Chapter 2
Development of a Socioeconomic Inclusive Assessment Framework for Online Learning in Higher Education

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ABSTRACT

Higher education institutions worldwide were compelled to deliver their courses online due to mobility restrictions and lockdowns during the COVID-19 pandemic. This sudden shift has disrupted the educational system leaving millions unprepared for the new mode of instruction. One critical area that received little attention during this transition is student assessment. Many assessment methods designed for face-to-face classes have been adapted for online learning without much consideration. The conversion to emergency remote education has likewise exacerbated existing and uncovered new socioeconomic issues that demand immediate action. A scoping review has been carried out to map the concepts and develop a socioeconomic inclusive assessment framework for online learning in higher education. This framework will serve as a guide in designing assessment tasks that are more socioeconomically inclusive, making online learning more equitable. This chapter offers practical implications for developing a more inclusive assessment design that is beneficial to a broader group of students.

INTRODUCTION

The mobility restrictions imposed by governments to fight the coronavirus disease 2019 (COVID-19) outbreak have forced academic institutions to adapt to the new normal by transferring physical classrooms to various digital platforms (Garcia & Revano, 2022; Khan, Kambris, & Alfalahi, 2022; Lemay et al., 2021; Pokhrel & Chhetri, 2021). Since March 2020, the COVID-19 pandemic has brought many unprecedented challenges leaving drastic and profound effects on the education landscape (Lungu & Lungu, 2021; Zdravkova & Krasniqi, 2021). Following school closures due to nationwide lockdowns, many students were exposed to the shortcomings of emergency remote education, such as the lack of infrastructure, low teaching and learning quality, non-conducive learning environment at home, poor internet service, and mental health issues, and limited exposure to online instruction. Teachers face similar challenges but with additional difficulties including intensified workloads particularly in moving all face-to-face learning materials into the online space (Allen et al., 2020; Lin & Yeh, 2022; Treceñe, 2022). The paradigm shift in instruction delivery likewise compelled academic institutions to come up with policies to ensure a continuous high-quality education (Khusanov et al., 2022; Xu & Ma, 2021).

Despite these tremendous efforts, transitioning from traditional face-to-face to online learning has intensified the gaps and inequalities in accessing equal learning opportunities among diverse social groups (Iyer et al., 2022; Pittman et al., 2021; Zdravkova & Krasniqi, 2021). Undeniably, a significant number of students are still denied comparable opportunities in this new learning environment. For instance, in the case of South Africa, Dube (2020) reported that both students and teachers in rural areas face problems of limited network coverage and a shortage of devices. To mitigate these problems, he proposed an inclusive approach to online teaching and learning as the COVID-19 pandemic has widened the gap between the rich and poor and those in rural and urban areas. This challenge has demanded practitioners, governments, and stakeholders to work on urgent interventions so that no learners are left behind. Additionally, Hevia et al. (2022) asserted that school closure has resulted in learning loss and an increase in learning poverty, especially in the poorest countries with economically disadvantaged students. One of the potential approaches to mitigating the present problem is by taking an inclusive approach where students are afforded opportunities to continue their education. The inclusive approach goes beyond the original intention to meet the needs of physical disabilities as it now has been extended to include a multi-faceted education (Zdravkova & Krasniqi, 2021). In this renewed version of inclusive education, not only academic support, acceptance, and leadership are the criteria of inclusivity but also the availability of resources and tools in providing equal and fair educational opportunities to learners of diverse backgrounds (Mitchell, 2015). More importantly, socioeconomic factors play an essential role in this new model of inclusive education because they are determinants of student achievement and educational outcomes in general. Given the drastic changes and challenges mentioned above, adopting a socioeconomic inclusive approach to online education is necessary. Socioeconomic inclusion in the context of online education emphasizes the necessity of addressing various needs that could arise due to differences (e.g., income, religion, ethnicity, wealth, social support, and community safety). Hence, a socioeconomic inclusive approach entails the promotion of an equal opportunity policy for students regardless of needs, resources, or backgrounds.

MAIN FOCUS OF THE CHAPTER

This chapter attempts to expose the postulation of socioeconomic inclusion in higher education with a particular focus on assessment. The aim is to underscore the necessity for socio-economic inclusive assessment methods in online learning environments in higher education. Assessment is an integral part of instruction and the switch to an online education warrants a revisit to ensure appropriate assessment methods and fair evaluation practice. The beleaguered question for academics in higher education institutions (HEIs) is how to formulate online assessment methods that are socioeconomic inclusive for online learning. With the increasing importance of inclusive education (Iyer et al., 2022; M S & Siddiqui, 2022), especially in online learning, there is an urgency to address this question. Hence, the research question for this study is: *What are the factors to consider when designing assessments for online learning that are socioeconomic inclusive*? The final goal is to propose a framework that would encapsulate all these factors to guide teachers in designing online assessments during remote education.

METHODOLOGY

This chapter adopted a scoping review approach to map the key concepts underpinning the research area of online learning inclusivity in higher education with a particular focus on assessment methods. According to Munn et al. (2018), a key difference between systematic and scoping reviews is that the latter has a broader scope and is useful for exploring emerging evidence. A scoping review is deemed suitable for this chapter because of the growing number of evidence on inclusive education in online environments due to the sudden transition precipitated by the COVID-19 pandemic. This chapter accomplished the scoping review by following a five-step framework outlined by Arksey and O'Malley (2005):

1. Identify the research question – This stage involved an extensive discussion with the study team to establish possible research questions surrounding the area of online learning inclusivity in higher education.
2. Identify relevant studies – This stage involved sourcing electronic databases (e.g., Scopus and Web of Science) to find relevant peer-reviewed literature by following a set of inclusion criteria.
3. Study selection – This stage involved performing different screening strategies (e.g., title, summary, and full-text) to filter the initial selection and keep the documents aligned with the research topic.
4. Charting the data – This stage involved extracting data, such as the document description (e.g., publication year), thematic area, and the major finding concerning the research area being investigated.
5. Collating, summarizing, and reporting the results – This stage involved synthesizing the extracted data from included studies and the narrative reporting of all the results grouped into thematic discussions.

