International Journal of Contemporary Research in Multidisciplinary; 2023; 2(5): 43-50

Review Article

Inclusive Education and Modern Technology

Author (s): Dr. Gabriel Julien*[1]
[1]*Research Supervisor, Department of Humanities, Global Campus, University of the West Indies, Jamaica West Indies*

Corresponding Author: *Dr. Gabriel Julien

Abstract

Inclusive education seeks to teach students in the same classroom environment where their distinct diversity and valuable contributions are always well received. In a truly inclusive environment, students feel comfortable, safe, and motivated to do their best. It is a well-known fact that the use of modern technology is swiftly altering the teaching and learning process. Dalton (2017) stated that the wide range of new tools and technologies available these days makes them even more accessible to all people, including the disabled. A more equitable society can only be created through inclusive education. It also forms a crucial part of educational systems that endeavor to raise the quality and equity of instruction for all students. UNICEF (2017) affirmed that inclusive education is a dynamic and continuous process that is ever evolving in keeping with the local culture and circumstances. Technology has the potential to support inclusive education. Thus, modern technology can be instrumental in creating authentic, inclusive environments that embrace all students, especially those with disabilities. Salas-Pilco et al. (2022) noted that the positive effects of technology depend solely on how it is applied during the teaching and learning process. They also emphasized that these new technologies offer more equal learning opportunities and can enhance inclusive education. Meaningful digital resources, culturally appropriate technology design, student and teacher training, and considering the histories and cultural settings of the learners are just a few of the factors that contribute to the effective use of technology. Salas-Pilco et al. (2022) acknowledged that while there is no concrete formula for creating inclusive classrooms, education institutions are free to use their approach to genuinely create inclusion.

Manuscript Information

- **ISSN No:** 2583-7397
- **Received:** 27-08-2023
- **Accepted:** 15-10-2023
- **Published:** 16-10-2023
- **IJCRM:**2(5);2023:43-50

- **Plagiarism Checked**: Yes
- **Manuscript ID:** IJCRM:2-5-10
- **Peer Review Process:** Yes

How to Cite this Manuscript

Dr. Gabriel Julien. Inclusive Education and Modern Technology. *International Journal of Contemporary Research in Multidisciplinary*. 2023; 2(5):43-50.

Keyword: Inclusive Education, Inclusion, Disability, Technology, Classroom, Environment.

1. Introduction:

It is a fact that the use of modern technology is increasing rapidly. Lomellini *et al.* (2023) believed that over the last two decades, enrollment in online learning has continued to proliferate. They further added that many students with disabilities are also pursuing courses online. Due to this constant use of technology, Fuentes *et al.* (2021) admitted there is an urgent need for educational institutions to meet the needs of all students, including those with disabilities. Mention must be made that the use of inclusive environments and an adequate structure of educational institutions are paramount. All students must feel special within the learning environment (Corbett, Dumareq, and Tommasini, 2021). To this end, Fuentes *et al.* (2021) postulated that inclusive syllabi frequently foster and strengthen intercultural interactions and promote the sharing of diverse experiences and perspectives. These essential components ensure that all students feel accepted and

appreciated within the learning environment (Germano and Nicholls, 2020). It is instructive to mention that published research has indubitably indicated that there is a paucity of information on this topic. At the time this study was conducted, a secondary search was also inconclusive on this particular issue. With the support of professional literature, this paper accentuated the significance of inclusive education and the use of modern technology. It presented a general overview of inclusive education and online learning. It also explored how modern technology can bolster inclusive learning environments within virtual educational contexts. This process is challenging and demanding. Nonetheless, it is strongly suggested that all those involved in education strive to promote and encourage the use of technology in inclusive education.

Inclusion and online learning: An overview

Over the years, many national and international organizations have merely regarded inclusion in medical terms. It was not surprising to note that a medical model was used to describe inclusive education. As a result, many students were compelled to reveal their disability even before they registered for school. Ketterlin-Geller and Johnstone (2006) further indicated that this process of registration was extremely convoluted and regularly incorporated extra time on various tests. Very often, these tests were carried out at different locations with alternative formats of instructional materials and/or the use of assistive technology. This complex approach caused dissonance, stigmatized students with disabilities, and unfortunately worked contrary to inclusive education. Cook *et al*. (2009), Harris *et al*. (2019), and Sarrett (2017) further went on to outline that this level of confusion led these students to seriously regard themselves as inferior. Thus, Harris *et al*. (2019) claimed that many students were reluctant and reticent to disclose their disability. According to the literature (Izzo *et al*., 2008; McAndrew *et al*., 2012; Roberts *et al*., 2011; Schelly *et al*., 2011), educational institutions have had to constantly struggle to understand and meet their needs. However, in recent times, some educational institutions have begun to appreciate and conceptualize disability and inclusion differently. In this way, they have moved to value accessibility proactively rather than retroactively (Lomellini and Lowenthal, 2022; Seale, 2020). While this could be considered progress, there is still extensive debate about the best method of approach to integrating students with disabilities (Linder *et al*., 2015; Singleton *et al*., 2019). This scenario mustered some online learning leaders to stand behind these students by way of accessible and inclusive course design strategies (Burgstahler, 2022; Westine *et al*., 2019). According to Burgstahler (2022) and Gladhart (2010), this is a daunting task and must include all those involved in education.

