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Regulatory Framework of e-Learning Integration with Inclusive Higher Education in Ethiopia: The Case of Students with Disabilities

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List of Tables

Abstract

In Ethiopia, students with disabilities (SWDs) face various learning barriers, inequalities, and inequities. Overcoming SWDs' obstacles is a critical component of inclusive higher education strategies. Currently, e-Learning is preferred to ensure inclusive education and resolve the challenges of SWDs. Therefore, using a mixed research design, this research assessed the policies, legislation, and practices of Higher Education Institutions (HEIs) in Ethiopia concerning e-Learning and its integration into inclusive education for SWDs. Two survey questionnaires (largely consisting of Likert questions) were developed and distributed to 100 SWDs and 18 university instructors randomly selected from three purposively selected HEIs to collect quantitative data. Then, the survey data was analysed using SPSS (version 26) with descriptive statistics using percentages and count/frequency. The qualitative data was collected using document reviews and eight key informant interviews (KIIs) with purposefully selected stakeholders and officials of the three HEIs. The qualitative data was analysed by categorizing and tabulating it under different thematic areas. According to the findings, despite progress in ICT infrastructure, the development and implementation of e-Learning in Ethiopian HEIs are in their infancy and far from meeting the needs and interests of SWDs in the teaching-learning process. The major constraints include the resistance of many university lecturers to technology-assisted education; a lack of basic digital skills among lecturers and students; the absence of adequate e-Learning policies and legislation concerning inclusive education; and a lack of coordinated efforts from stakeholders to ensure institutional and national support to incorporate e-Learning into inclusive education. Consequently, in response to these constraints, we recommend: enacting comprehensive HEI policies and legislative frameworks that integrate e-Learning and inclusive education; providing adequate and periodic training to SWDs, faculty, and ICT personnel of HEIs; offering free or low-cost internet services and digital end devices to users; and conducting similar studies on e-Learning and inclusive education.

Keywords: Ethiopia, e-Learning, Students with Disabilities (SWDs), Inclusive Education, Higher Education Institutions (HEIs), Policy, and Legal Framework

Table of Contents

CHAPTER ONE. Project Description

1.1. Problem Statement

The government of Ethiopia has adopted international and national policies and a legal framework concerning persons with disabilities. Those laws and policies aimed at enabling vulnerable groups of society to have equal access to education. In this regard, the Ethiopian Constitution and other key policy documents related to education are cornerstones of the legal and policy frameworks for the education rights of all citizens (UNESCO, 2021). The important policy documents in this regard include the new 2023 Education and Training Policy (ETP); the Education Sector Development Program (EDSP); the 2012 Special Needs/Inclusive Education Strategy; the 2015–2020 Ethiopia's Education Sector Development Program V; and the 2012–2021 National Plan of Action for the Inclusion of Persons with Disabilities. The 2019 Higher Education Proclamation, as specific to higher education institutions (HEIs), stipulates preferential admission (H. Zhang *et al*., 2004) and inclusion for socially and historically disadvantaged groups.

Those policy documents have had a positive result in widening access to education for students with disabilities (SWDs). Here, SWDs are meant to mean those students who have long-term physical impairments. As a result, the number of people with disabilities (PWDs) enrolled in public universities is on the rise. For instance, the number of SWDs enrolled in public universities was 398 in 2009-10 and was expected to increase to 3,000 in 2019–2020 (Tamerat, 2019). In addition, the government has also been investing in ICT infrastructure in public universities. However, those enrolment and ICT infrastructure improvements have done little to eliminate or reduce barriers faced by SWDs in post-enrolment at public universities.

According to Tamerat (2019), several barriers still pose significant challenges for students with disabilities, such as "inaccessible physical environments, minimal technological assistive devices, the absence of support units, and poor awareness and preparation of staff". This impairment, assisted by various barriers, may hinder their full and effective participation in the education system. Likewise, Woldegiorgis (2021) provided that disabled students have been stigmatized and deprived of their fundamental service rights provided by various international and national policies and legal documents. He also showed that the persistence of post-enrolment barriers contributes to the low completion rate of SWDs in Ethiopian Higher Education (Woldegiorgis, 2021).

The goal of inclusive education policies is to lessen or eliminate obstacles that SWDs face in their educational careers. In Ethiopia, there is no inclusive higher education dedicated to higher education institutions (HEIs) alone. Rather, inclusivity in HEIs has been implemented through general inclusive education policies and strategies. Notwithstanding the implementation of such policies and strategies in higher education, so far, the conventional education system has offered no real solution for the barriers faced by SWDs in HEIs. In this regard, Woldegiorgis (2021) argued that enrolling more students with disabilities in higher education per se does not automatically lead to epistemic access and full participation in university life; rather, creating enabling learning conditions for SWDs in post-enrolment is crucial in ensuring equal access to education. As a result, the education system in many countries has been adopting technological solutions for barriers faced by SWDs in higher education learning environments.

The rapid advancement of technologies and globalization have provided new methods and perspectives for resolving or mitigating barriers faced by SWDs. In this sense, e-Learning has become the preferred approach to solve important social problems and overcoming inequality associated with SWDs (Besarion *et al*., 2019, p. 414). Barrett, (n.d) in particular emphasised the growing need for using e-Learning as a strategic tool for breaking down educational barriers faced by SWDs in Higher education institutions. Symbiosis usage of e-Learning with technologies such as information and multimedia have the potential to alter the traditional learning style and learning environment (Ja'ashan, 2020), which is effective in mitigating or resolving challenges faced by SWDs. More so, as Garrison (2017) claimed e-Learning, when combined with effective pedagogy and reflective teaching, will transform higher education.

Beside, overcoming various forms of barriers faced by SWDs is the main component of inclusive higher education strategies (Besarion *et al*, 2019). In terms of inclusive HEIs, e-Learning, though not *per se*, has a role in mitigating such barriers and particularly narrowing the existing access to education inequality (Besarion *et al*., 2019) caused by disabilities. Given this, integrating e-Learning into inclusive higher education can be seen as a new way of thinking in the education sector for resolving educational barriers faced by SWDs. To achieve its integration, however, the country's digital environment, national education policy, and strategy all have a significant impact on inclusivity and e-Learning (Ponomareva & Ekaterina, 2018). Besarion et al. (2019) also argued that national public policy exerts a certain influence on the development of e-Learning. On the contrary, in Ethiopia, except for the newly drafted e-Learning policy, there is no independent policy and strategy for the development of e-Learning or a higher inclusive education strategy (Tiruneh, 2019, p. 2). In addition, little attention is given to the

literature to assess educational policies in the context of inclusive education and e-Learning in higher institutions.

Coming to the institutional context, the general legal and regulatory framework that concerns education, in general, can shape and develop the institutional environment for e-Learning (Besarion et al., 2019). The general regulatory acts in the fields of education and social protection also develop and promote inclusive education. Nevertheless, Ethiopia still lacks a comprehensive educational law that is designed to govern education at all levels. Instead, several legislative provisions on education in general and inclusive education may be found throughout several statutes.

In this context, given the role of e-Learning and inclusive higher education in mitigating SWDs with their educational problems, this study looked at the policies, strategies, and practices of Ethiopian higher education institutions regarding the use of e-Learning in general and the integration of e-Learning with inclusive education. Further, the relevance of different legal texts to the institutional growth of e-Learning in higher education was evaluated.

1.2. Context and Rationale

The digital environment offers various choices for the education sector. Currently, it is difficult, if not impossible, to continue the education sector without the integration of the digital industry with the education sector. In support of this, Besarion *et al.* (2019, p. 424) provided that the digital environment offers greater freedom of choice in the teaching and learning process and influences the development of e-Learning, complementing it with new technologies and methods.

Given the role of e-Learning in facilitating the education system, most Ethiopian public higher institutions have invested in ICT infrastructure, and the ICT policy of the country also alludes to the same. Owing to this, quite a few Ethiopian public universities developed and implemented an e-Learning system (Beyene, 2020; Tamerat, 2019; Ayele & Biranie, 2018; Getachew, 2021; Sangheethaas *et al.*, 2016; and Anberbir, 2015) and adopted MOODLE as a Learning Management System (LMS) to support the teaching-learning process (Getachew, 2021, p. 35; Tegegne, 2014). Among the higher education institutions adopting e-Learning are Jimma University, Hawassa University, Bahirdar University, Addis Ababa University, Arbaminch University, Ambo University, Ethiopian Civil Service University, Haramaya University, Assosa

University, and the University of Gondar, to mention a few. However, its actual usage is still in its initial stage and thus far without success (Sangheethaa *et al.*, 2016, p. 1; Muhie, Y. *et al.,* 2020). In this regard, Taddese (2015) and Beyene (2006, 2010;) identified the lack of e-Learning policy and awareness about e-Learning by teaching and administrative staff as the main challenge in most universities for the implementation of e-Learning.

Both a review of the literature and empirical studies reveal that there has been limited study undertaken in Ethiopia that links e-Learning and inclusive higher education in public universities. To date, much research in Ethiopia has focused primarily on the development of e-Learning in public universities, and less attention has been given to the integration of inclusive e-Learning in Ethiopian public Universities. Hence, cognizant of the contribution of e-Learning to inclusive education in higher education, the objective of this study is to assess Ethiopia's policy, legal, and institutional framework on inclusive education in the context of e-Learning in public higher institutions. In this regard, public higher education institutions' policies, strategies, and practices in the use of e-Learning in general and the integration of e-Learning with inclusive education were assessed.

To achieve the research objectives, three public universities were chosen based on the criteria listed under the methodology part to examine the practices and challenges of e-Learning integration with inclusive education in Ethiopian HEIs.

1.3. Research Questions

- To what extent do inclusive education policies and strategic plans integrating e-Learning into inclusive higher education?
- What are the practices and challenges in the implementation of e-Learning with inclusive higher education in the context of SWDs in the selected public universities?
- How are SWDs affected by practical, legal, and policy issues associated with inclusive education in the context of e-Learning in higher education?

CHAPTER TWO. Literature Review and Theoretical Framework

Introduction

The educational system has always looked for the most innovative teaching techniques that continuously meet societal demands (Melese, 2019). Currently, the necessity of utilizing digital technologies in higher education is apparent as they increase knowledge transfer and communication. As a result, the digital environment has an impact on education development and has become the go-to strategy for removing academic obstacles for SWDs. This is because, in the age of digital learning, students will benefit from more flexibility in their learning while paying less for it.

Moreover, according to Meskhi, B., *et al* (2019), e-Learning is actively used in inclusive education aimed at educating people with disabilities. The successful integration of e-Learning into an inclusive education system will result in high-quality education and will alleviate or eliminate academic barriers faced by SWDs in higher education. However, integration would not be achieved without adequate backing from policy and legal frameworks that provide for e-Learning, inclusive education, and SWDs. This chapter, therefore, discussed major related literature on the development and practice of e-Learning and inclusive education in the context of SWDs.

2.1. Theoretical Framework

Understanding the notion of disability is important to fully contextualize disability in a particular study. Disability rights activists, academicians, and practitioners frame disability discussions on the two renowned but different models of theories: *medical* and *social* models of disability (Disabled World, 2022). The medical model of disability is part of the larger biomedical paradigm. The model views disability as solely a physical occurrence and the only way to improve one's situation is to cure the disability and return to *normal* life (Disabled World, 2022).