The methodological enhancement to this framework proposed by Levac et al. (2010) was also observed for a more consistent undertaking of each stage. Their recommendations aim to support the advancement of scoping studies in health research, but their suggestions are also applicable to any scoping review. To ensure transparency in reporting the findings, the reporting guidelines provided in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (Tricco et al., 2018) were used.

Figure 1. Flow diagram of the study
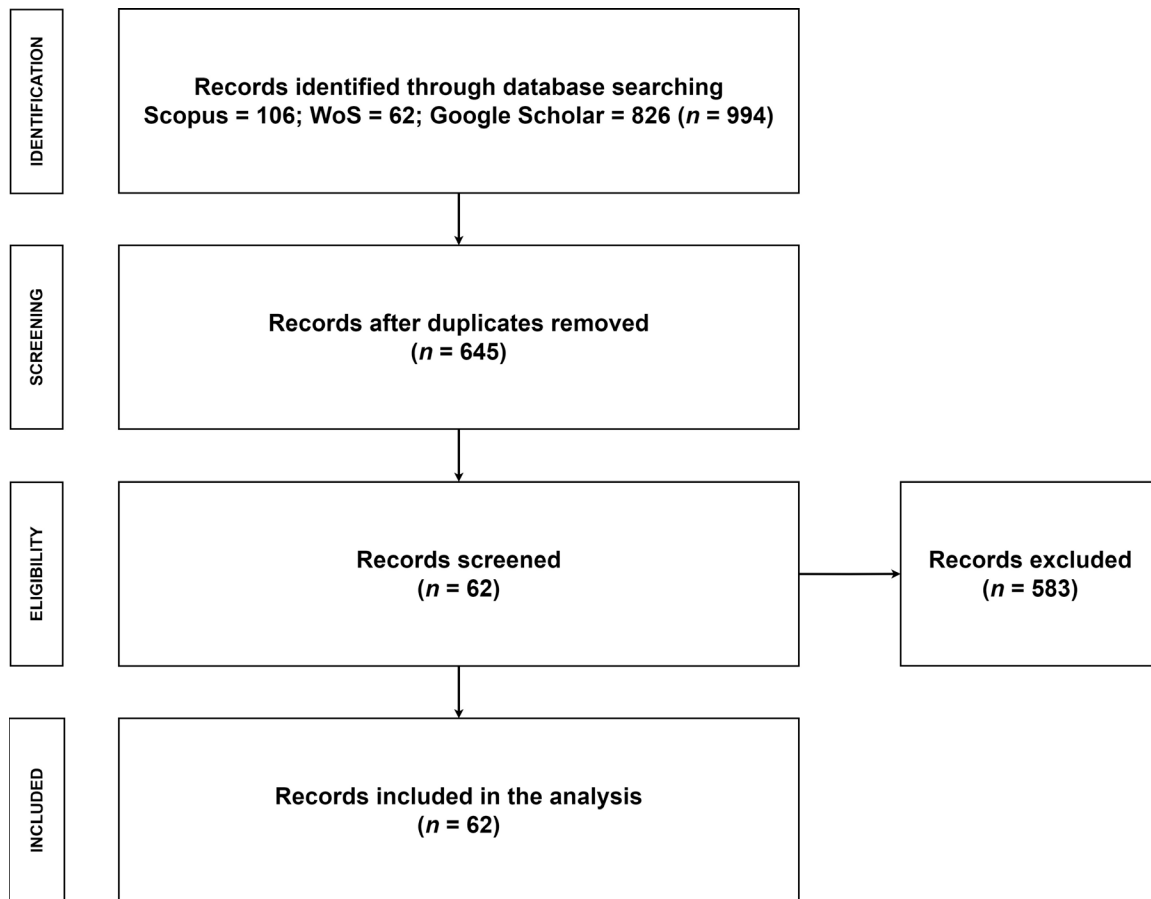
Relevant peer-reviewed literature was searched from electronic databases such as Scopus and Web of Science. We also sourced articles using the Google Scholar search engine for grey literature, and other papers that are not indexed in the abovementioned databases. The search technique used to find articles in the databases was advanced searches using basic functions, such as Boolean Operator (AND, OR), phrase searching, truncation, wild card, and field code's function. We searched the papers' titles, abstracts, and keywords using the terms ("*online*" OR "*remote*" OR "*distance*") *AND* ("*learning*" OR "*teaching*" OR "*education*") *AND inclusive* AND assessment*. All authors examined the articles and their corresponding full texts were obtained if they meet the inclusion criteria. The inclusion criteria are presented as follows:

- Articles must be published in English.
- Online learning articles must be published from 2020 onward to capture the landscape of the pandemic situation and the issues of socio-economic inclusion.
- No time restriction on articles covering assessment methods and the corresponding effectiveness, socioeconomic inclusion, and inclusive education.

FINDINGS AND DISCUSSION

Inclusive Education in a Higher Education Context

In recent years, inclusivity in education has long been an intriguing topic of discussion among scholars, academics, and policymakers. The arousing of interest emanates from the fact that each learner is unique and adapts to learning differently, and to cater to these personalized needs is a complex and thorough process. Hence, researchers have been exploring effective pedagogies and policies that suit learners in every possible way to maximize learning and engagement. The questions of what and how to make every learner feels included in the teaching and learning process have shaped numerous inclusivity-based assessment models. Danowitz and Tuitt (2011) pointed out that institutions must improve the system and narrow the achievement gap to produce qualified and skilled graduates that can contribute to a competitive economic market. The achievement gap crisis in any institution is a critical issue that is worth the attention of practitioners and policymakers and an inclusive education approach is very much needed as a remedy to this problem.