A review of the literature (Gladhart, 2010; Izzo *et al*., 2008; Linder *et al*., 2015; Xie and Rice, 2021) strongly suggested that ample resources and proper training can help better facilitate and create an awareness of instructional designers and skills. Black *et al*. (2015), Burgstahler (2022), and Satterfield *et al*. (2015) also acclaimed that policies and procedures can identify clear responsibilities and support structures. Online learning holds the potential to improve access to education and include disabled students. Burgstahler (2022) and Seale (2020) cautioned that reducing barriers for disabled students in online learning means that leaders must agree and uphold this venture. Studies conducted by Westine *et al*. (2019) and Bartz (2020) revealed that inclusive online learning examined the perceptions of faculty. Singleton *et al*. (2019) and Xie *et al*. (2021) also noted that research towards the perspectives of instructional designers was also exercised. However, very few studies addressed the perceptions of online learning leaders (Garrett *et al.*, 2021). It is important to keep in mind that leaders are uniquely situated between instructional designers so that disabled students can benefit from online learning.

Lomellini *et al*. (2023) claimed that online education has escalated over the years, more so among those with disabilities. Roberts *et al*. (2011) and Satterfield *et al*. (2015) also believed that this proliferation was evident among students with disabilities. Bartz (2020) and Kent (2016) opined that the flexibility of learning online could unquestionably be of benefit to students with disabilities. However, Kent (2016) and Nieminen and Pesonen (2020) stated that online learning presents barriers. Clearly, there are some documents that are not properly designed for compatibility with assistive technologies, and this can grossly hamper those students who rely on assistive technology or even have learning attention or focus disabilities (Bartz, 2020; Fitchen *et al*., 2009). Some of these barriers continued to be compounded with the COVID-19 pandemic and the great haste to accommodate online teaching (Anderson, 2020; Burgstahler, 2022). However, Burgstahler (2015) saw that the courses specifically designed for accessibility enabled disabled students to meet their academic goals. Oyelere *et al*. (2020) opined that inclusion incorporates learning environments specifically designed for diversity. Payà (2020) clearly noted that the curriculum is essential to achieving genuine inclusion if it recognizes the need for diverse pedagogical focus to equalize learning opportunities. A well-designed curriculum should commence with what is already known and possess clear and measurable learning objectives. Thus, in an inclusive learning environment, the curriculum must be adapted for inclusion and the use of technology. The curriculum needs to be non-linear and student-centered. It must also recognize that students are certainly not interchangeable and unable to learn at the same pace (Ramoutar, 2019). Student-centered learning allows for diversity and inclusion since it encompasses personalized learning, autonomy, competency, and life-long learning. The curriculum should also include recommendations for assessment by way of games and other technology-related activities. Said assessments should allow students to demonstrate their understanding in a variety of ways and inspire a growth mindset.

Inclusive education

United Nations. (2017) asserted that inclusive education is a combination of values, ideas, and practices that aims to provide all students with a more effective and meaningful education. They further stated that one of the best ways to ensure that all students have an equal opportunity to education is through inclusion. United Nations. (2017) firmly believed that inclusion values and appreciates the unique contributions of all children.

So, it goes without saying that inclusion allows various groups to coexist and grow together for the benefit and good of all. Students from many groups, including those with special needs and disabilities, females, pupils at risk, and members of ethnic minorities all constitute inclusive education. According to Dalton (2017), intercultural sensitivity, intercultural competence, and intercultural awareness are essential for effective inclusion. When one considers inclusive education, the following ought to be evident: All students, notably those with disabilities, must be included in the curriculum. Some disabilities will include hearing impairments, physical disabilities, mental retardation, and learning disabilities; even the gifted and talented.

In addition, Mag *et al*. (2017) strongly advised that inclusion must also tie in children of diverse races, culture, and ethnic and cultural backgrounds. Therefore, an inclusive environment should be both welcoming and protect children from danger. Moreover, it should strive to educate all students. It is imperative that teachers do their utmost best to make sure students receive quality education. Consequently, the regular curriculum should be reformed so as to accommodate all students. Mag *et al*. (2017) suggested that adequate opportunities ought to be provided so that all students are at liberty to maximize their potential. Inclusive education integrates the following: acceptance, accessibility and assessment reform. It also means that students must enjoy a deep sense of belonging where respect for all is of paramount importance. To accomplish these components of inclusion, educational institutions are obligated to accept and embrace changes in order to meet the needs of all students. This means that educators ought to have an in-depth knowledge of students and willing to adapt to the teaching and learning process if required to do so.

