Discover Education

Review

A review of strategies to incorporate flexibility in higher education course designs

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Received: 19 March 2024 / Accepted: 19 July 2024
Published online: 20 August 2024

Abstract
While the movement for flexibility in higher education can be traced back to the first corresponding courses in the 18th century, the recent pandemic has led to an unprecedented demand for flexible learning, particularly in higher education settings. This review of the literature delves into the evolution of flexible course design and defines flexibility as a multifaceted concept encompassing time, place, content, pace, and pedagogy, with learner autonomy situated at the core. This review explores the key components of flexible course design, including both pedagogical and logistical aspects, and their implications for developing a learner-centered approach to enhancing engagement and motivation. By synthesizing the current literature, this review highlights strategies to incorporate flexibility in course design through content adaptation, pedagogical modifications, assessment diversification, and adjustments in time, place, and pace of course offerings and learning. This review underscores the significance of flexible course design in light of the rapidly diversified learner demographic and their changing needs emphasizing the necessity of further research on flexibility for building more empathetic and adaptable learning environments.

Keywords Flexible learning · Instructional design · Higher education · Learner autonomy

1 Introduction

The COVID-19 pandemic created one of the largest upheavals in the higher education sector in history, compelling institutions to shift their activities and functions to the online space within a short time frame. This move, characterized as emergency remote teaching was a quick response to the crisis, which lacked the systematic design and comprehensive planning of traditional online education [51]. However, this transition required both logistical support and pedagogical innovations to maintain the quality of education in this new format while adjusting for the challenges faced by students [29, 58, 92]. This situation has created an unprecedented surge in the demand for flexibility in higher education in different forms of online, hybrid, and distance learning [55, 86, 100]. In addition to non-traditional students, campus-based traditional students have also been impacted by the pandemic-induced shift to the online mode and are now pressurizing the system for continued flexibility in their regular institutional activities and engagements [71].

However, even before the pandemic, the landscape of higher education has witnessed a significant change in demographics over the past few decades. Historically, a dominant portion of higher education students came directly from high schools enrolling in their chosen college programs. However, over the last 50 years, the majority of students

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have come from more heterogeneous backgrounds [78]. Increasing participation has been noted from diverse cohorts in terms of gender, socioeconomic status, psychophysical abilities, and ethnic backgrounds. Some of them are from alternative pathway programs, some have taken a study break after high school and then returned to college, some have full-time jobs, some are married with children, and some have spent extensive time in the workforce [20, 22, 24, 78, 102].

This shifting student body has brought forth a transformation in the dynamics of the higher education settings. Learners' needs, demands, and aspirations have drastically changed, and they are increasingly seeking learning and engagement opportunities that are customizable, help develop specific skills as per the labor market demands, job preparedness, and flexibility to best cope with their unique set of challenges and constraints [45, 57, 78, 112].

It is now evident that the demand for flexible course design and delivery has become more paramount than ever. However, as Nunan [90] aptly proclaimed, without proper investigation into the best strategies to define and integrate flexibility in courses, contradictory practices will emerge that would not be beneficial to the learners or society at large. As educational institutions worldwide delve into flexible pedagogy and practices, research suggests that stakeholders are facing challenges in integrating flexibility in course design and its implementation due to the lack of more standardized or clear guidelines [65, 85].

Given this backdrop, a review of strategies for incorporating flexibility in course design can contribute to the field by helping develop guidelines for institutions and instructors and identifying gaps in the current practices and knowledge base to help make informed decisions in the future.

2 Methodology

This study employed an exploratory literature review approach as the methodology, focusing on selectively reviewing resources to obtain a comprehensive understanding and balanced overview of the topic rather than adhering to a strict systematic review protocol. The sources were selected based on their relevance to the evolution and definition of flexibility in higher education and their contributions to the knowledge base regarding current trends, insights, recommendations, and best practices for implementing flexible learning and course design. The criteria for source selection emphasized peer-reviewed articles, official reports, and studies published within the last few years.