The social model of disability, on the other hand, contends disability as a complex accumulation of conditions, many of which are impacted by the social environment, rather than a single personal trait. This model suggests that social action as the appropriate method to solve the problem. Therefore, society has a shared responsibility to alter the environment so that people with disabilities can actively participate in all facets of social life (Disabled World, 2022). The social model approaches *impairment* and *disability* as two distinct notions.

Accordingly, impairment refers to the individual's physical, sensory, or cognitive impairment (for example, a visual or hearing impairment, experiencing bipolar disorder, or having a learning difficulty), whereas disability denotes to the social consequences of the impairment and implies the society as the cause of disabilities. Therefore, unlike impairment, disability is a social construct that can be altered or removed. The social model, sometimes referred to as *a barriers approach*, and offers *a route map* that identifies the barriers that prevent people with impairments from achieving their goals and tries to eliminate or reduce barriers by providing the necessary support to address the same.

Alongside the social model theory, the human rights approach is a developing theory that considers the rights of individuals with disabilities when developing policy and legal frameworks (Lawson & Beckett, 2020; Tod & Ellis, 2006: 280). Human rights advocates have made use of the social model theory to emphasize the rights of those with disabilities to equal access to opportunities in all domains and to support their needs. For instance, as Lawson and Beckett (2020) pointed out, the social model theory had an impact on the development of the Convention on the Rights of Persons with Disabilities (CRPD).

Human rights and social justice theory both support the right to education. The realization of all other human rights, according to both models, depends on ensuring access to education. This is because; access to education has the potential to empower citizens to appreciate their environment and would alert people with disabilities to the need for the government to create an enabling environment across all sectors, including education. Currently, there is a new approach adopted by UNESCO called *social contract for education.* This approach calls for reinventing education to address the common challenges (UNESCO, 2021). The social contract for education approach aims to bring people together around common goals and provide them with the tools and creativity necessary to create peaceful, sustainable futures for everyone based on social, economic, and environmental justice. It also emphasizes the necessity of putting an end to exclusion, marginalization, and prejudice. To do this, however, the new social contract for education approach needs to be strongly grounded in a commitment to human rights (UNESCO, 2021).

Access to education is a major component of the social contract for education approach, which requires the government to act through intervention mechanisms to ensure access to quality education for all, irrespective of their background. Here, the government is responsible for acting as the agent of society to create an enabling environment for all citizens in all sectors,

including education. To put it another way, the government is responsible for acting as society's agent to create a learning environment for SWDs by incorporating inclusion methods into its institutional, legal, and policy framework to ensure SWDs' access to educational opportunities.

In conclusion, the above theoretical framework was the basis for the assessment of Ethiopian higher education policy, legal, and institutional frameworks for the integration of e-Learning with inclusive higher education to promote SWDs learning experiences.

2.2. Contextualizing e-Learning

The term e-Learning is a buzzword and has no comprehensive definition. Different scholars and educational organizations approached the notion of e-learning in various ways. For instance, UNESCO defined e-Learning as the process of teaching and learning using the internet and multimedia tools (UNESCO, 2017). Various authors also approach the notion of e-Learning in a way that fits their area of study. For instance, Li, Lau, and Dharmendra (2009) and Koohang and Harman (2005), alludes that the term e-Learning encompasses "the delivery of learning, training, and all activities relevant to instructing, teaching, and learning through various electronic media." Likewise, Olson, Codde, and Tarkleson (2011) defined e-Learning broadly as a term that encompasses a wide range of educational methods, technological platforms, and administrative processes.

Besides, to have a common understanding about e-Learning, studies conducted in e-Learning categorize the notion of e-Learning in three ways. The categories include delivery system-oriented, communication-oriented, and educational paradigm-oriented. The first category of a *delivery system-oriented* approached e-Learning as the accessibility of instructional resources. For instance, Li *et al.* (2009) defined e-Learning as *the delivery of a learning, training, or education program electronically*. The second category is called *communication oriented*. Under this category, e-Learning is defined as a tool for collaboration, interaction, and communication in the educational setting. Among others, González-Videgarays' (2007) *communication-oriented* definition approached e-Learning as *learning based on information and communication technologies with pedagogical interaction between students and the content, students, and instructors, or among students through the web*.

Educational-paradigm-oriented is the third category of e-Learning definition. e-Learning definition in this category is the most recent category of e-Learning definition and approaches e-

Learning as either a brand-new method of learning or a development of an already-existing paradigm. From this category, Aldrichs' (2005) defined e-Learning as *a broad combination of processes, content, and infrastructure to use computers and networks to scale and/or improve one or more significant parts of a learning value chain, including management and delivery*.

In general, the aforesaid categories of e-Learning definitions comprised elements including using information technologies for delivery, communication, and improving parts of a learning value, i.e., management, to mention a few. Accordingly, in this study, each category's foundational components are incorporated into the analysis of e-Learning. Thus, in the context of this study, e-Learning refers to learning that takes place in an environment that supports learning using information and communication technologies. Furthermore, integration of e-Learning in higher inclusive education means using e-Learning and technology tools such as multimedia, i.e., attractive visuals, audio, video, simulations, and other multimedia elements that reduce barriers faced by SWDs. Here, the integration of e-Learning with inclusive education is achieved by transforming the traditional teaching-learning approach by supporting the educational environment using technological tools.

Besides, the fundamental definition of e-Learning integration in inclusive higher education in the context of SWDs embraces and denotes the way that e-Learning or educational technologies (EdTech tools) are used in the teaching and learning process. This includes utilizing and incorporating educational technologies into curriculum development, delivery methods, and instructional and assessment strategies that engage SWDs with a meaningful, relevant, and accessible learning experience. At this juncture, the importance of e-Learning includes creating an enabling environment for students to pursue their learning by availing the instructional material in a variety of media. It is in this context that, access to instructional resources, i.e., instructional, learning, and research materials in digital media (UNESCO, 2017), in a way that suits the demands of SWDs, is considered the core of inclusive education.

2.3. Disability and Inclusive Higher Education

Access to education is vital for economic, social, and political development (Tiruneh, 2019). For persons with disabilities, education is significant to overcoming social exclusion as it provides opportunities to reduce disadvantages and removes barriers to broader social inclusion. In contrast, exclusion from education worsens the vulnerability and social exclusion of people with disabilities.

In developing countries, including Ethiopia, access to education for persons with disabilities is limited. Accessibility of educational opportunity is basically determined based on the enrolment of students into the education sector. Given this, in Ethiopia, there is a positive trend in SWD enrolment at all levels of education. Here, it is important to note that enrolment rates may fluctuate from various levels of education. For instance, the student enrolment rate at the primary and secondary educational levels is very slow (MoE, 2020). According to MoE (2020), the total number of SWDs enrolled in school in the 2019–20 academic years was 10,236 in pre-primary school, 323,748 in primary school, and 37,351 in secondary school. The 2020–21 academic years showed a significant reduction as compared with the previous year in enrolment of SWDs in the primary (233,310) and secondary (30,935); however, it showed an increment in pre-primary (20,523). Yet, compared with the total population, the aforesaid data flaunted the low level of student enrolment at the primary and secondary levels.

Likewise, although there is a lack of comprehensive statistics regarding the enrolment rate of SWDs in higher education, only 398 SWDs attended public universities in the academic year 2009–2010 (Tamerat, 2019). In 2015, the figure increased to over 1000, and the estimate for the 2019–20 academic years was about 3,000 SWDs (Tamerat, 2019). When compared to the total population of persons with disabilities in the country, which accounts for 805,000, the enrolment rate of persons with disabilities in public universities is extremely low.

Regarding the distribution of enrolment in public universities, few public universities accept SWDs. As discussed in Chapter One, among the public universities in Ethiopia, Addis Abeba University, the University of Gondar, Bahir Dar University, Hawassa University, and Jimma University have the highest enrolment of SWDs. SWD's enrolment rate in those universities shows positive progress. Notwithstanding a promising increase in the participation of SWDs in the Ethiopian HEIs, it appears that this opportunity has not resulted in higher achievement for the students thus far. This is primarily due to the limited ability of the universities to provide adequate and supportive environments for SWDs. This, in effect, contributes to a higher rate of dropouts, academic failure, and lower academic performance among SWDs compared to students without disabilities.

Moreover, studies also identified various barriers that SWDs encounter during the teaching and learning processes at higher educational institutions. For instance, Tamerat (2019), Tiruneh (2019), Zelelew (2016), and Beyene et al. (2023) identified several barriers affecting SWDs' academic success in higher education. These barriers include inaccessible physical

environments, a lack of technological assistive devices, the absence of support units, poor awareness and preparation of staff, and a lack of clear and enabling inclusive policies.

To mitigate the learning barriers, adopting an inclusive higher education policy is critical to foster the academic and overall developmental success of enrolled SWDs. Inclusivity in higher education connotes the rights of SWDs to education and the need to reduce the barriers that hinder their learning and participation in the educational environment. Recently, there has been wide recognition of inclusive education by countries as a means of ensuring the right to education for all people (Haug, 2016). Many African nations, including Kenya, Botswana, and South Africa, have inclusive education policies. The main goal of those policies is to remove the barriers that prevent SWDs from fully participating in learning and social integration in higher education. The Ethiopian educational policies also emphasize the need to consider the needs of SWDs in educational settings (Zelelew, 2016). Conversely, Tiruneh (2019, p. 130) by referring the general Ethiopian inclusive education strategy, which governs all levels of education, concluded that the country inclusive education strategy appears to imply a less responsive learning environment for the inclusive higher education system.

Generally, the governing idea of inclusive higher education is creating a school environment where the infrastructure, curricula, educational resources, and other facilities accommodate the needs of all students, particularly SWDs (Wilson, 2017; as cited by Beyene et al., 2020).

2.4. e-Learning, SWDs, and Inclusive Higher Education in Ethiopia

Governments face a serious challenge in providing equal learning opportunities to all students, regardless of their background (disability, age, gender, etc.). Nevertheless, governments now have new ways to create possibilities for everyone to access education thanks to the advent and development of ICT. Over the last two decades, ICT has grown in popularity in higher educational institutions (Bong & Chen, 2021). In Ethiopia, the Ministry of Education (MoE) has adopted a strategic roadmap to utilize ICT to enhance the standard and delivery of education. Additionally, the strategy acknowledges the way ICT expands Ethiopians' access to education. To achieve this Anberber (2015) suggested promoting ICT literacy in education and utilize ICT to structure the delivery of training and instruction at all levels as the most efficient strategy.

Ergado (2019); Alemu (2017); and Ferede et al. (2021, 2022) appreciated the current movement to integrate ICT into the teaching and learning practices in Ethiopian higher education. Particularly, Ergado (2019) emphasized the role of ICT in higher education in assisting students in the learning process and accommodating a variety of learning styles. This helps students to maintain their highest level of proficiency in higher education teaching and learning. Similarly, Bong & Chen (2021) confirmed that the use and implementation of digital learning materials improve the traditional classroom setting and enhance the effectiveness of the learning environment. By providing more digital learning options, the approach to e-Learning is transforming the face-to-face learning practice, which Ethiopian HEIs predominantly employ, into a more adaptable and productive mode of learning. Kanwal & Rehman (2017) identified the implementation of e-Learning in Ethiopia, like in many developing countries, is emerging and underutilized.