Nurdyansyah *et al*. (2022) indicated that there are numerous barriers that prohibit educators from successfully using modern technology in the classroom. Some educators are not competent in using technology while others lack proper teaching strategies to an acceptable degree. They further believed that some digital materials such as those designed for assistive technologies may be neither compatible nor accessible. Bartz (2020) and Fitchen *et al*. (2009) stated that there are times when content is not organized when presented and this can hamper the teaching and learning process to a great extent. This, in turn, can arrest academic progress for students who rely on assistive technology or have focus disabilities and learning attention.

There is also a great need to eliminate barriers to learning due to the fact that some schools are still unwilling to accommodate students with special needs. Many educators are also unaware of students with disabilities and may not have the most suitable attitude to address their needs. Some educators are not properly trained to address issues with disabilities. Very often, classes are overcrowded, and students cannot secure the attention they deserve. Therefore, the entire teaching and learning process is gravely restricted, and the curriculum fails to be student-centered. A great number of educational institutions meet with inadequate infrastructure, thereby closing students off to the relevant tools needed to cater to their learning needs. Lack of resources for inclusion poses a major problem as well, along with parental and community involvement. Likewise, poor collaboration and a lack of support among peers, parents, teachers, schools, stakeholders, and even the Ministry of Education are repeatedly at the forefront. Makwana (2022) stated that labeling refers to the classification of children based on their disability. Labeling does not foster inclusion. The issue of labelling students must be addressed immediately, as it is a matter of grave concern. Children with special needs dislike being labeled purely because they feel rejected.

Technology and inclusive environment

Lomellini *et al*. (2023) opined that the use of modern technology can indisputably sustain and facilitate inclusive environments. What's more, they also stated that because it is flexible, it can also address the needs of diverse learners. Bartz (2020) affirmed that this depth of flexibility of online learning can assist some disabled students to alleviate some of their struggles. Some of these will consist of poor acoustics for students with hearing disabilities or long distances between buildings for students with mobility issues. Although online teaching can be challenging, it is fundamental, in large part for students with disabilities. Bose and Heymann (2020) stated that United Nations Children's Fund and the Convention on the Rights of Persons with Disabilities have been lobbying for the reform of the education system worldwide towards inclusive education. They also mentioned that inclusive education is mandatory. Furthermore, it requires that children with disabilities attend the same classes as children without disabilities. To this end, Foster (2020) added that proper inclusion must bring together the learning styles, contrasting disabilities, various cultural backgrounds, ethnic origins, and the level of ability of each student. Inclusive education also promotes a positive climate, a sense of belonging, includes embracing diversity, valuing and supporting full participation of all learners.

According to Puga (2022), ICT is essential in making learning effective in as much as the new generation uses technology almost always nowadays and when utilized in education, allows students to actively participate in learning. Francis *et al*. (2021) conjectured that inclusive education provides equal opportunities for all students. Marion (2020) asserted that merely using online learning allows students to expanded access to education. Hence, it is abundantly explicit that technology can be used to support and enable inclusive environments as it provides multiple means of presenting, representing information, expressing knowledge, engaging in learning, to and including assessment when fused with the Universal Design for Learning (UDL) framework in mind. The Universal Design for Learning is a curriculum used to support the development of curricula, the likes of which considers learner diversity and support inclusion. Universal Design for Learning (UDL) is based on universal design for all learners or users, regardless of disability, age, gender, size, culture, and other factors. Research has shown that UDL and technology as used face to face and the virtual classroom are all effective approaches that can improve academics for all learners; including those with special needs. Technology used in the online inclusive classroom also motivates learners and reinforces their satisfaction towards it. It

is important to note that, in using technology to support inclusion virtually, its success will basically depend on appropriate pedagogical strategies practised by educators.

The use of Universal Design for Learning (UDL) is fundamental and can integrate technologies as well as foster inclusion. Ismailov and Chiu (2022) concurred that UDL is a curriculum framework that predicates diversity and inclusion and UDL addresses the needs of every learner despite their disability, age, gender, size, culture, and diverse characteristics (According to King-Sears *et al*. (2023), learning should be presented in diverse ways and students allowed to express their understanding as deemed appropriate. They further added that educators ought to constantly engage students to make learning worthwhile. Harris *et al*. (2020) stated that UDL is a pedagogical approach towards inclusive teaching and learning for all students.