Before we narrow down further to socioeconomic inclusivity in education, it is crucial to understand the key idea of the term 'inclusivity' in the higher education context. Inclusivity in education provides a better quality of education to students and at the same time promotes a mutual understanding of celebrating one's diversity and uniqueness. The term *inclusive education* appeared in the research literature way back in the 1980s as an alternative to special education that entails providing equal opportunities and increasing participation among students (Skrtic et al., 1996). UNESCO defines inclusive education as "*a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures, and communities, and reducing exclusion from education and from within education*". This definition means an inclusive approach to education serves the purpose to remove any pedagogical and curricula barriers and promote equity and quality education for all learners. These barriers can range in many aspects, such as sex, ethnicity, language, region, ability, and socioeconomic condition.

Nevertheless, taking into consideration the ever-changing world where almost everything moves at a rapid force, inclusivity in education now involves more than just physical disabilities but rather the availability of resources and a learning environment that can aid students' learning and maximize their opportunities to learn. Regardless of its varied definitions, it all comes down to the same goal, to ensure equity in education for all students, providing them the assurance that their diver needs are to be brought into a common shared space and be respected and celebrated.

Global Roles in Materializing Inclusive Education

There is no disbelief that governments and stakeholders are taking various efforts in promoting inclusivity in education (Amaghouss & Zouine, 2022; Bihu, 2022). According to The World Bank (2019), in Article 24 entitled Education under the *Convention on the Rights of Persons with Disabilities* of the United Nations, countries "*recognize the rights of persons with disabilities to education*" and they "*shall ensure an inclusive education system at all levels and lifelong learning*". This goal also incorporates the recent Sustainable Development Goal 4 (i.e., quality education) to continue providing equal opportunities for learners of all shapes and ableism. From a financial point of view, The World Bank Group's ten commitments ensure that the organization finances education programs and projects that

are disability-inclusive by 2025. Gromada, Richardson, and Rees (2020) emphasized the need to grant inclusivity to all learners, especially those who are economically disadvantaged to avoid stigma against the most vulnerable students.

The Global Education Monitoring Report 2020 (UNESCO, 2020) on inclusion and education considers education in its strongest form when it embraces the diversity of learners. It is also believed that students should not have to adapt to the system, instead education systems bear the responsibility to adapt to students' diverse needs. The feeling of not belonging or being unwelcome in schools tends to make students less likely to learn and disengage from the learning process. When discussing the issue of being inclusive for all, one of the major concerns is the fact that rich and poor countries too often educate students apart. In some cases, studies have reported that educators are often ill-equipped to cater to the diverse needs of their students (e.g., Slee & Allan, 2001). Pedagogically, testing and assessments sometimes follow '*a fixed education for all*' and some students might leave as a result, prompting a serious dilemma for stakeholders. The world's global education needs to uphold the rights of every student to have equal access to education. The 21st century is the era of digitalization and has tremendously sifted everyone's directions in compassing their future. To keep up with this need, students need a fixable, creative, and relevant curriculum that can help and empower them to strive in a dynamic environment. With the ongoing COVID-19 pandemic as an additional challenge, education stakeholders have the responsibility to transform the education system into a more inclusive one for learners. The unprecedented health and economic crises due to the pandemic are aggravating existing development challenges, especially in developing countries (Garcia & Revano, 2022). A more detailed discussion on inclusive education before and during the COVID-19 pandemic is presented in the next section.

Defining Inclusive Education in Pre- and Ongoing Pandemic Era

The concept of inclusivity in higher education has always been an area of interest among scholars and researchers. Taking the United Kingdom as an example, Stentiford and Koutsouris (2021) reported that inclusive education started way back in the late 20th century and acted as a neoliberal reform to embed competition and choice into higher education sector. The reform in policy was accomplished based on the idea that universities are an instrument of knowledge, wealth creation, and social inclusion. The challenge to forgo inclusive education is even more complex as the number of students from diverse backgrounds, cultures, and beliefs is rapidly increasing. This diversity of students requires a common space that is multidimensional to permit a meaningful learning experience (Xu & Ma, 2021).

As previously discussed, scholars have come up with various definitions of inclusive education. Taking one example in an Asian context, inclusive education is defined as a process that addresses the needs of diverse learners and a commitment to both individuals and societies (Chauhan & Mantry, 2018). Although, such a definition is often misunderstood with the concept of integrated and mainstreaming learning. Mainstreaming is the integration of a diverse population of students in a school setting where all resources and opportunities are equally shared. This approach is different from inclusive education because the latter is way beyond sharing the same resources. On a different note, inclusivity in education aims to provide the same opportunities to all students with different and unique characteristics by providing them with an authentic learning environment that lays the foundation for accepting, respecting, and celebrating diversity. In this case, the approach welcomes a diverse background of students from different socioeconomic groups.

During the pre-pandemic era, Morgado et al. (2016) suggested that the implementation of an inclusive education necessitates that school members are to be valued and given a sense of belonging to improve the learning and participation of all students in a common education context. Inclusive education is seen as a framework or a policy that guarantees equal opportunities for students for high-quality education. In this concept, diversity, which often comes in the form of characters, genders, beliefs, and socioeconomic statuses, is seen as benefits rather than hurdles. Nevertheless, one major adjustment that is presently faced by scholars, educators, and learners around the globe is the consequence of the COVID-19 pandemic, particularly on how it shifted the education sector to a new approach that is still very much at an ambiguous yet progressive and promising state.