In Ethiopia, as the National ICT Policy so demands, most PHEIs have invested heavily in developing ICT infrastructure; however, quite a few public universities have developed and implemented genuine e-Learning into their teaching-learning practices (Beyene, 2020; Tamerat, 2019; Ayele & Biranie, 2018; Getachew, 2021; Sangheethaas *et al.*, 2016; and Anberbir, 2015). According to a recent study, only a few universities have adopted MOODLE as a learning management system (LMS) to support the teaching-learning process (Getachew, 2021; & Tegegne, 2014). In fact, most HEIs utilize certain digital resources in the teaching-learning process; yet actual usage or implementation of e-Learning tools is still in its initial stage and has thus far been unsuccessful (Sangeetha et al., 2016, p. 1; & Muhie, Y. et al., 2020). In this regard, lack of content due to financial restrictions, teacher resistance to producing content, cultural aspects of teachers' or students' use of ICT, complex LMS designs, low levels of digital literacy, students' underprivileged backgrounds, and the absence of local or national policy or guidelines that streamline content production and management are some of the barriers contributes for the low level of e-Learning implementation (Ferede et al., 2021, 2022; & Ergado, 2019).

With the advancement of digital technologies that assist education, the introduction of e-Learning has undoubtedly improved the teaching-learning environment (Berrocoso et al, 2020). Given its importance, the idea of e-Learning has been one of the main research areas in educational technology over the past ten years. Berrocoso et al., (2020) also illustrated interactive learning environments, teaching-learning strategies, and higher education as the primary e-Learning research topics. In this context, Besarion et al. (2019) and Beyene et al.

(2020) emphasized the significance of adopting digital technologies in the higher education system.

As has been discussed earlier, though the enrolment of SWDs in higher education is increasing, they face various academic challenges due to different factors. Hence, inclusion strategies that foster and suit their context have become a sine qua non to improve their learning experience. In this regard, Bjeki et al. (2014) asserted that ensuring the inclusion of SWDs in the classroom can be facilitated by e-Learning technology. He then concluded that with the technological advancement and development of multimedia tools, SWDs are currently able to perform tasks that were previously very difficult or impossible for them (Bjeki et al., 2014). Moreover, Besarion et al., (2019) also suggested that higher educational institutions are believed to have better capacity and institutional strategies to improve the teaching-learning process by using e-Learning to reduce or eliminate the academic barriers of SWDs.

Beside, inclusive higher education upholds the adoption of e-Learning that offers alternative digital media that foster SWDs' among learners. With this strategy, the teaching and learning process for SWDs calls for the use of e-Learning tools to incorporate digital media, which strengthens inclusive higher education. As Meskhi, B., et al. (2019) observed, e-Learning gives SWDs access to a one-of-a-kind resource or pathway that reduces their economic dependence and isolation in the long run. Using personal stories of students with disabilities, Trinity Ability Co-op, (2020) alluded that e-Learning provides various benefits, such as the capacity to pause lectures and review them later; the availability of all instructional resources in advance; the flexibility of schedules, which allows learners to study on their time; and reducing the need to travel to campus or sit in lecture halls, which can be stressful for some students. This in turn, makes e-Learning as a necessity to reduce difficulties and barriers to SWDs' academic performance.

Gierdowski and Galanek (2020) also clearly stated that compared to face-to-face instruction, various aspects of e-Learning benefit SWDs. However, as Bjeki et al., (2014) claimed although technological support has increased, there has been little improvement in the way e-Learning (EdTech) is integrated into instructional strategies or tailored to the needs of SWDs. This is also true in Ethiopian higher educational institutions. Here it must be noted that, implementing inclusive e-Learning necessitates a high level of readiness in terms of physical infrastructure, technical know-how, psychological motivation, policy frameworks, cultural transformation, and management commitment.

In Ethiopia, there is a growing trend toward enrolling SWDs in higher education. This necessitates the need to provide for the policy, legal, and institutional framework of higher education to be in line with inclusive education. Given this, the government issued the 2009 Special Needs Education Program Strategy, which applied to SWDs. The policy document dictates that all regular and higher education institutions implement inclusive education as a mandatory approach to the teaching and learning of SWDs. However, its implementation has not been effective so far. Truneh (2019) also indicated that let alone in higher education, inclusive education policies in Ethiopia, which apply to the education section at all levels, do not accommodate the needs and demands of students with disabilities. Therefore, this calls for the need to adopt policy, legal, and institutional framework of e-Learning as an approach to accommodate the needs and interests of SWDs.

2.5. Policy, Legal, and Institutional Framework of e-Learning for Inclusive Higher Education

Major international human rights treaties require State parties to ensure access to full and equal enjoyment of all human rights and fundamental freedoms for all persons, including persons with disabilities (Abuya, 2021). One of the main human rights in this regard is the right to education. The right to equal education opportunities has been proclaimed under Article 28 of the 1948 Universal Declaration of Human Rights (UDHR); Article 25 of the Convention on the Rights of Persons with Disabilities (CRPD); Article 7 of the International Covenant on Civil and Political Rights (ICCPR); Article 3 of the International Covenant on Economic, Social, and Cultural Rights (ICESCR); Article 5 of the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW); and Article 17 (1) of the African Charter on Human and People's Rights (African Charter).

These international human rights instruments guaranteed not only the right of individuals' enrolment in to school but also the right to a supportive learning environment after enrolment. This calls for educational institutions to offer all necessary resources so that SWDs can engage in learning without interruption like other students (Abuya, 2021). As a result, educational institutions must put together all available resources to reduce or avoid the physical constraints that limit their ability to succeed in their education.

Ethiopia has signed various international human rights instruments that guarantee the right to education. The country is also a member of other specific international treaties aiming to

protect the rights of persons with disabilities, namely the 1993 United Nations Standard Rules, the 1994 Salamanca Convention, and the Convention on the Rights of Persons with Disability. To this end, the right to inclusive education as provided under Article 24 of the CRPD obliges Ethiopia to ensure an inclusive education system for PWDs at all educational levels. This provision also states that countries are obliged to provide support within the general education system to facilitate effective education. Besides, the Convention requires countries to provide individualized support measures in the teaching-learning environment that maximize academic and social development, consistent with the goal of full inclusion.

The FDRE Constitution also recognizes the right of people with disabilities to participate in all spheres of life. Firstly, per Articles 13 (2) and 9 (4) of the Constitution, all international agreements ratified by Ethiopia, particularly international human rights instruments, are regarded as integral parts of the law of the land. Thus, international conventions are constitutionally recognized as part of the country's legislation. In addition to this, as it may be understood from the cumulative reading of Articles 25 and 41 of the Constitution, PWDs have the right to have equal access to publicly funded social services and to get assistance that meets their needs. In particular, Article 41(5) of the Constitution clearly states that it is the constitutional responsibility of the government to allocate available resources to assist persons with disabilities.

At this juncture, it is worth noting that the Constitution provides a very general legal framework. And the details must be specified in other subsidiary legislative and policy instruments. This implies that the need to have specific subsidiary policies, strategies, and legislations for realizing inclusive education that meets the needs of PWDs. Consistent with this need, the available policy instruments of the country include the new 2023 Education and Training Policy (ETP); the Education Sector Development Program (EDSP); the 2012 Special Needs/ Inclusive Education Strategy (SNIES); the 2015-2020 Education Sector Development Program V (ESDP-v); and the 2012-2021 National Plan of Action for the Inclusion of Persons with Disabilities (NPAIPWD). The relevant legislative framework for inclusive higher education in Ethiopia is also provided in the Higher Education Proclamation No. 1152/2019.

There are also various studies (Mitiku et al., 2014; Side, 2018, 2021; Jimma, 2019; Kabtyimer, 2020; Pather et al., 2021; and Abuya, 2021) conducted on inclusive education policies and practices in Ethiopia. In addition, Truneh (2019) also conducted a study that excavates the policy and strategy of inclusive higher education in Ethiopia, and his findings

flaunted that Ethiopia lacks a specific inclusive higher education strategy that focuses only on inclusive higher education and the absence of a specific learning model that adheres to SWDs. Aside this, there is not enough literature available with a special focus on inclusive higher education and its practices.

Despite the trends towards e-Learning development growing in Ethiopia, there has been no literature that focuses on the integration of e-Learning with inclusive higher education. In fact, there are few studies conducted with a focus on the policy, regulatory framework, and technological infrastructure readiness for the wider implementation of e-Learning initiatives within the Ethiopian context. Yet, to our knowledge, there is no study so far conducted pertinent to the Ethiopian context that seeks to determine how far e-Learning is given priority by policymakers or how far the government is committed to expanding e-learning to solve or mitigate the major problems that SWDs in higher education is facing.

CHAPTER THREE. Research Methodology

1.1. Research design

The study adopted a mixed-methods research approach, using both quantitative and qualitative methods of data collection and analysis. The need to reach out to numerous respondents necessitates an inclination toward a quantitative approach and the use of a survey questionnaire as a tool for data collection. To this end, the survey questionnaire was prepared mainly to generate more quantitative data (expressed in numerical form) than qualitative data (expressed in the form of verbal descriptions rather than numbers).

To triangulate and supplement the results from the quantitative tools, the study also used the qualitative data collection tools of key informant interviews (KII) and document reviews as data collection tools.

1.1.1. Target population, sample design, and sample size determination

This study aimed to assess the integration of e-Learning and inclusive education at Ethiopian HEIs from the perspective of SWDs. Accordingly, it had two main populations: HEIs and SWDs.

Currently, Ethiopia has 42 Public HEIs. For this small-scale research, it is impossible to assess the situation in all these institutions; hence, sampling from this population was in order. To determine the sample size we used purposive sampling. The main criterion considered was the level of ICT infrastructure the institutions had to implement e-Learning. The most recent study on the area (Getachew, 2021) indicates that 10 HEIs are implementing the MOODLE learning management system in Ethiopia. From these, three of them were selected considering the relatively high number of SWDs, partner institutions, convenience, time, and budget. These are the University of Gondar, Addis Ababa University, and Bahir Dar University.

The other key population of the study was SWDs in the selected HEIs. This study used the term *SWDs* to refer to students who have learning difficulties due to impairments such as visual, hearing, physical, and other related disabilities. The number of SWDs in the three selected HEIs is 574, which is the total population. When we disaggregated this population size by the selected HEIs, the University of Gondar had 301, Addis Ababa University had 197, and Bahir

Dar University had 76. To determine the sample size for this population, the study used Taro Yamane's formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where, N = total population

n = sample size

e = sample error

Using this formula, the total sample size for the total population is calculated based on a 90% confidence interval and a 10% margin of error. The homogeneity of the population justifies the selected margin of error. Based on this, the total sample size for the total population (which was 574) is 85. Aside from the cost and time implications, the researchers believe that this number is representative of the population due to its homogeneity.