Carsten et. al. (2021) believed that the use of technology is strategic in education on the grounds that it proves to be interesting and enhances learning; especially among those students with disabilities. Some modern technologies that are beneficial and enhance the teaching and learning process are the Flipped Classroom as well as Microsoft PowerPoint with videos and pictures as a multimedia approach to embrace inclusion. A Flipped classroom is structured around the idea that a lecture or direct instruction is not for the ideal use of class times. Instead, students encounter information before a session thereby freeing class time activities that would otherwise involve higher thinking. Research conducted by Abino *et al*. (2019) demonstrated that PowerPoint is a great technological tool that can make lessons fun and interactive and of course promote learning. Taking advantage of the use of videos and pictures are also great tools to enhance students' learning. Guan *et al*. (2018) affirmed that when all these tools are combined, they are then called the multimedia approach to teaching and learning, enhance the teaching and learning process, students comprehend and subsequently cognition is evident.

The ADDIE learning model is also another effective learning tool. ADDIE stands for Analyze, Design, Develop, Implement and Evaluate. Kurt (2018) believed that many educators, training developers and instructional designers find this model very useful since the various stages are well defined and they facilitate implementation of effective learning or training tools. The first stage in the ADDIE model is Analyze. Nurdyansyah *et al*. (2022) strongly proposed that before designing an online course, educators must first analyze the current situation. This stage is vital owing to the fact that educators can capture the disparate characteristics and idiosyncrasies of students. This component also includes the actual abilities possessed by students and student learning styles. Nurdyansyah *et al*. (2022) recommended that when designing lessons and learning activities, educators should take into consideration the learning objectives, content, and, finally, the knowledge and skills of students. Based on these needs and assessments, they can employ some of the following technologies: PowerPoint presentations, pictures, and videos from YouTube with the aim to enhance the teaching and learning process.

Educators can also make good use of videos on the Learning Management System (LMS), for example the Moodle Platform incorporating the Flipped Classroom strategy. This method engages students who may have doubts or difficulty with a particular concept. To resolve these issues, they can go to their LMS and access a YouTube video and respond. These different responses often generate discussion in the online inclusive class and allow the lessons to become interactive and interesting. PowerPoint presentation can also be used to execute lessons with the help of embedded videos and pictures and in so doing, will include all students. Thus, this multimedia approach unequivocally fosters an inclusive environment which caters to diverse learning needs.

Kurt (2018) insisted that evaluation of lessons form an integral component since educators need to know if cognition is evident. Evaluation is also necessary as it allows educators to discern if the objectives were indeed effective. They can also reflect on the technological tools used to determine if they were appropriate and efficient in the execution of lessons to cater to diverse learners in the virtual space. Reflection is seeing that it can assess the strengths and weaknesses of the lesson and determine the next plan of action. Educators can implement technology to differentiate and individualize instruction for students; especially those with disabilities. Some modern technological tools that have proven effective to cater to these students are Screencast-O-Matic, Padlet, Storybird, Kahoot, Vocaroo, Quick Response codes, Plickers, Bookshare, Newsela and Bubbl.us to name a few. Mahoney and Hall (2017) believed that these modern technological tools guide students with disabilities in quite a few areas of learning difficulty. They further stated that Vocaroo and Quick Response codes provide reading alternatives, interactivity, and engaging options. Plickers and Kahoot are assessment tools. Screencast-O-Matic digitally videos the lesson for students to review at later times while Bookshare and Newsela are online level reading options. Padlet helps students create and collaborate in demonstrating their knowledge in an alternative manner. Bubbl.us is an online mapping tool which renders assistance to students with cognitive disabilities. The software takes notes, organizes information and structures writing for plans, papers, and reports. Using these technological tools to accommodate and differentiate instructional lessons provides students with 21st century skills as well as addresses the process, product, and pace of differentiation.

Corbett, Dumareq, and Tommasini (2021) affirmed that a proper inclusive environment is vital based on the fact that it ensures that students feel welcomed and valued as members of the school community. Fuentes *et al*. (2021) postulated that an inclusive syllabus also encourages intercultural interactions and backs the sharing of diverse experiences and perspectives. Germano and Nicholls (2020) believed that these components are essential for all students to feel welcomed and valued as members of the school community. Mind-mapping technological tools such as MindMeister, Bubbl.us, and Mindomo can assist in fostering culturally responsive instructions by developing intercultural competence through inquiry-based projects. This will then allow students to reflect on the cultural patterns influencing their assumptions and preconceptions, compare them with others and adapt emphatically to new ways of thinking and accomplishing

goals (Moore, Brantmeir, and Brocheild, 2017). According to Fuentes *et al*. (2021), this directs educators to include socio-cultural factors in inquiry-based learning, promote intercultural interactions in collaborative learning activities and open doors for students to exhibit self-efficacy and self-regulation. Besides that, these mind-mapping technological tools may serve students to brainstorm complex social justice issues and build on their prior knowledge through the sharing of perspectives.