The inclusion of technology in education through online learning is an additional complexity that has raised some concerns, especially regarding the way universities operate (Ansu-Kyeremeh & Goosen, 2022; Kumar, 2020). Upholding inclusivity alone is much known as a challenging but not impossible task. The pandemic has become a pedestal that offers opportunities for educators and scholars to shift their directions and resume their continuous efforts in making sure education is inclusive to every learner. Bearing this observation in mind, one is tempted to question: How does inclusive education play its role in achieving this goal? Why does it matter for higher education to provide inclusive education to students and how can it be achieved? Before these questions are addressed, it is vital to first look at the broader picture of inclusive education in the context of online learning.

Inclusive Education for Online Learning in Higher Education

In the higher education setting, the current market-oriented environment is hostile to the development of inclusive education (Nunan et al., 2000). This is because integrating inclusivity in higher learning institutions involves multiple layers of considerations, processes, and implementations. To explain further, Baldwin (2020) reported that the higher education sector has come under great scrutiny over the years and the COVID-19 pandemic has made it even more hostile. With online learning taking over traditional lectures, universities are struggling in maintaining their roles in providing exceptional academic standards. Implementing the principle of inclusive education within higher institutions is ever-challenging as it was originally developed for younger students before its implementation in higher education. Most of the primary work of inclusive education is designed for students in the early stages of their education and implementing the same model for adult learners in higher institutions involves many variables. Nunan et al. (2000) reported that, in a higher institution context, implementing inclusivity might be seen as an attempt to raise the issue of freedom and academic standards that might not be well accepted by all. As previously mentioned, the current ongoing pandemic and the major shift to online learning have made it even more exigent. The challenges in promoting inclusivity in HEIs amid the COVID-19 pandemic are further illustrated in the next subsection.

Challenges of Being Inclusive During the COVID-19 Pandemic

Klemm et al. (2020) addressed the issue of how the pandemic has dramatically impacted higher education, especially within certain disciplines (e.g., medicine and medical laboratory science). It was reported that educators and practitioners in higher learning institutions were forced to make creative alternatives to make sure learning and teaching remained unaffected. Achieving the goal of having an inclusive education that meets the needs of diverse learners is now even more complicated because classes are

conducted via online learning platforms. Drawing from the main principle of inclusive education as described in the previous sections, educators are in the limbo in balancing the ideas of offering a sense of belonging to ensure all students can access learning resources and giving enough support for students in achieving their goals. This dilemma calls for an increased demand for empathy and resilience from both educators and students. To substantiate this assertion, Trevisan et al. (2020) asserted that one of the misconceptions about online education is that it has always been regarded as a replacement for the traditional classroom. This fallacy has often led to the dilemma of choosing a platform that caters to a fair opportunity for diverse students to benefit from the teaching and learning process through their individualities and abilities (Lungu & Lungu, 2021).

In their recent study of online learning in higher education, Rawashdeh et al. (2021) learned that this instruction model has the potential in offering students an alternative to face-to-face lessons. Neverthe-less, education conducted in a virtual environment might affect their retention level and the ability to perform collaborative learning as socializing through the invisible web is challenging. Similarly, Ahsan et al. (2012) reported that despite the positive response on the inclusivity in education, there were some concerns about equipping educators with the right perceptions and attitudes. The study reported that in Bangladesh, countries with similar socio-political and demographic settings are facing unique challenges. Among the challenges discussed were the issues of negative attitudes among learners, concerns about inclusive education, and also challenges in the curriculum where participants believed that there was a lack of inclusivity in the curricula and a lack of resources in supporting the diverse needs of all learners. The same issue was addressed again in the work of Stentiford and Koutsouris (2021) where they state that higher education researchers do not have a common understanding of inclusive pedagogies and that there are inconsistencies and fragmentation in perceptions that need quick fixes.

Promising State of Inclusive Education in Higher Education

Despite the overwhelming concerns, being inclusive in the higher education context is not entirely impossible. To promote inclusive teaching and foster student belonging, educators can take the inten-tional, widespread inclusion approach. Sanger (2020) outlined various strategies for inclusive teaching applicable to diverse higher education settings. Following the *Universal Design for Learning* approach, teachers must proactively learn and familiarize the dynamic environments, particularly with the diverse students' prior educational experiences. Likewise, teachers must encourage struggling students and signal confidence in their ability to learn. More importantly, inclusive assessments are vital in measur-ing whether students are acquiring competency in relevant skills. The first step towards the practice of inclusive assessments is representing diversity in the course content. Nevertheless, the directions and implementations of inclusive education in the higher education context are still very much in an ambigu-ous, yet hopeful, phase.

At present, inclusive education and diversity in higher education are regarded as important elements in enriching the educational experience that is often approached through inclusive pedagogy. Universities are regarded as instruments of a knowledge economy and as drivers of economic and social development. Correspondingly, these institutions have opened more opportunities for geographic mobility with students traveling across the world to study for a degree. However, there is a concern this approach might not best serve the interests of students from diverse backgrounds who might have different learning requirements. For example, international students might have additional language needs and a small number of students might require modified learning resources that are different from the rest of their peers. The pedagogical

consideration of incorporating students' heterogeneous backgrounds, abilities, and interests into teaching is one of the paramount requirements in this ever-challenging era. Sanger (2020) argues that diversity allows opportunities for both students and educators to have a better understanding of their needs. This can be regarded as an opportunity for both to have a chance to improvise learning and teaching experience. With inclusive education in mind, there has been a push toward a different instructional model as well as assessments that are more active and dialogical.