Then, the total sample size was distributed to the selected HEIs based on proportional allocation. Accordingly, the University of Gondar had a sample size of 45, while Addis Ababa and Bahir Dar University had 29 and 11, respectively. However, to increase reliability we added 14 more sample respondents, and this extra number was allocated proportionally to the three selected HEIs. In the end, the University of Gondar had 54 respondents (8 more added), Addis Ababa University had 34 (5 more added), and Bahir Dar University had 12 (1 more added). This adjustment brought the total number of respondent-SWDs to 100.

Finally, the actual respondent SWDs at each selected HEI were selected based on a simple random sampling technique. To this end, the research team collected the full list of SWDs from the PWDs Directorate Office of each HEI, which served as a sample frame. The chosen sampling method is justified by the homogeneity of the population and the goal of the study which is to look at e-learning from the perspective of SWDs as a whole, not based on specific things like types of disabilities.

Instructors at the selected HEIs were also respondents to this study. However, we did not go through a rigorous sampling procedure to select the respondent instructors, as their responses were needed to triangulate the responses from SWDs. Accordingly; we selected 18

instructors, six at each selected HEI, using purposive sampling. Instructors with previous practical experience or exposure to e-Learning and teaching in departments with a high number of SWDs at each HEI were the main target of the selection.

1.2. Methods of data collection

1.2.1. Survey questionnaire

The need to reach out to more SWDs and instructors necessitates an inclination toward the quantitative approach and the use of a questionnaire as a tool for data collection. In this regard, the survey questionnaire was prepared mainly to generate more quantitative data (expressed in numerical form) than qualitative data (expressed in the form of verbal descriptions rather than numbers).

I. Questionnaire design

Two separate surveys were designed, one for the 100 SWD respondents and the other for the 18 HEI instructors. Both had three parts. Part one consisted of demographic-related and general information questions for the respondents. The second part of the questionnaire consisted of scale-type questions organized under four themes. The respondents were given four alternatives: *strongly disagree*, *disagree, agree*, and *strongly disagree*. Initially, there was a fifth alternative: *no opinion*. However, while pilot-testing the questionnaire, it was found that the option was not selected as a response, as the questions were framed after scrutiny of the respondents' state of knowledge about the subject matter. Thus, the option *no opinion* was left out of the final survey questionnaire. The third part of the questionnaire consisted of two open-ended questions.

II. Survey administration and response rate

When it comes to the administration of the survey questionnaire, first, the questionnaire was translated from English to Amharic, which is the main language of the respondents. The survey was conducted on a face-to-face basis. It was conducted by nine fully trained data collectors, and the collection was supervised by the principal investigator and two co-investigators. Then, the properly filled-out questionnaires were submitted to the supervisory investigator.

The response rate was high. From the 100 questionnaires distributed to the respondent SWDs, only four were left uncollected from respondents from the University of Gondar. Thus, 96 were properly filled and collected. This puts the response rate at 96%. All 18 of the questionnaires distributed to instructors were fully collected. This high response rate is the cumulative result of the employed sampling method, which enabled us to achieve a larger sample size compared to the population and minimize the sampling error. The fact that the data was collected by trained data collectors under the close supervision of the investigators also minimized the number of uncollected questionnaires and questionnaires that would have been excluded from analysis due to mismanagement of data filling.

III. Quality assurance

To ensure the quality of the data collected from the survey, the researchers employed the following data quality assurance methods:

- There was a pilot test of the survey questionnaire, which was first tested with selected SWDs and instructors.
- The questionnaire was translated into the main language of the respondents.
- The data was collected by trained data collectors, and the administration was closely supervised by the investigators.
- Sufficient time was allocated for data collection.
- A statistician was hired to do the data entry and quantitative analysis of the survey data.

IV. Ethical considerations

The research was conducted in adherence to the ethical principles of research. First, the researchers secured ethical clearance from the Institutional Ethical Review Board of the University of Gondar. Second, the name of the respondent was not requested to avoid an exact identification of the respondents. Third, the data was collected with the full and informed consent of the respondents. As such, the data collectors' training was inclusive of the need to advance assurance of the respondents' willingness and the other ethical aspects of data collection. Fourth, to continue ensuring data confidentiality, the collected data is placed in a secured location. The hard copy is locked in a file cabinet only accessible to the investigators, while the soft copy is stored on a hard drive only accessible to the PI.

V. Respondents' profile

The respondent's SWD profile is presented below in terms of percentage. The respondent is presented based on selected criteria, including gender, category of disability, residential background, and university affiliation.

Table 1

Student with Disabilities (SWDs) Respondents' Profiles

Gender		Category of Disability				Residential Background		University Affiliation		
Male	Female	Visual	Physical	Hearing	Other	Rural	Urban	Gondar	Addis Ababa	Bahir Dar
62.5%	37.5%	57.3%	29.9%	18.8%	2.1%	59.4%	40.6%	51%	35.4%	13.5%

3.1.2. Key informant interview (KII)

The researchers conducted in-depth interviews with purposefully selected individuals based on the position they held and their expertise on the subject matter under study. Accordingly, interviews were conducted with one official from the Ethiopian Ministry of Education (team leader for the national e-Learning policy developing teams) and one official from the PWDs and ICT Directorates of the three selected HEIs (one at each) to get a glimpse of the ICT infrastructure status of the HEIs to implement e-Learning. Two scholars in the field of inclusive education and e-Learning were interviewed to better understand the problems involved and gather expert input for proper policy recommendations.

In conducting the KIIs, the point of saturation, where researchers become empirically confident that no new information is discovered and additional data is simply redundant, was taken into consideration. Contextualized guiding interview questions were prepared in advance, and the interview was conducted by the investigators on a face-to-face basis.

1.2.2. Legal research tools

Since the study had a doctrinal research aspect, we engaged in desktop research of the law and its doctrinal interpretations. Accordingly, we collected and analyzed a body of

education-related statutes in Ethiopia, together with relevant policy and strategic documents such as national educational policy documents.

1.2.3. Document review

To draw important lessons that can be taken to improve Ethiopia's education policy and laws, as well as shed light on the conceptual framework of inclusive education and e-Learning, we reviewed relevant documents. Accordingly, relevant literature in the field and institutional reports were reviewed. Based on synthesis, the acquired information was merged into comprehensive results and subsequently used to generate recommendations for the use of e-Learning for SWDs in Ethiopia's HEIs.

1.3. Methods of data analysis

Equally, the data collection tools and the data analysis followed qualitative and quantitative approaches. So, considering the different aspects of the problem, the data collected from the qualitative data collection tools (KII, document review) and the open-ended questions on the survey questionnaire were put into different thematic areas or units of analysis. Then, based on the analyses, a conclusion was drawn.

For the quantitative data collected from the survey, the analysis was made with the assistance of SPSS (version 26), and the data were analysed with descriptive statistics, using percentages and count/frequency. The quantitative data was analysed by a statistician recruited for this purpose.

CHAPTER FOUR. Research Results and Discussions

This chapter presents an in-depth analysis of the collected data and an interpretation of the key findings. The survey results are discussed in the first section, which focuses on the respondents' opinions on the utilization and implementation of e-Learning (EdTech tools) in the teaching and learning process as revealed by the survey results. Second, the views of the key Interviewee about the implementation of inclusive e-Learning strategies and policies and its practice in selected institutions. Then we made a general observation and discussed about how e-Learning fits into educational strategies and policies. For this part, data obtained from secondary sources and different policies and legal documents are exploited.

4.1. Results and Discussion

4.1.1. Analysis of quantitative data

This section examines the use and implementation of e-Learning (EdTech tools) in inclusive higher education from the viewpoint of SWDs and instructors who have delivered different courses to SWDs. As stated in Chapter 3, the results shown below are mainly based on data collected from selected SWDs (a sample size of 100 SWDs) from three universities, which were the study areas of this research.

Four different thematic areas were used to organize the survey questions for SWDs. These were: SWDs' awareness of e-Learning; SWDs' capability to use e-Learning (EdTech tools); development of e-Learning in the study areas; and e-Learning integration with inclusive higher education in the chosen institutions.

Survey questionnaires were distributed to the respondents to test their perceptions of the practice of implementing inclusive e-Learning. All the questionnaires were distributed to the respondents in Amharic (the common language for respondents), and the survey data was collected with the close assistance of trained data collectors who filled out the survey data under the supervision of investigators or researchers. The researchers then translated both the questionnaires and the responses into English for data entry purposes.

At this point, it is worth noting that, unless otherwise explicitly stated, in the analysis or discussion of results under this section, the researchers may use the term *agreed* to refer to the

responses of both *strongly agree* and *agree*, while *disagreed* refers to the responses of both *strongly disagree* and *disagree*.

I. SWDs Awareness of e-Learning

Students' readiness to use e-Learning tools is important for the implementation of e-Learning in higher education (Rasouli et al., 2015; & Yalley, 2022). Students' readiness is qualified by their awareness and capacity to use e-Learning technologies in the teaching and learning process. Equally, application or integration of e-Learning for inclusive education is influenced by students' awareness, and vice versa. In addition, their awareness or understanding is mainly reflected in their perception of e-Learning and their capacity or ability to use EdTech tools in the teaching and learning process. To this end, for the integration to be successful, students must have a sufficient understanding of the importance of using technological tools (EdTech) in the teaching and learning process. Therefore, the first theme of this research was developed to gauge respondents' awareness of e-Learning.

The table below shows the results of the data collected from SWDs in three public universities in the country, namely, UoG, AAU, and BDU, on their awareness and perception of e-Learning or technological tools for education.

Table 2

Student with Disabilities Awareness of e-Learning

Statements/Questions	Strongly agree	Agree	Disagree	Strongly disagree
a. You are aware of how to use EdTech tools (i.e., PowerPoint, Google Slide, Google Docs, and social media platforms such as YouTube, Facebook, Twitter, Telegram, and WhatsApp, etc.) for educational purposes.	37.5% (36)	42.7% (41)	12.5% (12)	7.3% (7)
b. You are aware of the possibility of furthering your education asynchronously.	17.7% (17)	40.6% (39)	38.5% (37)	3.1% (3)

c. You have sufficient knowledge to obtain course materials and supporting books from the internet.	19.8% (19)	49% (47)	19.8% (19)	11.5% (11)

Note. Descriptive summaries of SWDs' level of awareness about e-Learning [the value in parenthesis represents frequency]

The first set of questions in the table above is designed to determine whether SWDs are aware of the benefits of using e-Learning (EdTech tools) and social media platforms for educational purposes. The questions ask if respondents understand how to use these tools and platforms. The result shows a positive response confirming knowledge of SWDs, as more than 80.2% of respondents agreed with the statement, while only 19% of the respondents disagreed.

The second statement is concerned with asynchronous learning. Asynchronous learning is one form of e-Learning that allows students to participate in learning flexibly. Asynchronous learning offers flexibility for SWDs to interact with learning and instructional materials in various ways without the need to physically attend a class. This is the very benefit of educational technology in mitigating academic barriers for SWDs. In this regard, the data shows that 67% of the respondents are aware of such a manner of learning, while the rest 33% are not aware about asynchronous learning.