Inclusive syllabus

Moore, Brantmeir, and Brocheild (2017) considered that to meet the diverse needs of students and to overcome the inconvenient barriers to accessibility, an inclusive syllabus should be designed with screen-reader capabilities and a myriad of display formats. Apart from that, an inclusive syllabus should reiterate the exigence of office hours where greater support and guidance can be provided by educators (Fuentes *et al*., 2021). This is necessary in order to create a welcoming school environment in which students can interact, dialogue, ask relevant questions and gain mentorship from faculty members outside of regular class sessions. Chambers (2020) noted that technology is a strategic element of inclusive education and suggested that the use of assistive technology (AT) can stimulate students with disabilities. McNicholl *et al*. (2021) defined AT as tools designed to improve the overall wellbeing of persons. In one study, McNicholl *et al*. (2021) found that AT bolstered academic engagement and participation. Students who use ATs in this study were better able to achieve academic tasks easily. This in turn allowed them to willingly partake in course material, thereby improving their learning and performance. Assistive technologies such as Calendly can be employed to overcome the time-consuming back-and-forth email challenges of scheduling office hour meetings. Moreover, the convenience of using Calendly expeditiously initiating a meeting with a faculty member could encourage those students who may be shy or more likely to avoid interacting with a faculty member to take advantage of the opportunities of mentoring. In so doing, this will contribute to their future professional endeavors in a positive manner. Each student can choose to meet with faculty members via videoconferencing, teleconferencing, face-to-face or any other preferred medium. Whether the office of the teachers is located on the ground floor or on the 10th floor that is only accessible via a staircase, all students are provided with a gamut of options for guidance and mentorship from their professor outside of regular class sessions.

Corbett *et al*. (2021) stated that over the last decade, there has been a growing trend in fostering inclusive education. This has reshaped the traditional student placement approach whereby separate classes were held for students with special needs or learning disabilities. Gregory (2018) affirmed that over the years, this same traditional placement of students only promoted exclusion, superiority, and harbored the formation of stereotypes. Gregory (2018) also postulated that inclusion of students with disabilities goes beyond physical involvement in educational settings towards ensuring that teaching methods and assessment practices provide infinite pathways to success. This may be achieved by cultivating a Universal Design for Learning (UDL) approach with the aim of accommodating a broader range of learning abilities and preferences. Kelly (2014) recommended the following technologies for encouraging UDL in inclusive syllabus: Assorted options of representation, Text-to-Speech Software, Talking Calculator, Audio Books, Visual Dictionaries, Mind-mapping software, Multiple options of action and expression, Speech-to-Text Software, Video Animation, Podcast, Multiple options of engagement, Wikis, Blogs, Shared Google Docs, Calendly and, last but not least, Self-paced Interactive and Quizzes.

Educators should make a concerted effort to identify appropriate technologies that would facilitate the components of an inclusive classroom. They must remember that an inclusive classroom ought to ensure that all students experience a sense of belonging. Hence an inclusive classroom appreciates and supports each member of the class. Another important component of inclusive education is determining the expectations of students and teachers. Educators can develop a Google Doc and spur students to establish the rules and guidelines of the activity which they wish to comply with. Ismailov and Chiu (2022) accepted that it is important to ensure guarantee that diversity is maintained in the delivery of the syllabus and designed to meet the needs of all students. Hooijer *et al*. (2021) noted that educators ought to be involved in regular and consistent reflection; both being prerequisites into challenging educators to re-consider and re-think their attitude towards improving an inclusive environment. Educators are within their right to schedule lessons in such a way that they can be accessed asynchronously. They can record the synchronous sessions and provide interactive learning resources for students. All goals and objectives would be clearly outlined, and students would be in a position to access the learning materials in their own time. Educators can also make learning materials available offline in the form of e-books, digital audio books and digital braille books. This is critical in view of the fact that lack of connectivity and poor internet service could act as a problem.

2. Results and discussion

A review of the professional literature undeniably indicated that few people place great emphasis on inclusive education. Many of them do not even hazard the attempt to include technology in their classrooms. Although it could prove to be complex to include modern technology in inclusive education, educators must be willing to both commence this process and be inclined to undertake this activity in the teaching and learning process. Too often students with disabilities are ignored. Thus, this research is crucial simply because it furnishes scholars and researchers with pertinent information and allows them to grasp how to appreciate and value the need to utilize modern technology in the classroom and make inclusion an important element of their practice. The analysis of existing literature indubitably contributes to current knowledge and serves as a catalysis to motivate, energize, and inspire others to actively participate in the process of instituting inclusive learning environments. It also accentuates elements of diversity, equity, and equality in the classroom. Because this paper enriches and enhances the research and academic scenario, it can steer

educators and all those who are genuinely interested in education in the right and proper direction. Moreover, it can encourage and prompt policy makers, non-governmental organizations and all those who honestly desire the best for students to render assistance without hesitation.