Socioeconomic Inclusion in Higher Education

The definition of socioeconomic inclusion can be understood under the big umbrella of inclusive education (UNICEF, 2022). Students should not be deprived of an opportunity to receive higher education due to social (e.g., race and religion) and economic (e.g., household income and family wealth) factors. Furthermore, there should be no barriers that hinder students from less superior social-economic conditions to excel in their education. This principle of inclusivity should be applied not only to the design and delivery of the courses but also to the assessments. Some examples include (a) using online synchronous when some students lack stable internet connectivity (Dhuinn & Garland, 2022) and (b) setting the deadline for an assignment submission on a rest day or a religious holiday. Academics and policymakers in HEIs should attempt to understand the consequences of these strategies on students to better embrace the principle of inclusive education.

Overview of Assessment Methods

An assessment is an integral part of learning be it an assessment for learning or an assessment of learning (Harlen & James, 1997). However, there is a multitude of assessment methods for both face-to-face and online learning courses. Each assessment methods have its corresponding objectives and strengths. However, there are also weaknesses, especially when we examine these methodologies through the lens of inclusivity.

Online Assessment vs. Traditional Assessment

The mediation and involvement of Information and Communication Technologies (ICT) in higher education to provide an online learning environment has called for online assessment that can enable students to take examinations remotely in their homes. ICT enables educators to set online testing with web-based assessment tools, mark tests and exams with the automated scoring technology, and be able to track and assess students' performance, thus providing direct quality feedback to students immediately and in a shorter time, especially for large classes. However, Alruwais et al. (2018) cautioned that there are likewise difficulties with online assessments. These challenges include teachers and students being unfamiliar with technology and the online assessment process, poor internet connection and accessibility, lack of digital infrastructure, and difficulty in automatically marking the open-ended questions. Due to the inequitable impacts of the COVID-19 pandemic on ethnicity and socioeconomic status, the higher educational institutions have significantly modified the assessment roles, implemented flexibility in assessment and assignment deadlines, and allowed the option of shifting pass or fail grades available to students. The decisions were driven by the students' needs and equity gaps, differential access to technology, and their remote learning environment (Dhuinn & Garland, 2022). A survey by the Na-

Table 1. Comparison between online and traditional assessments

Items	Online Assessments	Traditional Assessment
Benefits	Allows the delivery of constant and real-time feedback that can be given at a time and place appropriate for both students and educators.	Assessment by coursework alone or by blending coursework and examinations tends to produce higher marks than assessment by examinations alone.
Concept & Framework	Online assessment in emergency remote teaching framework, principles of a best-practice online assessment.	Theory of expertise development, theory of psychometric and assessment framework for learning.
Methods	• Online quizzes. • Built-in continuous feedback. • Multiple-choice questions. • Simulated clinical skills. • Clinical examinations using real-time communication technology. • Automated assessment for essays. • True/false, fill in the blank, fill in multiple blanks, and essay question. • Speed grader. • Plagiarism check software.	• Multiple-choice questions. • Short-answer questions. • Short essays. • Assignments. • Writing reports. • Open-book examination. • Traditional paper feedback. • Traditional paper grading and marking. • Checking plagiarism manually.
Difficulties	Student perspectives: • Internet unavailability. • Internet instability. • Unable to afford internet. • Cost of internet connection. Faculty perspectives: • Require training. • Require an online platform. • Require technical support.	Student perspectives: • Cost for papers and other logistics. • Slow feedback. Faculty perspective: • More time for grading. • More time for checking plagiarism. • Logistics for invigilation.

tional *Institute for Learning Outcomes Assessment* in the United States in 2020 indicated that students appreciate increased flexibility of assessment methods when assessing students' learning (Jankowski, 2020). Students voiced the importance of empathy and student-focused support. Educators would need to consider equity and inclusion when designing assessment activities.

HEIs need to embrace authentic assessments to address inequities due to socioeconomic status to mitigate student anxiety. However, in terms of the traditional assessment methods (i.e., paper-based tests), Flores et al. (2015) claimed that they might be appropriate in specific contexts, such as testing students on factual knowledge rather than catering to students' diverse learning preferences. Meanwhile, Alruwais et al. (2018) asserted that online assessment methods would provide accurate and faster ways to assess students. Students may learn and take the assessment remotely in their home, and it provides the flexibility of time for students to take the exams. Instead of long face-to-face exams and instructors spending days grading the exam, online learning harnessing the power of ICT has broadened and enhanced creativity about assessments and allowed for students' interaction with the material in more exciting ways. Table 1 shows a comparison between online and traditional assessments adapted from Tuah and Naing (2020).

Flores et al. (2015) found that the inclusion of formative assessments with active involvement and participation from students will help to improve their learning more than the students who attended classes with summative assessments only. Formative assessments allow regular and meaningful feedback on different assessment methods during the teaching semester. This feedback can enable students to

Table 2. Summary of formative and summative online assessment methods

Items	Formative	Summative
Individual	• Online quizzes. • Probing short questions to enhance the study. • Interactive formative feedback, immediate automatic or built-in feedback. • Simulated clinical skills. • Self-test quiz tools. • Discussion forums. • E-portfolios.	• Multiple-choice questions. • Short answer questions. • Clinical examinations. • Viva-voce using communication technology (such as Skype, Zoom). • Automated assessment for essays.
Group	• Group online quizzes. • Group presentation and feedback.	• Group community outreach project online written report. • Group community outreach project presentation. • Peer assessment for group interaction.

improve their learning and achievement. According to Ndibalema (2021), formative online assessment with technology-enhanced feedback is critical for students' learning. Halaweh (2020), on the other hand, proposed project-based learning as an effective alternative assessment by encouraging students to work on a project that solves real-world problems, allowing for deep learning and developing 21st-century skills. Table 2 outlines the common formative and summative online assessment methods adapted from (Tuah & Naing, 2020).