Thirdly, having sufficient awareness of accessing instructional materials and learning materials like text resources (PDF books and articles) online is another basic component of e-Learning. For the third statement, "You have sufficient knowledge of obtaining course materials and supporting books from the internet," more than 69% of the respondents agreed to it, while 31% of them disagreed. Furthermore, 49% (47) of respondents assured their awareness of their ability to access course materials and supporting books via the Internet. Lastly, 45.8% (44) of respondents understand how to learn by incorporating educational technologies and tools (audio, video, and so on) into the teaching and learning process.

In sum, since the statements in this theme are framed positively and the respondents gave positive affirmation to the statements, we can deduce that SWDs have adequate awareness of the utilization of e-Learning for the teaching and learning process.

II. SWDs' Ability to Use Educational Technology Tools

Following the assessment of the awareness of SWDs about e-Learning, this sub-section focuses on the second theme, which is assessing the capacity of SWDs to use e-Learning tools. This is important because the implementation and use of e-Learning (EdTech tools) in the teaching and learning process depends on the actual capacity and ability of SWDs to use such tools. To this end, as presented in the table below, five important statements were presented to SWDs, whose responses are shown in percentage.

Table 3

Student with Disabilities (SWDs) Abilities to use e-Learning Tools (EdTech tools)

Statements/Questions	Strongly Agree	Agree	Disagree	Strongly Disagree
a. You can use ICT tools like PowerPoint, Google Slides, Google Docs, audio, and video for your education (exams, assignments).	16.7% (16)	51% (49)	25% (24)	7.3% (7)
b. I can augment my education asynchronously (audio, video).	20.8% (20)	45.8% (44)	26% (25)	7.3% (7)
c. You exchange information with teachers and classmates via email, Telegram, WhatsApp Group, and other social media applications.	29.2% (28)	44.8% (43)	13.5% (13)	10.4% (10)
d. You obtain essential educational information by downloading it from apps such as YouTube, Google, Facebook, Twitter, Telegram, or WhatsApp Groups.	26% (25)	49% (47)	14.6% (14)	10.4% (10)

e. You regularly use the University's digital library (e-Library or digital library).	12.5% (12)	33.3% (32)	24% (23)	29.2% (28)

Note. Descriptive summaries of SWDs' ability to use educational technology tools [the value in parenthesis represents frequency]

To begin with the first statement, the aim was to identify whether respondents can use or have used ICT tools for educational purposes (such as submitting assignments, exams, projects, etc.). Accordingly, 67% of the respondents affirmed that they could use tools like PowerPoint, Google Slides, Google Docs, audio, and video for educational purposes. In other words, of the 96 respondents (SWDs), 65 agreed that they can use e-Learning tools. Likewise, for the second statement, "I can augment my education asynchronously," the majority of respondents (66.6%) agreed that they have the capacity, skill, or knowledge to assist their learning using asynchronous tools (like audio, video, and text resources).

As to whether SWDs can use different media tools for educational communication, as stated in the third statement, 74% of the respondents affirmed that they can exchange information with teachers and classmates via email, Telegram, WhatsApp Groups, and other social media tools.

The fourth statement was proposed to find out whether respondents could access important educational resources from the Internet, and 75% of the respondents agreed with the statement. In contrast, 25% of the respondents disagreed with the statement. Concerning the same issue, the final statement was whether SWDs can use digital library (E-Library) resources, if any, from their respective universities. In this regard, 53% of the respondents responded that they cannot access or use resources from university digital resources. Conversely, 47% of the respondents agreed with the statement. For this result inaccessibility of digital libraries in universities and a lack of awareness of SWDs, among others, can be mentioned as the major reason.

In sum, the practical implementation of inclusive e-Learning depends, among other things, on the level of awareness and capacity of SWDs to use e-Learning. Given this, the data presented in **Table 3** shows the positive trend of SWDs using e-Learning (EdTech) tools for learning. The data also shows the growing awareness and capacity of SWDs to use e-Learning tools in the teaching-learning process. From the above data, it is safe to conclude that SWDs in

Ethiopian public universities have a positive inclination and are ready for the implementation of e-Learning for inclusive higher education.

III. University's e-Learning Implementation Level

The level of e-Learning development and implementation is another determining factor in addressing the issue of integrating e-Learning with inclusive education. This is determined by the level of development of ICT infrastructure in higher educational institutions. Among other things, the availability of free internet, audio and video resources, computer and digital devices, and the presence of trained ICT personnel determine the development of ICT infrastructure. Therefore, in this subsection, the study evaluates e-Learning development in the selected three higher educational institutions. **Table 4** and **Table 5** below shows the data found from the responses of instructors and SWDs, respectively. The value in parenthesis represents the frequency. Here it is worth to mention that the responses from the instructors will be examined in this context in order to juxtapose them with the results from SWDs.

Table 4

Instructors' Assessment of e-Learning in Higher Education in the Context of SWDs

Statements/Questions	Strongly agree	Agree	Disagree	Strongly disagree
a. You provide alternative means of delivering learning materials for students who did not attend your classes in person.	27.8% (5)	22.2% (4)	22.2% (4)	16.7% (3)
b. You provided alternative EdTech tools (Audio, Video, and image) in addition to text to submit assessments for SWDs.	38.9% (7)	27.8% (5)	16.7% (3)	11.1% (2)
c. You involve various instructional media (text, audio, video, image, animation, etc.) in your course design.	27.8% (5)	38.9% (7)	27.8% (5)	5.6% (1)

d. You can access free and fast internet at the university.	38.9% (7)	38.9% (7)	11.1% (2)	11.1% (2)
e. You have the necessary learning materials and facilities (computer, laptop, Internet, software) to prepare learning materials.	38.9% (7)	33.3% (6)	16.7% (3)	11.1% (2)
f. The university's ICT support team gives all the necessary support for e-Learning.	16.7% (3)	33.3% (6)	27.8% (5)	16.7% (3)
g. The ICT personnel at the University have the required skills to support instructors in using tech tools.	11.1% (2)	27.8% (5)	44.4% (8)	11.1% (2)

Note. *Descriptive summaries of Instructors' assessments of e-Learning in Higher Education in the Context of SWDs [values in parenthesis represent frequencies]*

Table 5

University's e-Learning implementation level

Statements/Questions	Strongly Agree	Agree	Disagree	Strongly Disagree
a. The university provides free and fast Internet service.	14.6% (14)	34.4% (33)	37.5% (36)	13.5% (13)
b. The university provides free computer services, such as a desktop, laptop, or tablet.	22.9% (22)	20.8% (20)	30.2% (29)	25% (24)
c. The university has set up an environment that enables me to attend my classes flexibly via audio or video.	5.2% (5)	41.7% (40)	24% (23)	27.1% (26)

d. The university has provided ICT personnel to assist me with any technology-related issues I may encounter while using technology tools.	22.9% (22)	26% (25)	30.9% (29)	19.8% (19)

Note. Descriptive summaries of the University's e-Learning implementation level

Access to Free Internet: providing sufficient and free internet access in the university is the prior issue for the implementation of e-Learning. According to Kituyi *et al.* (2013) levels, availability, accessibility, familiarity, and penetration of the Internet are the determining factors for the integration of e-Learning in the teaching-learning process. In this context, about 51% of the respondents disagreed with the first statement "the university provides free and fast Internet service." Since the statement is framed positively, the respondent's disagreement shows low level of free Internet access at the institutions. On the contrary, almost 49% of the respondents agreed with the statement. From this, given the proximity of the respondent's response to the statement, we can deduce the existence of low level of free internet in the selected institutions.

In contrast, as indicated in **Table 4**, the majority of instructors 77.8% confirmed that the university offers free and high-speed internet access. The variation in the places where teachers and SWDs live may be the cause of the discrepancy in the outcome. The availability of Internet (both broad band and wireless) access is limited only in offices, and libraries.

Free Computer Access: The availability of computer hardware and software to assist SWDs in higher educational institutions for free is also another major determinant in assessing e-Learning development. The two statements forwarded to the respondents were therefore to assess whether they have free access to computer devices at the university. In response to this statement, 53% disagreed with it, while the rest 47% agreed with the statement. This shows that there is an inadequacy of free computer access dedicated to supporting SWDs. Again, the instructor-generated data presented a positive outcome as 72.2% of the instructors agreed with the claim.

Flexible Learning: One of the benefits of ICT development is that it offers flexibility in the teaching and learning process. Flexibility in the teaching-learning process is reflected when delivery of instruction is offered via multimedia means (audio, video or text) that suits individual

need. The third statement, therefore, inquires whether the practice of flexible learning environments is put in place in the selected institutions. Accordingly, 53% of the respondents disagreed with the statement, while the rest 47% affirmed it. The response of the respondents confirms the inadequacy of flexible learning environments for SWDs. In contrast, as shown in **Table 4** under Items a, **b**, and **c**, the vast majority of instructors stated that they do offer alternative media for course delivery, evaluation, and the availability of instructional resources.

Technical (ICT) assistance: The existence of adequate ICT personnel to assist SWDs in using digital tools is one of the components of e-Learning development. To put in place e-Learning for inclusive education, SWDs require all the necessary assistance and support from ICT personnel whenever they encounter any technology-related issues. Hence, providing e-Learning tools to the SWDs is not sufficient by itself without providing ICT support. Concerning this, 51% of the respondents indicated that support from ICT personnel is provided at the selected universities, while 48% disagreed. Likewise, while instructors disagreed with the statement that ICT staffs at the University have the needed skills to support instructors in using EdTech tools, they confirm the willingness of support from ICT workers.

IV. Integration and Utilization of e-Learning for Inclusive Higher Education

The core definition of integrating e-Learning to create inclusive higher education is how EdTech tools are used in the teaching and learning process (instruction, learning, and assessment strategies) to engage SWDs in a meaningful and relevant way. To inquire about the perception of SWDs on the integration of e-Learning tools for inclusive higher education, three general statements were forwarded. The result is provided in the table below.

Table 6

Integration and Utilization of e-Learning for Inclusive Higher Education

Statements/Questions	Strongly Agree	Agree	Disagree	Strongly Disagree
a. Even if you are not physically present in the classroom, you have a way to pursue your past education.	22.9% (22)	19.8% (19)	29.2% (28)	27.1% (26)

b. The university provided you with technological support or training in the use of digital libraries and other resources using Jaws and other assistive tools.	16.7% (16)	28.1% (27)	32.3% (31)	22.9% (22)
c. Instructional and learning materials are developed, and assistive EdTech tools (like audio, video, and graphics) are integrated into the teaching and learning.	12.5% (12)	17.7% (17)	32.3% (31)	34.4% (33)

Note. Descriptive summaries of integration and utilization of e-Learning in inclusive education [the value in parenthesis represents frequency]

Asynchronous Learning: As stated earlier, asynchronous learning allows SWDs to follow lectures and instructions at times when it is inconvenient for them to attend classes physically. The issue in this theme is whether SWDs have ways to interact with lectures or instructional resources even if they are not physically present in the classroom. In this regard, 56.3% of the respondents indicated that they do not have alternatives to asynchronous learning, whereas the remaining 43.7% indicated otherwise.

Capacity building: One of the most important steps in integrating e-Learning with inclusive education is to provide training to SWDs in the use of technological tools for their learning. Otherwise, e-Learning implementations would not be successful when SWDs did not have the necessary skills to use technological tools. Against this background, the result shows that 55.2% of respondents did not get any ICT training or awareness-raising activities from their respective universities.