3. Methodology

This non-empirical research gathered apposite data through critical studies, systematic review, and meta-analysis. Secondary sources were taken from central library books, journals, and the internet. A careful and thorough investigation of appropriate and suitable research techniques such as text criticism, critical examination of biographical studies, narrative analysis, creative writing as a research method and internet-based research assisting this methodology were all adopted. Pertinent and apt reading material were also gathered and thoughtfully analyzed and evaluated academically and the importance of the findings informed this study.

4. Conclusion

It is doubtless that promoting inclusion with the use of modern technology is absolutely necessary. Gregory (2018) and Kelly (2014) affirmed this position. Regardless of the ability of students, all will be provided opportunities to exercise their autonomy in expressing their knowledge and monitoring their learning progress. The teaching and learning process will be enhanced and cognition will be evident. Supplementary aids and services (SaS) lend opportunities for all students to be actively engaged in learning. It is with sincere desire that this paper will stimulate the minds and hearts of the public so that they can realize and appreciate the importance of inclusion. An inclusive environment encompasses diversity, equity and equality in the classroom and is student-centered. The public ought to be fully cognizant of the fact that all children are the source of hope and could be the major factor for the development of a better society, nation and indeed a better world.

This non-empirical research explored the complexity of trying to accurately explain the need to include modern technology in the classroom and make inclusion a way of life. It must be remembered that creating inclusion is much more than a physical space or designated classroom. It is more than being empathetic and demonstrating sympathy. It is more than expressing a desire to be committed. It means getting seriously and wholeheartedly involved in the lives of children. This process is not easy. It is demanding, challenging and time consuming. Moreover, the paper highlighted that embracing inclusion is an integral component of education. Too often programmes and curricular are designed and little or no attention is given to the creation of a student friendly positive environment. Therefore, government institutions, non-governmental organizations and all those interested in education and the well-being of students should always engage in meaningful and regular dialogue. In this way, they can clearly ascertain and appreciate the urgent need to create inclusion.

5. Rererences

1. Abiño J, Agnote S, Canon J, Casin MA, Pequit CP, Solomon MR, Ablen AS. Using Powerpoint Presentation for Classroom Instruction among Grade Ten Students: Towards A Guide. Ascendens Asia Singapore–Bestlink College of the Philippines Journal of Multidisciplinary Research. 2019 Apr 1;1(1). [Google Scholar]
2. Anderson G. Accessibility suffers during pandemic. Inside Higher Ed. 2020 Apr 6; 6. [Google Scholar]
3. Bartz J. All inclusive?! Empirical insights into individual experiences of students with disabilities and mental disorders at German universities and implications for inclusive higher education. Education Sciences. 2020 Aug 28;10(9):223. [Google Scholar]
4. Black RD, Weinberg LA, Brodwin MG. Universal design for learning and instruction: Perspectives of students with disabilities in higher education. Exceptionality Education International. 2015 Jan 1;25(2). [Google Scholar]
5. Bose B, Heymann J. Do inclusive education laws improve primary schooling among children with disabilities?. International Journal of Educational Development. 2020 Sep 1;77:102208. [Elsevier]
6. Burgstahler S. Leveling the playing field for students with disabilities in online opportunities. InBridging Marginality through Inclusive Higher Education 2022 Mar 23 (pp. 235-250). Singapore: Springer Singapore. [Springer]
7. Carstens KJ, Mallon JM, Bataineh M, Al-Bataineh A. Effects of Technology on Student Learning. Turkish Online Journal of Educational Technology-TOJET. 2021 Jan;20(1):105-13. [Google Scholar]
8. Chambers D. Assistive technology supporting inclusive education: Existing and emerging trends. Assistive technology to support inclusive education. 2020 Sep 25:1-6. [Google Scholar]
9. Cook L, Rumrill PD, Tankersley M. Priorities and understanding of faculty members regarding college students with disabilities. International Journal of Teaching and Learning in Higher Education. 2009;21(1):84-96.
10. Corbett, T., Dumareq, C., Tommasini, J.Inclusive practices in educational institutions. Journal of Special Education. 2021;1(6), 2-6.
11. Dalton EM. Beyond Universal Design for Learning: Guiding Principles to Reduce Barriers to Digital & Media Literacy Competence. Journal of Media Literacy Education. 2017;9(2):17-29.
12. Fichten CS, Ferraro V, Asuncion JV, Chwojka C, Barile M, Nguyen MN, Klomp R, Wolforth J. Disabilities and e-learning problems and solutions: An exploratory study. Journal of Educational Technology & Society. 2009 Oct 1;12(4):241-56. [Publisher]
13. Foster, C. B. The Importance of Inclusive Education. c2020.
14. Francis GL, Lavin CE, Sanchez J, Reed AS, Mason L. Inclusive education definitions and practices: Exploring