Effectiveness of Online Assessments

Online learning has expanded the creativity of learner-centered assessment methods because of the vast array of tools that teachers may deploy. There is no one-size-fits-all as the assessment methods will depend on the learning design to achieve the intended course learning outcomes. It is challenging to design online assessment methods that could evaluate students' learning effectively (Xiong & Suen, 2018). Effective and meaningful assessment methods can only be performed if the purpose of assessment, assessment criteria, and intended learning outcomes can be established (Gaytan & McEwen, 2007). Students preferred online assessments where there is active personalized interaction with instructors to provide constructive, timely, and meaningful feedback to enhance students' learning process (Tuah & Naing, 2020). Nevertheless, educators need well-balanced formative and summative assessments in assessing students' learning outcomes.

Many educational tools and digital resources are available to help educators design authentic assessments of knowledge and skills that the learners may need in the eventual workplace. The diverse backgrounds and experiences of students in online learning may enrich each one's knowledge while at the same time, meeting the course learning objectives (Sun, Wang & Wang, 2021). However, it will be crucial for educators to consider factors such as the readiness of students and teachers and student diversity. Thus, there is a need to carefully evaluate the effectiveness of the online assessment methods and their impact on students' learning outcomes (Tuah & Naing, 2020). Table 3 shows the details concerning the pros and cons of the assessment methods in an online learning environment.

In the study of Robertson and de Silva (2020), there were emerging issues regarding academic integrity and misconduct as students take their assessments remotely. Concerns have also been raised regarding

Table 3. Assessment methods in online learning

Methods	Pros	Cons
E-Portfolios	Authenticating one's learning as being able to assess a learner's accumulated rigorous work over a course, allows for critical self-reflection and sustainable engagement with the learner's own learning experiences to align with the course and program learning outcomes (Conrad & Openo, 2018).	Compilation of e-portfolios can be very time-consuming as comprehensive and supportive documents and artifacts may be required. Assessors would need ample time to review the e-portfolios to affirm the achievement of the course and program learning outcomes (Conrad & Openo, 2018).
Learning Journals	Providing sustained and rigorous self-reflection and personal thoughts and experiences of the learning journey of learners throughout the course. Journals may be structured following a theme or topic and allowed for instructor-learner conversation around specific questions stipulated by instructors (Fung et al., 2021). Journals document the learner's grasp or struggles of a topic and at connecting disparate ideas. Both assessment and grading must align with the intended course and program learning outcomes (Conrad & Openo, 2018).	Learners may feel uncomfortable as they felt being judged on their thoughts or feelings. Journals might be time-consuming as it involves learners reflecting on their learning throughout a course (Conrad & Openo, 2018).
Group Projects and Group Work	Provides an opportunity for more constructive, creativity, community, and collaboration among the learners with the abundance of media tools available online. Learners can demonstrate a new range of skills - group learning, organization and personal skills, teamwork and problem-solving skills (Garcia, 2021); peer appreciation, and each learner feels empowered to share their knowledge with other group members in an online learning environment (Conrad & Openo, 2018).	Can be challenging for the instructor to observe the group process thus clearer assessment processes are needed. Need to consider the possibility of 'free rider', student antipathy to groups, selection of groups, inequalities of abilities, lack of group and communication skills, and withdrawal of group members are among the challenges faced.
Online discussion and presentations	Rubrics may be deployed to guide online discussions and presentations to show the learners' understanding of the course material (Alruwais et al., 2018).	
Online quizzes and multiple-choice questions	Assess essential knowledge and promote self-directed learning, save time for educators with the automatic scoring technology, and be able to track and assess students' performance and provide immediate and direct feedback to learners (Alruwais et al., 2018).	Instructors need time to design the multiple-choice questions and ensure no ambiguity, which makes cheating easier (Alegre & Berbegal-Mirabent, 2021).
Online test and exam	Easier to prepare than multiple-choice questions, students are free to express their answers (Alegre & Berbegal-Mirabent, 2021).	Time-consuming for instructors to grade, high subjectivity (Alegre & Berbegal-Mirabent, 2021); grading of online exams may not be fair to students and thus does not reflect students' real capabilities (Halaweh, 2020).

the design of online assessments used to evaluate students' knowledge because the format was different from the face-to-face version and hence might not fairly measure students' knowledge. The instability of internet connectivity may interrupt the progress of online assessments, causing unnecessary loss of marks if the assessment cannot be recovered. This is particularly the case with synchronous assessments. The adverse living conditions and the lack of a conducive space might also adversely affect the effectiveness of online assessments on certain students. In addition, some academics found that marking online

assessments required more effort due to lacking experience and proper training. They concluded that these restraints call for a proposal on alternative and more inclusive methods of assessment to measure students' learning outcomes.

Cook-Sather (2020) also claimed that the global pandemic had exacerbated inequalities in students' experiences and inequities in assessment in higher education. They proposed reconceptualizing assessment practices to ensure equity and justice in the online learning environment. The pedagogical partnership between academics and student partners to develop alternative assessments that respond to a particular crisis will create opportunities to assess learning goals to deepen students' learning. The partnership will enhance more inclusive and equitable assessment practices. Additionally, Kumar (2020) raised privacy and ethical concerns concerning the utility of technology in delivering lessons. New methods have been refined and deployed to invigilate and proctor students from their homes during exams by external technology providers. However, Kumar (2020) cautioned not to bestow all teaching, learning, and assessment of learning to technology which may erode the public opinion of higher education. HEIs should also examine the assistive technologies available to facilitate and support the education of students with various physical and mental disabilities. They found out there is still a digital divide (Krishnaswami et al., 2022) and the lack of experience among teachers and students with the Learning Management Systems (LMS) would also affect the quality of teaching and assessment. Hence, educators should review teaching, learning, and assessment to enable equal rights for all the students in the online learning environment.