Integration of EdTech tools into instructional and learning materials: the primary goal of this study is to identify the practice of integrating e-Learning into inclusive higher education. Integrating e-Learning (EdTech tools) into the teaching-learning process involves the incorporation and use of various assistive media resources (such as audio, video, graphic resources, etc.) as instructional and learning materials. In this regard, the majority of the respondents 66.7% indicated a lack of integration of multimedia resources as learning or

instructional materials. In other words, 66.7% of SWDs have not been provided with alternative multimedia resources in support of instructions and learning at the selected universities.

4.2. Analysis of Qualitative Data

This section looks at the legal and policy environment for inclusive higher education and e-Learning in the context of SWDs based on qualitative data from document analysis, interviews, and open-ended survey questions.

4.2.1. Policy and Legal Framework of e-Learning in Higher Inclusive Education

Public policies and legislation in the educational sector have important implications for the development and implementation of e-Learning in higher education. In this context, national Policies, Laws, and Strategies should adhere to the major international human rights treaties and the FDRE Constitution that protect the rights of SWDs to inclusive education. At this juncture, the main issue under scrutiny is the level of emphasis policymakers exert to ensure inclusive higher education by promoting and advancing e-Learning to address the barriers SWDs face.

I. Policy Framework

Ethiopia has adopted various educational policies and a strategy to meet the needs of vulnerable groups, such as women and people with disabilities. In this part we tried to evaluate various educational policies and strategies in the context of SWDs.

A. The New Education and Training Policy (NETP)

The first educational policy in Ethiopia was introduced in 1994 for the first time (MoE, 1994), which encompassed policies and strategies for all levels of education. One of the objectives of this policy was to enable handicapped and gifted students to learn according to their potential and needs. To this end, the policy introduced the need to establish special units and classes within schools for people who had fewer educational opportunities. However, this educational policy was criticized as ineffective in many regards, including its failure to address the interests of SWDs (Jimma, 2019). The NETP issued in 2023 replaced the earlier education and training policy after almost 30 years of use. The goal of the new educational policy is to offer all citizens educational training that is equitable, inclusive, and accessible (MoE, 2023). The NETP also

aims at expanding educational institutions, providing institutions with the necessary materials, building implementers' capacity, and creating cooperation among various stakeholders (MoE, 2023).

Among its policy directions, the NEPT policy states the need to develop separate curricula that meet the needs of SWDs, gifted students, and people with special needs. Nevertheless, even this newest policy does not mention the integration of e-learning with inclusive education. Furthermore, the policy falls short by not outlining how ICT can be utilized to advance inclusive education. It's crucial to note that this doesn't imply a prohibition on using ICT in the teaching and learning process. Instead, the policy indirectly suggests an approach where ICT can be inferred to play a role in the teaching and learning process.

The integration of ICT for teaching and learning is part of the policy document's implementation, which is the responsibility of several stakeholders. In this regard, it is the responsibility of the Ministry of Innovation and Technology to develop ICT infrastructure and digitalization that will support teaching and learning. This can be taken as the positive action of the policy to integrate technology into the teaching and learning process.

B. Special Needs/Inclusive Education Strategy (2006 & 2012)

The 2006 Special Needs Education Program Strategy (SNEPS) is the first strategy that indicated the future direction of special needs education in the country (MoE, 2012). The strategy is directed at implementing existing education policies and international instruments to which Ethiopia is a party to uphold the rights to education of vulnerable people, including PWDs. To ensure equal education for all, the strategy emphasizes on identifying barriers that hinder learning and the need to reduce and eliminate those barriers at all levels of education, including higher education.

Despite its overarching goal to create an inclusive education system at all levels, yet the strategy is criticized for lacking clear directions to create accessible educational environments, ensure accessibility of school facilities, and address the double disadvantages of female students with disabilities (MoE, 2012). Currently, the 2006 SNEPS is not effective as it was replaced by the 2012 Inclusive Education Strategy (IES) (MoE, 2012). The 2012 strategy aimed at building an inclusive education system that provides quality, relevant, and equitable education, and training for all. To ensure equal educational opportunity for PWDs as non-

disabled members of society, the strategy states the need to expand and strengthen functional support systems in all educational settings. This strategy also aspires to improve educational opportunities for learners with disabilities in HEIs. To that end, each higher educational institution is required to develop an institutional inclusive education implementation strategy for its respective institute.

Besides, the 2012 strategy (IES) also aspired to promotes inclusive curriculums, considering flexibility, relevance, and adjustability to the diverse features and needs of lifelong learners. Nonetheless, given an inclusive curriculum would not be achieved in the absence of ICT-supported learning, the strategy failed to mention or recognize the need to integrate EdTech into inclusive higher education. As Truneh (2019) observed, there is no well-designed inclusive education model for HEIs. Further, the country also lacks a prominent model of learning to effectively operate inclusive higher education activities for SWDs (Truneh, 2019). This, in effect, makes the learning environment in higher education unduly difficult and unresponsive to an inclusive education system for SWDs.

In a nutshell, from the above policy documents, no single page stated the integration of e-Learning (technologically assisted education) for realizing inclusive learning. More so, there is no well-designed model suggested by education policy documents for Ethiopian higher education to ensure inclusive education (Tiruneh, 2019). Consequently, it is left for each university to research, develop, and experiment with its inclusive learning model.

II. Legal Framework

This section reviews the legal obligations, through international and domestic sources, in the context of identifying key components of a fully inclusive legislative structure and collaborative implementation with educational technology. The legal framework includes international human rights instruments like the UN Convention on the Rights of Persons with Disabilities (CRPD). Here, Articles 9(4) and 13(2) of the FDRE Constitution which provided that international agreements ratified by Ethiopia are integral parts of the law of the land is the basis to appreciate other international commitment assumed by the country.

i. The FDRE Constitution

The right to education is provided under the FDRE Constitution and international human rights instruments ratified by Ethiopia. The Constitution, under Article 44, recognizes the right to

education among other ‘economic, social, and cultural rights (ECSR). Per Article 44 (3), the Constitution guarantees free access to public services, including education, for every Ethiopian. Under Article 44 (4), the government is obliged to fulfil the rights to education of PWDs by allocating adequate resources. To ensure this, Article 41(5) of the Constitution obligates the provision of necessary rehabilitation and support for persons with disabilities.

Furthermore, the Constitution as a framework strengthens the right to education with the principle of equality and non-discrimination provisions. The pertinent provision in this regard is Article 25, which reads as follows:

> *All persons are equal before the law, and there can’t be any discrimination on the grounds of race, nation, nationality, or other social origin, colour, sex, language, religion, political or other opinion, property, birth, or other status.*

The above provisions can be considered the cardinal constitutional provisions guaranteeing the right to an inclusive education for PWDs. In this context, inclusive education policies and strategies are the deliberate implementation tools the government has put in place to ensure accessible and equal education for PWDs.

ii. UN Convention on the Rights of Persons with Disabilities

The UN Convention on the Rights of Persons with Disabilities (CRPD) is the major international convention that extends the protection and promotion of the rights of PWDs. The purpose of the CRPD is to promote, protect, and ensure the full and equal enjoyment of all human rights by PWDs. Under Article 4, the Convention requires State parties to adopt legislative and administrative measures to implement the provisions of the convention, taking into account the rights of PWDs in all of their policies and programs. In this context, the right to inclusive education is stated under Article 24.

To improve the overall development of PWDs, Articles 24(1) and (2) require State parties to guarantee inclusive education systems at all levels and lifelong learning. According to Article 24 (2) (e) of the CRPD, State parties are required to provide effective and individualized support measures to foster the academic and social growth of PWDs, thereby fully realizing the goal of inclusive education. Additionally, Article 24(3) also requires States to implement suitable measures, which include facilitating learning using alternative communication methods, means, and formats. Among the measures recommended by the Convention are providing instructions

in the languages, communication modes, and contexts that will maximize the academic and social development of SWDs.

The strategies in the Convention are intended to implement ICT tools in the teaching and learning process in a way to address the individual learning needs of SWDs. Therefore, it is reasonable to conclude that the CRPD required the State parties to use ICT tools as a strategy to ensure inclusive education at all levels, including higher education. As Ethiopia is a signatory of the CRPD, the strategies suggested by the Convention to utilize ICT tools to ensure inclusive education are legally adopted by Ethiopia, and therefore the same needs to be reflected in other subsidiary policies and legislation.

iii. Higher Education Establishment Proclamation No. 1152 of 2019

The Higher Education Establishment Proclamation No. 1152/2019 is the governing law on higher education in Ethiopia. The Proclamation is enacted by repealing the former Higher Education Proclamation No. 650/2009. The current Proclamation is enacted with the objectives of ensuring quality, relevance, and satisfying public demand for human capital. Moreover, the Proclamation recognizes inclusive education in the higher educational setting.

Article 41 of the Proclamation is dedicated to SWDs and students with special talents. Higher education institutions are specifically required by this provision to make their programs and facilities relatively accessible to SWDs. Each higher educational institution is also obliged, to the extent that situations and resources permit, to create an enabling learning environment that suits the demands and needs of SWDs. The activities required in this regard include the relocation of classes, development of alternative testing procedures, and provision of different educational supports for students with physical and learning disabilities (Art. 41 (1&2)).

In addition, the Proclamation obliges HEIs to design infrastructure in line with the interests of SWDs. Article 41(3) reads: *"[b]uilding designs, campus physical landscape, computers, and other infrastructures of institutions shall take into account the interests of SWDs*." As this provision indicates, the development of ICT infrastructure in HEIs is required to be cognizant of the needs and interests of SWDs in the teaching-learning process. This rule seems to anticipate that HEIs will utilize ICT tools in the teaching and learning process. Despite this, the Proclamation does not explicitly regulate the issue of e-Learning or the integration of the same with inclusive higher education. Nevertheless, the absence of explicit legal provisions does not

prohibit HEIs from putting in place e-Learning to ensure inclusive higher education. Depending on the availability of resources in each institution, the HEIs can use EdTech tools to support inclusive education that alleviates the learner barriers of SWDs.

Generally, the aforementioned education specific policy and legislative instruments dictate the establishment of institutions that execute the policy and legal rules. Likewise, putting in place an institutional approach or framework is essential to develop and implement e-Learning in general and for its integration into inclusive higher education. Properly defined institutional roles and responsibilities ensure effective development and integration of e-Learning with inclusive higher education. It will also make effective and efficient use of the existing ICT infrastructure in each institution.

