities agreed that course teachers have to pay more attention and time for SWDs and a total of 50% of teachers agreed that they spend extra time in and out of class for the learning of SWDs. Similarly, the qualitative finding of 'Adoption of Strategic Plan for Teaching SWDs' illustrated that most of the teachers (T=7) mentioned of provision of extra time to understand contents, further ask questions for the betterment of their comprehension, and explain the contents separately for SWDs.

Performing classroom activities

It has been revealed from quantitative findings that SWDs can do assignments, presentations, and practical work on their own. Nearly 60% of students without disabilities responded to an agreement with this. Also, there were positive responses from SWDs. All of the SWDs (100%) agreed regarding having no difficulties continuing classes and 95% of them have no difficulties in participating in exams. In contrast, the qualitative finding of 'Difficulties in performing classroom activities of SWDs' illustrated that SWDs face difficulties to perform practical work required for assessment, such as computer-related work and field trips and making reports on it that have been expressed by 6 participants of students without disabilities.

Attitude toward SWDs

Findings from quantitative data indicated that most of the participants, both students without disabilities and teachers have a positive attitude towards SWDs. Of students without disabilities respondents, 61% expressed having a positive attitude toward SWDs. Furthermore, the percentage score (95% and 77% respectively) regarding having a positive mindset for SWDs and sympathy for peers with disabilities strongly indicated having a positive attitude. In contrast, in the category of 'Attitude', most of the SWDs responded to disagreement in terms of being treated differently because of their disabilities.

Although teachers showed a positive attitude toward SWDs by providing special attention to

them which has been responded to by 57% of them. But the responses from the SWDs were contradictory. The quantitative data revealed that more than half of the participants (SWDs, 52%) disagreed with the statement 'Teachers are always kind to me' whereas 42% agreed with this. Overall, the findings illustrated contradictory responses regarding SWDs' receiving a positive attitude among the participants. In qualitative findings, both teachers and students without disabilities suggested creating a collaborative attitude of teachers, peers, and students without disabilities by arranging seminars, symposiums as well as other awareness-raising activities.

Inclusivity of Curriculum

The findings from the quantitative and qualitative data both demanded to know the suitability of the curriculum from different aspects (teaching strategies, assessment) according to the different departments and institutes of the participants. Relatively, fewer teachers acknowledged that their curriculum is disability-friendly while most of them didn't agree with this. The majority of the teachers (66.6%) and students without disabilities (65%) also opined about the conventional examination system is not suitable for the SWDs. Similarly, in the reflective section, some of the departments have adopted inclusive curriculum, and most of the teachers and students admitted not having a curriculum that is disability-friendly for the SWDs. Further about the contents and teaching strategies, the students without disabilities mentioned some of the specific subjects that they thought were difficult for the SWDs to have in their curriculums they stated in the reflective part. It was reflected in the quantitative part where all the SWDs disagreed with having no difficulty continuing classes and studies.

Exams and assessment systems are two vital components of the curriculum. Where almost 97% SWDs shared having difficulties with exams too and the majority of the students without disabilities and teachers also shared the SWDs facing difficulties with the conventional examination as well as the assessment system. The participants (Students without disabilities, 4; Teachers, 3) again supported this statement by suggesting the adoption of some accommodation regarding the traditional assessment system which would not only be helpful for VI students but for students having any type of disabilities. And for the teaching strategies which is also one of the crucial elements of the curriculum, a few teachers shared applying some of their strategic planning for teaching SWDs. For example, 50% of the teachers shared that they spend extra time in and out of class for the learning of disabled students. On the other hand, more than 55% of the students without disabilities think that course teachers don't have to pay more attention to students with disabilities.

Inclusivity of the University Environment

The environment of the university has been regarded as not disability-friendly by most of the participants. As the majority of the teachers (44.5%), and students without disabilities (50.5%)

disagreed with the university surroundings being disability-friendly. The SWDs also shared their satisfaction level based on their campus and residential halls. A total of 151.7% SWDs rated their satisfaction level negatively by disagreeing with the statement " I am satisfied with my campus/ residence hall experience as an SWD". they also expressed their uncertainty about their future life after completing graduation. The teachers and students without disabilities thus also mentioned some specific limitations being recommended various suggestions to support them to create a disability-friendly environment in the University of Dhaka.

Conclusion

The anticipated outcomes of this research are poised to enrich the existing knowledge repository on accessibility and inclusion of Students with Disabilities (SWDs) within the context of higher education in Bangladesh. Additionally, it aims to significantly contribute to strategic program development, particularly in shaping the University of Dhaka into an institution that prioritizes and accommodates individuals with disabilities. These findings hold the potential to complement the DU master plan by providing crucial support to university administrators and researchers in their efforts to elevate the university's status from a service-oriented institution to one that garners higher impact rankings. Furthermore, they offer an avenue for policymakers and university authorities to offer substantial support and collaboration in establishing an equitable disability service, thereby propelling the university towards achieving a QS Star Rating for its inclusiveness.

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