Assessment Feedback

Feedback is an essential part of assessments (Winstone & Boud, 2022). Its objective is to provide information about the students' performance to help the students improve their performance in the future (Cavalcanti et al., 2021; Li & De Luca, 2014). However, Sendziuk (2010) mentioned that feedback should be well-timed to be an effective impetus for learning improvement. Effective feedback could improve students' motivation to learn and the ultimate learning outcome. It is a key element of students' self-regulation of learning (Carless et al., 2011; Cavalcanti et al., 2021; Nicol & Macfarlane-Dick, 2006).

Unlike in a face-to-face learning environment where the conversation could be instantaneous, online learning poses challenges in providing real-time and detailed feedback to the students (Yang et al., 2021). Indeed, students studying in a face-to-face environment tend to get better quality feedback than those in an online environment and stand a better chance of securing better grades (Usher & Barak, 2018). Regarding the form of feedback, Rahim (2020) suggested the use of email and instant messaging applications to communicate feedback more efficiently. However, Yiğit and Seferoğlu (2021) found that feedback in the form of videos proved to be more effective than text. Such an outcome could be due to the students' perception that videos are a better form of feedback as they could contain both verbal and non-verbal forms of communication. Ma et al. (2021) reported that students value immediate and personalized feedback when studying online. This could suggest that academics need to be familiar with the various functions of the LMS to provide feedback that could have motivational effects on students' learning.

Figure 2. The socioeconomic inclusive assessment framework for online learning in higher education
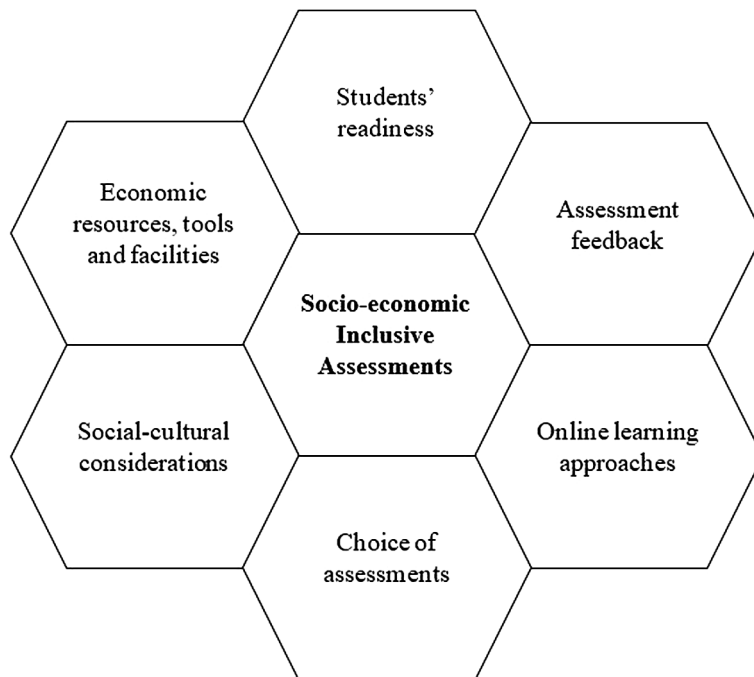
SOLUTIONS AND RECOMMENDATIONS

Socioeconomic Inclusive Assessment Framework

Based on the findings and discussions, the authors formulated a framework of socioeconomic inclusive assessments in online learning for higher education (see Figure 2). To be socioeconomically inclusive, the online assessments need to take into consideration six components.

Students' Readiness

We proposed that before designing an assessment, the academics need to consider the readiness of the students. These include their digital skills and knowledge about the intricacies of an online assessment. It is beneficial if students have been informed about the authenticity of the assessment so that they can relate to the requirements of their future workplace. Such an approach could reduce the anxiety of the students, helping them to be better prepared for the assessments. This could promote equity among students with diverse backgrounds.

Economic Resources, Tools, and Facilities

The number of economic resources at students' disposal might determine the kind of tools and facilities the students can enjoy (Robertson & de Silva, 2020). These might include the availability of a powerful laptop that can process data at a very high speed or software that requires high processing power and

storage, a subscription to high-speed internet (Tuah & Naing, 2020), or the luxury of having a personalized study room. All these simply mean students might be able to complete an online task with ease if they have these luxuries (Kumar, 2020). However, students would face difficulties submitting an online assessment in the absence of these resources, tools, and facilities. Hence, considerations must be given when designing an online assessment to ensure the equity of the students in this aspect, be it the custom online learning (Garcia, 2017) or the standard massive online course (Ruipérez-Valiente, 2022). In return, this provision will provide a conducive digital learning space (Lamsal, 2022).

Social-Cultural Considerations

Social-cultural factors vary from country to country. There could be a wide spectrum and some examples include religious practices, festivals and holidays, geographical dispersion, physical and mental health conditions, races and ethnicity, age, and gender. It would not be advisable to set a deadline for assignment submission on a festive holiday. For instance, considerations should be given if the assessment is due in the fasting month of the Muslim calendar (i.e., *Ramadhan*). For those students where English is not their first language, care must be given when writing instructions for the assessments to ensure clarity.

Choices of Assessments

Students get motivated when there are choices in determining the form of assessments. These choices could make the assessments more socioeconomic inclusive. For example, the submission of a written essay could be produced digitally or handwritten scanned copy; an oral presentation could be delivered synchronously (live) or asynchronously (e.g., a pre-recorded video); a reflection could be in written form or the form of a recorded video. In addition, students could be given a chance to co-create assessments with the academics (Cook-Sather, 2020). This could provide them with better ownership over the assessment and improve motivation in their learning. However, clear guidelines are needed to determine the areas of responsibility and avoid any dispute in mark awarding or grading. The choices between formative and summative assessments likewise require some consideration. Given sufficient formative assessments to build students' confidence and solidify their knowledge and skills, students should be ready to take the summative assessment toward the end of the semester. Hence, the summative assessment should not be a substantial part of the overall assessments, giving a better opportunity for the students to learn.