perspectives of education professionals in Mexico City. Journal of Policy and Practice in Intellectual Disabilities. 2021 Mar;18(1):58-67. [Wiley]
15. Fuentes MA, Zelaya DG, Madsen JW. Rethinking the course syllabus: Considerations for promoting equity, diversity, and inclusion. Teaching of Psychology. 2021 Jan;48(1):69-79. [Sage]
16. Garrett, R., Simunich, B., Legon, R., Fredericksen, E. E. CHLOE 6: Online learning leaders adapt for a post-pandemic world. Quality Matters & Encoura.c2021.
17. Germano W, Nicholls K. Syllabus: The remarkable, unremarkable document that changes everything. Princeton University Press; 2020 Dec 31. [Google Scholar]
18. Gladhart, M. A. Determining faculty needs for delivering accessible electronically delivered instruction in higher education. Journal of Postsecondary Education and Disability.2010; 22(3):185–196. https://files.eric.ed.gov/fulltext/EJ906692.pdf
19. Gregory, J. Not my responsibility: The impact of separate special education systems on educators' attitudes toward inclusion. Educational Policy Analysis and Strategic Research. 2018; 13(1): 127 – 148.
20. Guan, N., Song, J., Li, D. On the advantages of computer multimedia- aided English teaching. Procedia computer science. 2018; 131:727-732. [Crossref]
21. Harris, P. S., Gould, R., Mullin, C. ADA research brief: Higher education and the ADA (pp. 1-6). ADA National Network Knowledge Translation Center.c2019.
22. Harris, B. N., McCarthy, P. C., Wright, A. M., Schutz, H., Boersma, K. S., Shepherd, S. L., Manning, L. A., Malisch, J. L., & Ellington, R. M. (). From panic to pedagogy: Using online active learning to promote inclusive instruction in ecology and evolutionary biology courses and beyond. Ecology & Evolution (20457758).2020;10(22):12581–12612. https://doi.org/10.1002/ece3.6915
23. Hooijer, E., Merwe, M. V. D., Fourie, J. (2021). Symbolic Representations as Teachers Reflect on Inclusive Education in South Africa. African Journal of Teacher Education, 10(1), 127–152. https://doi.org/10.21083/ajote.v10i1.6549
24. Ismailov, M., Chiu, T. K. F. (2022). Catering to inclusion and diversity with Universal Design for Learning in asynchronous online education: A self-determination theory perspective. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.819884
25. Izzo, M. V., Murray, A., & Novak, J. (2008). The faculty perspective on Universal Design for Learning. Journal of Postsecondary Education and Disability, 21(2), 60–72. https://files.eric.ed.gov/fulltext/EJ822094.pdf
26. Kelly, K. (2014). Fostering inclusion with Universal Design for Learning. Association of Amercian Colleges & Universities, 17(4), 3-5.
27. Kent, M. (2016). Access and barriers to online education for people with disabilities. National Center for Student Equity in Higher Education. https://espace.curtin.edu.au/bitstream/handle/20.500.11937/55588/55669.pdf
28. Ketterlin-Geller LR, Johnstone C. Accommodations and Universal Design: Supporting Access to Assessments in Higher Education. Journal of Postsecondary Education and Disability. 2006;19(2):163-72. [Available at]
29. King-Sears ME, Stefanidis A, Evmenova AS, Rao K, Mergen RL, Owen LS, Strimel MM. Achievement of learners receiving UDL instruction: A meta-analysis. Teaching and Teacher Education. 2023 Feb 1;122:103956. [Crossref]
30. Kurt, S. ADDIE Model: Instructional Design. c2018.[Available at]
31. Linder KE, Fontaine-Rainen DL, Behling K. Whose job is it? Key challenges and future directions for online accessibility in US institutions of higher education. Open Learning: The Journal of Open, Distance and e-Learning. 2015 Jan 2;30(1):21-34. [Crossref]
32. Lomellini A, Lowenthal PR, Snelson C, Trespalacios JH. Higher education leaders' perspectives of accessible and inclusive online learning. Distance Education. 2022 Oct 2;43(4):574-95. [Crossref]
33. Lomellini A, Lowenthal PR. Inclusive online courses: Universal Design for Learning strategies that impact faculty buy-in. InThe Instructional Design Trainer's Guide 2022 Mar 21 (pp. 101-111). Routledge. [Crossref]
34. Mag AG, Sinfield S, Burns T. The benefits of inclusive education: new challenges for university teachers. InMATEC Web of Conferences 2017 (Vol. 121, p. 12011). EDP Sciences. [Crossref]
35. Mahoney J, Hall C. Using technology to differentiate and accommodate students with disabilities. E-Learning and Digital Media. 2017 Sep;14(5):291-303. [Crossref]
36. Makwana, G. The concept of inclusive education in India. c2022. [Research gate]
37. Marion, H. (2020). Technology for inclusion. United Nations Educational, Scientific and Cultural Organization (UNESCO) Digital Library. [Available at]
38. McAndrew P, Farrow R, Cooper M. Adapting online learning resources for all: planning for professionalism in accessibility. Research in Learning Technology. 2012 Dec 19;20(4):345-61. [Crossref]
39. McNicholl A, Casey H, Desmond D, Gallagher P. The impact of assistive technology use for students with disabilities in higher education: a systematic review. Disability and Rehabilitation: Assistive Technology. 2021 Feb 17;16(2):130-43. [Crossref]
40. Moore C, Brantmeir E, Brookfield A. Inclusion by Design: Tool helps Faculty examine their teaching practice. Higher Education Teaching and Learning, Faculty Focus.2017. [Available at]
41. Nieminen JH, Pesonen HV. Taking universal design back to its roots: Perspectives on accessibility and identity in undergraduate mathematics. Education Sciences. 2019 Dec 31; 10(1):12. [Crossref]
42. Nurdyansyah N, Arifin MB, Astutik IR, Rais P. Online Inclusive School: A Technological Breakthrough in