C. Integration of e-Learning in Higher Educational Institutions

This section discusses the institutional strategies and practices of integrating e-Learning to realize inclusive education in Ethiopian higher educational institutions based on the data collected from three public universities. The analysis is based on the interviews conducted with officials from the drafter of e-Learning policy from MoE, ICT Directorate, and Centers for Disability Studies of the three universities and on the open-ended survey questions distributed to SWDs and instructors in the study areas. The data is analyzed based on two thematic areas: (1) the strategic plan and policy for e-Learning and inclusive education; and (2) the extent and practice of using e-Learning and inclusive education.

i. Strategic Plan and Policy for e-Learning and Inclusive Education in HEIs

The selected HEIs in the current study have developed their own respective ICT policies. Such institutional policies focus on ICT planning, which is mainly related to the acquisition or development of ICT infrastructure. Aside this, such policies do not deal with the integration of the ICT infrastructure into the teaching-learning process. To state differently, such documents do not deal with how ICT may be employed for course development, course structure, or student assessment. Thus, to design strategies for the integration of e-Learning tools for teaching and learning, the ICT Directorates and Disability Centers/Directorates must collaborate. In support of this, an official of the ICT Directorate at UoG states as follows:

> *Almost all Ethiopian HEIs have developed their own institutional ICT plan as well as inclusive guidelines. Given that each institution's top management, comprised of the ICT*

Directorate and the Disability Study Directorate, approves the ICT Policy and inclusive guidelines, there were opportunities to include the issue in question in those policies. Unfortunately, these strategic plans fail to acknowledge the role of implementing EdTech in inclusive higher education. (UoG, 1/23/2023)

The above statement shows the potential role of the two most important offices, the ICT and Disability Study Directorates, in each HEI for the development of ICT and inclusive education plans and strategies. However, as revealed from the document analysis of the selected HEIs in the study, the ICT policies do not imply the incorporation and implementation of EdTech tools with inclusive education to support SWDs.

ii. The extent and practice of the use of e-Learning and inclusive education in HEIs

In this subsection, the practice of e-Learning for inclusive education at the selected public universities is presented. Based on the data collected from the selected universities, there is significant ICT infrastructural development, like computer laboratories, digital libraries, free WiFi internet, LAN internet connecting university campuses, customized Learning Management systems (LMS), smart classes, teleconferencing tools, and the like. However, the linkage, integration, and implementation of EdTech with inclusive higher education (in teaching and research) in the context of SWDs are insignificant. In particular, AAU and BDU made advancements in the launch and implementation of e-Learning. Both universities have developed manuals and guidelines for teachers and students about the use of e-Learning. Further, the universities also organized a Learning and Teaching Technologies Team that is responsible for the implementation of e-Learning in the teaching-learning process.

However, despite the encouraging results in the application of ICT in the teaching-learning process, the practice and integration of e-Learning with inclusive higher education in the context of SWDs are trivial. The practice is inclines with the perception of SWDs who are currently enrolled in the selected universities, as the data showed negative perceptions of the development and integration of e-Learning tools to mitigate their learner barriers.

To triangulate the quantitative data on the development and practice of e-Learning to support the learning of SWDs, open-ended questions were included in the survey distributed to selected instructors from the three universities. Accordingly, the majority of the participants remarked as follows:

> *Integrating and implementing EdTech tools is the most effective way to reduce academic barriers for SWDs. Most students need to be made aware of and motivated to use EdTech tools for learning. For instructors, creating instructional materials for SWDs in audio, video, animation, and other formats is time-consuming and requires resources, finance, and time. As a result, SWDs are forced to use recorded lectures in class. So far, class recording of lectures by SWDs is the only practice regarding EdTech implementation. However, given the classes are too crowded, noisy, unintended for recorded lectures, etc., it is difficult for SWD students to rely on recordings only. This challenge would be elevated with an adequate educational policy that dictates institutions implement EdTech tools for inclusive higher education (BDU, 2/2/2023).*

The point made in the above comment confirms the importance of e-Learning (EdTech tools) as one approach to overcoming the barriers SWDs face in higher education. They also emphasized the inadequacy of the practice in its implementation in the universities. One participant noted the following:

> *As a result of globalization, the world has shrunk to the size of a small village. Technology is a tool for closing gaps that previously seemed insurmountable. Recognizing this, technology plays an important role in education, which is why many HEIs invest in ICT. Some universities began offering online learning (e-Learning) to aid the cause, which has influenced ICT development. Despite this progress, ICT has not been used to address the challenge of SWDs in higher education. Teachers use ICT tools such as PowerPoint, videos, and infographics to deliver lessons. However, I do not believe they did so with SWDs in mind. This is primarily due to a lack of awareness; however, capacity, motivation, and policy challenges may also contribute to a reluctance to use ICT tools in the context of SWDs (AAU, 20/02/2023).*

This was a result of inadequate e-Learning development and implementation in inclusive higher education to improve the academic performance of SWDs. As a result, even though Ethiopian HEIs invested in the development and implementation of e-Learning and ICT, there were issues associated with awareness, the integration of EdTech into inclusive higher education, and the crystallization of the same with policy and legal foundations.

4.3. Discussion

The implementation and integration of advanced educational technologies into inclusive higher education mitigates the academic barriers of SWDs. ICT infrastructure expansions in Ethiopian higher education institutions can be positively exploited to ease academic barriers and make education more inclusive. This would further open opportunities to increase the success/ completion rate of SWDs in higher education. This could, however, only be achieved when national and institutional educational policies and strategies support the integration of e-Learning with higher education. Given this, this study examined the policy, legal, and institutional frameworks governing e-Learning practice in inclusive higher education in Ethiopia's HEIs.

As shown above, the perceptions of SWDs and the views of higher education officials and renowned scholars on the issue at hand were examined. Hence, based on the quantitative and qualitative data obtained, this section discusses the research findings for the following research questions:

- What are the practices and practical challenges in the implementation of inclusive e-Learning at the selected public universities?
- To what extent do inclusive education policies and strategic plans integrate e-Learning into inclusive higher education?
- How are SWDs affected by practical, legal, and policy issues associated with inclusive education in the context of e-Learning in higher education?

The paragraphs below discuss the findings concerning the research questions of the study.

1. What are the practical challenges in the implementation of inclusive e-Learning at the selected public universities?

Implementation of e-Learning in higher education has made a significant contribution to lowering academic barriers for SWDs. Utilizing EdTech tools that consist of multimedia instructional and learning material, media tools, and assessment methods makes the teaching-learning process more flexible and effective. Making the learning environment flexible and tailored to the individual learning needs of students, in particular the needs and interests of SWDs, is essential to ensure inclusive higher education. In this regard, understanding the

awareness and perception of SWDs towards technology tools is strongly linked with the extent of implementation of e-Learning integration in inclusive higher education.

Based on the qualitative data obtained from SWDs, the research confirmed SWDs' positive awareness of EdTech tools and their capacity to use such tools for their learning. However, the majority of SWDs in the HEIs perceived inadequacies in the development and implementation of e-Learning to ensure inclusive higher education. The research also substantiated the finding with results from data found from interviews conducted with officials from the MoE and University ICT and Disability Study Directorates. Accordingly, many of the respondents also confirmed that the implementation of e-Learning with inclusive education in a way that reduces academic barriers for SWDs is in its infancy.

Further, the study also founds the negative attitude of instructors towards the use of such tools; the inaccessibility of physical and infrastructural barriers; financial and resource limitations to utilizing the tools; knowledge and skill gaps in using the tools; and the inflexibility of curriculums to allow the use of the tools as the major impediments to the implementation of e-Learning with inclusive higher education for SWDs in Ethiopia.

2. ***To what extent do inclusive education policies and strategic plans integrate e-Learning into inclusive higher education?***

The integration of e-Learning with inclusive higher education in educational policies, strategies, and legislation has a positive role in its enforcement at the national and institutional levels. Against this, the research findings show the absence of independent policies and strategies that dictate the implementation of e-Learning with a more inclusive education strategy. The study also flaunted the absence of comprehensive educational policies and legislation that properly address inclusive education in the higher educational setting. For instance, the 1994 and 2023 ETP, the EDSP, the 2012 IES, the 2015–2020 ESDP-v, and the 2012–2021 NAPIPD do not incorporate how ICT tools can support education for the interests of SWDs to ensure inclusive education. Likewise, the draft national e-Learning policy recognizes inclusive education; however, it does not incorporate inclusivity in the context of SWDs. One thing that all of these policy and strategic documents and educational laws have in common is that they don't use e-Learning (ICT) tools as a way to ensure SWDs' equal educational access (inclusive education) in HEIs.

Moreover, all existing national and institutional policies, strategies, and legislation do not give due regard to e-Learning for inclusive education for SWDs. Besides, only little has been addressed in the literature concerning policies and legislation in the context of the integration of e-Learning for inclusive education in the HEIs.

3. How are SWDs affected by practical, legal, and policy issues associated with inclusive education in the context of e-Learning in higher education?

e-Learning offers a flexible learning environment that can be tailored to each student's individual needs and interests. Therefore, implementing a policy and legal framework designed to seamlessly integrate e-Learning with inclusive higher education is crucial for effecting real change in addressing the barriers that learners with disabilities encounter in a higher education environment. In this context, even though ICT tools are growing in HEIs, integration of e-Learning (EdTech) into the teaching-learning process and adaptation to the needs of SWDs are minimal. When developing and implementing technology-supported learning processes for the inclusion of the interests of SWDs, there is insufficient cooperation between the Disability Study and ICT Directorates of the HEIs. There is also a weak managerial concern given to the management of ICT tools for inclusive education. This is partly because no national or institutional policy or strategy addresses the utilization of e-Learning (Edtech) tools for the inclusion of SWDs in the educational sector.

In particular, the lack of national or institutional policies that deliberately recognize the implementation of e-Learning tools with inclusive education results in the failure to install the same into the educational curriculum. Thus, no educational curriculum in the HEIs has shown flexibility by incorporating multimedia tools with SWDs in mind. Due to the predominant nature of face-to-face teaching in all public Higher Education Institutions (HEIs) in Ethiopia, instructors and institutions face limitations in incorporating e-Learning tools and resources into instructional, learning, and assessment strategies. The lack of a legal framework that mandates the implementation of e-Learning with inclusive education is also ipso facto a result of a lack of policy. Furthermore, the absence of a regulatory framework means that the adoption of e-Learning by institutions is entirely discretionary. Even when institutions proactively initiate e-Learning initiatives, the absence of a legislative framework undermines the effectiveness of integrating e-Learning into inclusive education. Since no regulatory or legal framework mandates the implementation of e-Learning, the learner barriers of SWDs have not been

mitigated, and they have not so far benefited from e-Learning within the framework of inclusive higher education.

CHAPTER FIVE. Conclusion and Recommendations

The study addressed three research questions using both qualitative and quantitative data. Hence, based on the findings, the researchers would like to put forth the following conclusions and recommendations.

5.1. Conclusion

As this study has shown, e-Learning's implementation for inclusive higher education is crucial for SWDs. This is due to the possibility that students with disabilities could benefit from e-Learning, which could facilitate a more equitable representation of this group of people in higher education.

Regarding the practice of e-Learning for inclusive higher education, HEIs must ensure that SWDs always have access to this basic right. Given the role of e-Learning in reducing academic barriers for SWDs, SWDs' perceptions and capacities were considered. As a result, the study discovered that most SWD had a positive opinion of and ability to use EdTech tools for educational purposes. The study also reveals a negative perception of inclusive education and ICT development and implementation at each institution. This study concludes that although the majority of HEIs in Ethiopia have better ICT infrastructure, the practice of e-Learning in the teaching-learning process to lower academic barriers for SWDs is insufficient.