Online Learning Approaches

Online learning approaches refer to both synchronous and asynchronous. The choices between synchronous and asynchronous may need careful consideration (Dhuinn & Garland, 2022; Rahim, 2020). Internet connectivity might affect synchronous assessments (Robertson & de Silva, 2020). Hence, asynchronous assessments might offer a better choice, ensuring equity to those students who do not have stable internet connectivity that may arise in the synchronous setting. Online portfolios, for example, can be used as a means of assessing students' learning outcomes like asynchronous online quizzes. Furthermore, the use of asynchronous assessments could also help to reduce the anxiety students experience when taking a synchronous assessment. This might help to ensure a fair assessment of students' performance. Synchronous assessments, despite some of the setbacks highlighted above, could be socioeconomic inclusive if there is an auto-backup function where students could resume the assessment after an internet service

interruption. Furthermore, synchronous assessments could provide immediate feedback that could help students' learning and performance improvement. Hence, Rahim (2020) suggested a balanced use of both assessments approaches as each carries some advantages over the others.

Assessment Feedback

Students require timely feedback on their assessments (Ma et al., 2021). Formative assessments are more desirable in this aspect as feedback could be given and there is a space for students to improve their performance (Ndibalema, 2021). However, attention should be given when deciding on the timing and the form of feedback. Some forms of assessments (e.g., online quizzes) could provide immediate feedback due to their features in the LMS (Enders et al., 2020) while others (e.g., written essays) could not. Hence, academics need to invest time and resources to provide feedback to the students. Video feedback is a good option (Ryan, 2021: Yiğit & Seferoğlu, 2021) but it would be time-consuming and requires some expertise. Overall, there needs to be a trade-off between timeliness and quality of feedback.

FUTURE RESEARCH DIRECTIONS

From this review, despite the upturns, the spread of the COVID-19 pandemic has allowed a huge leap in education as institutions are experimenting with the new way of teaching and assessing. Such an emergency has sparked the interest of academics throughout the world to continue exploring education innovation, especially in teaching methodologies and pedagogies. While it may be regarded as an opportunity to reflect and review the way online teaching and learning in higher education has been conducted, the real concern here is the impact of this change, especially in the effort of making socioeconomic inclusive education the new way of approaching online learning in higher education. While there is no silver bullet for fostering inclusion and equity, several methods in teaching and learning. For higher institutions, more discussions are needed to provide the universal design for all and is a joint effort from all stakeholders involved. Detailed reviews on the roles of different stakeholders can be an investigation-worthy area to explore.

The framework proposed in this study was an outcome of a scoping review. Further study could test the validity of this framework. It might include, for example, experimental studies of the various online assessment methods, or any of the factors in the framework discussed in this chapter on different cohorts of students with different socioeconomic backgrounds. The outcome could shed some light on the suitability of these assessments, making online learning more equitable and beneficial to a broader group of students.

CONCLUSION

This chapter has attempted to map the concept of inclusive education in higher education and established how the issues have been theorized and investigated by numerous scholars. With the consideration that some of the publications reviewed for foundational concepts are way back in the 1990s, we can conclude that inclusive education has long become a controversial issue. Various authors have taken different approaches to address this concept and, in most cases, relate to the original concept concerning

disabilities. The findings of this review also indicate that studies are taken from the context of an early stage of education and there is a need to widen the context of online learning in higher education and to acknowledge the diversity of socioeconomics that is not a restriction to special needs education. Care needs to be taken when designing socioeconomic inclusive assessments in online learning, using the socioeconomic inclusive assessment framework discussed in this chapter as a guide. Nevertheless, it is to be emphasized that this study might have not located every peer-reviewed article related to the topic of inclusive education, especially in the context of higher education. The review focuses on resifting the direction of inclusive education in the COVID-19 era, which is a huge upturn for most researchers in the past two years. This review can be taken as an opportunity to open more chances for scholars specifically in higher learning institutions to initiate a broader discussion on this matter.

This chapter has practical implications for academics when designing assessments for online learning. The in-depth analysis and discussion clarify the choices of online assessments and the considerations in making them more socioeconomic inclusive. In a broader term, policymakers in HEIs could also benefit from the proposed assessment framework when they are formulating policies about online assessments (e.g., policy on setting the due dates). With these two important stakeholders working toward this direction, online learning will be more equitable and beneficial to a broader group of students.

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ADDITIONAL READING

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KEY TERMS AND DEFINITIONS

Assessment Feedback: It refers to the responses, either in verbal or written form, given to the students about their performance in the assessments given.

Assessment Methods: It refers to the tools and approaches to assessing students' performance or learning in achieving the learning outcomes.

Framework: A set of rules, principles, or beliefs that underpins a system, task, or work.

Higher Education: It refers to the formal education at the tertiary level and/or post-secondary level(s).

Inclusive Education: It refers to an approach to providing learning opportunities to all learners and catering to diverse learning preferences, abilities, and/or socio-economic backgrounds specifically in the context of higher learning institutions and online education.

Inclusive Pedagogy: It refers to the method of education that is designed by taking into account the diverse background of learners to ensure that everyone has an engaging learning experience through significant and inclusive assessments.

Online Assessment: It refers to an assessment task requiring the learner to access the internet and complete it either synchronously or asynchronously.

Socioeconomic Inclusion: It refers to the educational practice wherein students from diverse social and economic backgrounds are afforded equal educational opportunities, particularly in the context of online education.