Inclusive Education During the Covid-19 Period. Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran. 2022 Dec 16;8(4):806-16. [Crossref]
43. Oyelere SS, Silveira IF, Martins VF, Eliseo MA, Akyar ÖY, Costas Jauregui V, Caussin B, Motz R, Suhonen J, Tomczyk Ł. Digital storytelling and blockchain as pedagogy and technology to support the development of an inclusive smart learning ecosystem. InTrends and Innovations in Information Systems and Technologies: Volume 3 8 2020 (pp. 397-408). Springer International Publishing. [Crossref]
44. Payà A. Inclusive and special education policies in South America. InOxford Research Encyclopedia of Education 2020 Aug 27. [Crossref]
45. Puga RU. Game-based Learning. A tool that enhances the collaborative work. Case study: undergraduate students. InEuropean Conference on Games Based Learning 2022 Sep 29 (Vol. 16, No. 1, pp. 570-577). [Crossref]
46. Roberts KD, Park HJ, Brown S, Cook B. Universal design for instruction in postsecondary education: A systematic review of empirically based articles. Journal of Postsecondary Education and Disability. 2011; 24(1):5-15. [eric.ed.gov]
47. Salas-Pilco SZ, Yang Y, Zhang Z. Student engagement in online learning in Latin American higher education during the COVID-19 pandemic: A systematic review. British Journal of Educational Technology. 2022 May;53(3):593-619. [Crossref] [Wiley]
48. Sarrett JC. Autism and accommodations in higher education: Insights from the autism community. Journal of Autism and Developmental Disorders. 2018 Mar;48:679-93. [Crossref]
49. Satterfield D, Lepage C, Ladjahasan N. Preferences for online course delivery methods in higher education for students with autism spectrum disorders. Procedia Manufacturing. 2015 Jan 1;3:3651-6. [Crossref] [Elsevier]
50. Schelly CL, Davies PL, Spooner CL. Student perceptions of faculty implementation of Universal Design for Learning. Journal of postsecondary education and disability. 2011; 24(1):17-30.. [Publisher]
51. Seale J. Improving Accessible Digital Practices in Higher Education. Palgrave Macmillan; 2020. [Springer]
52. Singleton, K., Evmenova, A., Jerome, M., K., Clark, K. Integrating UDL strategies into the online course development process. Online Learning. 2019; 23(1): 206–235. [Crossref]
53. United Nations. (2017). Toolkit on disability for Africa. Inclusive Education. [un.org]
54. Westine CD, Oyarzun B, Ahlgrim-Delzell L, Casto A, Okraski C, Park G, Person J, Steele L. Familiarity, current use, and interest in universal design for learning among online university instructors. International Review of Research in Open and Distributed Learning. 2019 Dec;20(5):20-41. [Crossref]
55. Xie J, Rice MF. Professional and social investment in universal design for learning in higher education: Insights from a faculty development programme. Journal of Further and Higher Education. 2021 Aug 9;45(7):886-900. [Crossref] [Google Scholar] [Taylor & Francis]