The national education policies, strategies, and regulations that aspire to the implementation of inclusive e-Learning have an impact on the use of e-Learning to lessen academic barriers for SWDs. In this context, the study assessed Ethiopian educational policies, strategies, and regulations. Accordingly, Ethiopia’s education policies, inclusive strategies, and legislation were enacted with inclusivity in mind. However, the study concludes that the current Ethiopian educational policy and strategic documents, as well as educational laws, rarely use ICT to make sure that SWDs have equal access to an inclusive education in HEIs.

Furthermore, the dearth of inclusive higher education practices coupled with the weak implementation of Ethiopia's inclusive education strategy overall seems to point to a less accommodating learning environment for the inclusive higher education system. This in effect prevented SWDs from utilizing e-Learning in the teaching-learning process in a way that would have lessened their academic obstacles.

5.2. Recommendations for Future Practice

Based on the findings of the study, we forward the following recommendations for developing effective policy and legal frameworks that realize genuine integration of e-Learning tools with inclusive higher education to meet the needs and interests of SWDs:

- ICT infrastructure development in HEIs should be readily accessible to students, including SWDs. Therefore, HEIs should duly consider making the ICT tools (free internet, computer, Digital Library, media tools, and other hardware and software resources) physically and economically accessible to the use of SWDs in their preferred locations (dormitory, library, classes, etc.).
- HEIs should start adequate collaborative research and programs on the use of e-Learning for inclusive higher education in the context of SWDs. Hence, by launching ICT-led inclusive educational programs and projects in collaboration with various governmental and non-governmental stakeholders, HEIs would effectively practice and experiment with e-Learning tools for the benefit of SWDs.
- A national inclusive higher education policy or strategy is the primary tool for addressing issues related to inclusive higher education. Because the educational environments in higher education and general education differ, separate inclusive higher education strategies should be in place. Therefore, separate strategies, plans of action, or programs that specifically recognize and address e-Learning and inclusive higher education in consideration of SWDs need to be launched. For this purpose, research needs to also be geared towards complementing such targets.
- Aside from a draft document, the study indicates that Ethiopia does not have any other national e-Learning Policy. So, any new e-Learning policies or strategies need to consider the strategic steps needed to combine e-Learning with the goals of inclusive education and help students with disabilities do better in school.
- Each university is required by Higher Education Proclamation No. 1152/2019 to create an environment that is supportive of SWDs and tailored to their needs. But the Proclamation omitted any specific mitigation measures against the learner barriers SWDs usually face. In this regard, subsidiary legislation (regulations or directives) should be adopted at the national and institutional level to cement the implementation of e-Learning tools as an inclusive education strategy in the interest of SWDs.
- Higher Education Institutions (HEIs) should provide comprehensive ICT training to enhance the perception and awareness of e-Learning among both students with

disabilities (SWDs) and instructors. This training aims to improve the capabilities of instructors and ICT personnel, enabling them to effectively utilize e-Learning tools in the teaching-learning process while taking into account the specific interests and needs of SWDs.

- HEIs should work with other stakeholders, i.e., the MCF e-Learning Initiative and the UoG, to learn from the development and practices of e-Learning in higher institutions.

Research Contributions and Limitations

I. Significance and Contribution

A. Alignment with the four thematic areas of the MCF e-Learning initiative

The study aimed to concentrate on ecosystem design, the primary thematic focus of the MCF e-Learning initiative. Specifically, it examines the integration of e-Learning into inclusive higher education within chosen public Higher Education Institutions (HEIs). In this context, the study aligns with one of the thematic areas outlined in MCF's e-Learning initiatives.

B. Contribution to e-Learning research, practice, policy, etc.

Knowing how important higher inclusive education is and how few studies have been done on the adaptation and integration of inclusive e-Learning in Ethiopia, the results would help create, implement, and plan national and institutional policies that aim at the issue at hand. This study is dedicated to e-Learning in the context of the integration of e-Learning into inclusive higher education in selected HEIs. Moreover, the result of the conducted research indicated that the peculiarities, opportunities, and limitations of an e-Learning mechanism in inclusive higher education in Ethiopia can be applied to increase its efficiency both at the university level and at the `level of national strategies for higher education development in the country. The study as a paradigm shift is also believed to work and serve as a tool to execute and successfully inform the MoE, HEIs, and policymakers to re-conceptualize the strategy for the integration of e-Learning with inclusive education to mitigate the diverse needs of SWDs.

II. Limitations

Throughout the course of the study, the research team encountered numerous challenges. One of the main challenges was a time constraint. The team was planning to finish the research in five months. The study ended up taking much longer than anticipated due to several variables, including university closures for breaks, the researcher's other obligations, and the respondents' unavailability at the time the researcher had scheduled.

The other issue was the dearth of sufficient or scarcely accessible domestic literature and cases on the topic. The main step in creating the literature review for the research is citing and referencing earlier research studies on the topic in question. The issue under investigation, however, was novel, and there was not enough literature to adequately address it. To tackle the limitation, the researcher used a variety of foreign materials and jurisprudence that are on the same front.

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APPENDICES

Appendices I

Survey Questionnaire

A survey questionnaire provided for students with disabilities enrolled in public higher education institutions about the development of e-Learning, as well as its implementation and integration with inclusive education.

Hello!

We the University of Gondar Law School lecturers sponsored by MCF e-Learning Initiative are conducting a research project titled with "The Legal, Policy, and Institutional Framework of Inclusive Education in Ethiopia: Assessment of e-Learning in Selected Higher Education Institutions in the Context of SWDs". This survey questionnaire is intended to assess the level of e-Learning and inclusive education implementation in the context of SWDs at Ethiopian public universities. As a result, you and your university have been chosen as one source of information for this study.

As a student with disability, please take a few moments to complete this questionnaire so that we can assess your university's capacity to implement e-Learning and inclusive education in the context of SWDs. We hereby guarantee that your name and identity will not be disclosed, and that your responses will be used solely for research purposes.

Thank you for your cooperation!

Name of the data collector ……..

Questioner Nunber. ……..

I. General Information

Directions: - Indicate your response either by filling the needed information in the space provided next to the statement or by putting a tick mark (×) in the boxes.

1. **Gender:**

   a) Male ☐ b) Female ☐

2. **Age Category**: ……
3. **Residential Background:**

   a. Rural ☐ b. Urban ☐

4. **Institutional affiliation:** _____
5. **Department:** _____
6. Category of Disability

a. Visual Impairment ☐
b. b) Hearing Impairment ☐
c. Physical disability ☐
d. Others:_____

7. Study Year:

a. 1st Year ☐
b. 2nd Year ☐
c. 3rd Year ☐
d. 4th Year and above ☐

Section Two

This section seeks to identify the level of e-Learning and inclusive education implementation at your university.

Direction: -

The questions below are provided to measure the level of agreement or disagreement of SWDs currently enrolled in the university about the level of e-Learning development and its implementation with inclusive education in the context of SWDs.

Answer the questions listed below based on the circumstances you know or experience as a student. The level of agreement with the recommendations indicated by the requests will be based on the criteria set out in 1-4. Accordingly, if you select scale number 4, it suggests your strong agreement, 3 suggest your agreement, if you select number 2, it indicates your disagreement, and if you select numbers 1, it indicates your strong disagreement.

Survey-Likert Scale Questions

No.	Questions	Strongly Agree	Agree	Disagree	Strongly Disagree
To determine level of SWDs awareness about using e-Learning[1]					
1.	You are aware of how to use ICT tools i.e., Power-point, Google Slide, Google Doc, and social media platform such as YouTube, Facebook, Twitter, Telegram, and WhatsApp etc.) or education purpose.	1	2	3	4
2.	You are aware of the possibility of furthering your education on an online platform.				
3.	You have sufficient knowledge of how to obtain course materials and supporting books from the internet.				
To assess the ability of SWDs to use educational technology tools.					
1.	You can use ICT tools like Powerpoint, Google Slide, Google Docs, audio, and video for your education (exams, assignments).	1	2	3	4

[1] Here eLearning is to mean technology-supported education.

2.	I can augment my education asynchronously (audio, video).				
3.	You exchange information with teachers and classmates via email, telegram, WhatsApp Group, and other social media applications.				
4.	You obtain essential educational information by downloading it from apps such as YouTube, Google, Facebook, Twitter, Telegram, or WhatsApp Groups.				
5.	You regularly use the University's digital library (e-Library or digital library).				
To evaluate the University's e-Learning implementation Level					
1.	The university provides free and fast Internet service.				
2.	The university provides free computer services, such as a desktop, laptop, or tablet.				
3.	The university has set up an environment that enables me to attend my classes flexibly via audio or video.				
4.	The university has provided ICT personnel to assist me with any technology-related issues I may				

	encounter while using technology tools.				
To evaluate the integration and utilization of e-Learning in inclusive education					
1.	Even if you are not physically present in the classroom, you have a way to pursue past education.	1	2	3	4
2.	The university provided you with technological support or training in the use of digital libraries and other resources using Jaws and other assistive tools.				
3.	Instructional/learning materials are developed and assistive EdTech tools (like audio, video, and graphics) are integrated into the teaching and learning.	1	2	3	4

Section Three

Open Ended Questions

1. What are the challenges in implementing technology-based learning in inclusive education?
2. What kind of improvement do you suggest to the university to take to assist SWDs succeed academically?

II. Survey-Likert Scale Questions

This section seeks to identify the level of e-Learning and inclusive education implementation at your university.

Direction: - This scale contains statements on your experiences in your university. It consists of four sub scales-seeking data on your experiences in the teaching and learning process regarding e-Learning and inclusive education in the context of SWDs. Please read all the statements carefully and indicate your responses based on your experience in your institution by putting **"X"** mark in one of the five scales provided against each item.

Kindly be informed that there is no "right" or "wrong" answers to any of the questions. Your genuine and honest answers are the most valuable answers.

No.	Questions	Strongly Agree	Somehow Agree	Disagree	Strongly Disagree
1.	You provide alternative means of delivering learning materials for students who did not attend your classes in person.	1	2	3	4
2.	If your response is Strangely agreed or Agreed, please state what methods you used				
3.	You prefer to deliver classes through technological tools (e.g. Power-point, Google Slide, Google Doc etc.)	1	2	3	4
4.	You provided alternative Edtech tools (Audio, Video, image) in addition to text to submit assessments for SWDs.	1	2	3	4
5.	You involve various instructional media (text, audio, video, image, animation etc.) in your course design	1	2	3	4
6.	You can access free and fast internet in the university.	1	2	3	4

7.	You have the necessary learning materials and facilities (computer/ laptop/ Internet/ software) to prepare learning materials.	1	2	3	4
8.	The university's ICT support team gives all the necessary support for e-Learning.	1	2	3	4
9.	The ICT personnel in the University have the required skills to support instructors in using Edtech tools.	1	2	3	4

III. Open Ended Questions

1. What actions have you taken to support SWDs for inclusive education- learning-teaching
2. What are the barriers or challenges you face in applying technology assistive tools for inclusive teaching-learning environment in your class?
3. How do you think e-Learning (accessibility and readily utilizing IT tools) will mitigate or ease the academic barriers faced by SWDs?
4. What improvements do you believe should be put in place by the University to support the teaching learning process in the context of SWDs?