3 Defining "flexibility" in learning

As the notion of flexible learning and flexible course design gains traction, a significant first step would be defining what the term "flexibility" means in this given context and proper analysis of its scopes and standards. The literature on flexible learning identifies it as an idea with multifarious characteristics and interpretations and researchers have been pushing for decades for a more congruous clarity of the concept to avoid drifting into inconsistent and fruitless educational practices among higher education institutes (HEIs) that are neither robust nor advantageous to stakeholders [62, 90, 109].

The earlier conceptualization of flexible learning can be related to the thesis of learners' independence and control over learning. Charles A. Wedemeyer, the father of modern distance education [31] pioneered the concept of independent learning, which entails learner autonomy and enables students to carry out learning activities outside the direction and control of the educational authority [119]. Following his footsteps, his mentee, Michael G. Moore, theorized about three clusters of variables related to teaching, learning, and the interaction of the teaching–learning process—dialogue, structure, and learner autonomy [82]. These variables became a typology for assessing educational flexibility, as he argued that an educational program that offers greater flexibility would have less structure and more opportunities for dialog between teachers and students and enable students to have more power or control over the teaching–learning process [14, 61].

These theories and advocacy for learners' freedom and autonomy formed the basis of flexibility in learning in later years. The most widely recognized definition of flexible learning now involves offering flexibility to students in one or more of the following areas: time, pace, place, content, learning style, forms of assessment, or learning path [21, 68]. Khan [61] described flexible learning as a learner-centered approach to providing students with well-designed and interactive learning environments anytime and place through digital technological attributes and instructional design principles. While technology and the internet can be significant parts of providing flexibility to learners, the notion of flexible learning goes beyond the use of technologies and involves a pedagogical approach allowing flexibility of time, place, and audience [19].

One of the fundamental elements of flexible learning is a student-centered approach and at the core of this approach is its adaptability to learners' unique needs and circumstances [12, 123]. Collis and Moonen [24] emphasize learner choice as the key idea of a flexible learning experience and view it as "a movement away from a movement away from a situation in which key decisions about learning dimensions are made in advance by the instructor or institution, toward a situation where the learner has a range of options from which to choose" (p. 218). The main idea behind these definitions can be linked to learner independence and autonomy and the idea that students should be more responsible for their learning [21]. This notion of facilitating the learners to take responsibility for their learning also resonates with the concept of self-regulated learning which involves learners setting personal goals and proactively activating and sustaining cognitions, affects, and behaviors aimed at achieving those goals [126]. This would imply that the learners not only take responsibility for their learning outcomes but also actively engage in making choices regarding their learning processes and objectives. Therefore, flexible learning, by definition, should enable learners to learn what they want, and how they want, and have the freedom to ascertain what constitutes learning to them [115].

Synthesizing the diverse definitions and conceptualizations of flexible learning it becomes apparent that its ethos lies in empowering learners to make major decisions about their learning. While technologies and the internet can play a critical role in facilitating flexibility in time, place, content, style, and other areas, the integration of flexibility in pedagogical approaches can truly ensure that learners' needs and circumstances are duly prioritized during the learning process. Hence, it can be concluded that flexible learning is a learner-centered approach to teaching and learning that enables students to customize their learning experiences and make decisions about where, when, how, and what they want to learn.

4 Evolution of flexible learning and course design

The emergence of flexibility in higher education can be traced back to the launch of distance education in the 18th century, with the first instances of correspondence courses in the Boston Gazette [108]. Such courses introduced a form of flexibility to the place of learning by making course materials accessible at home via mail. With time this initiative eventually led to the creation of the first distance learning program in the U.S. in 1892 by the University of Chicago, thus gaining academic recognition for distance learning [108]. Internationally, the University of London pioneered distance learning degree offerings in 1836 by working as an examining body for non-student degree seekers [111]. Until the 1960s, distance education was mostly offered by private correspondence schools, but this trend started changing when publicly supported and established universities like the University of South Africa started distance education in 1946. The establishment of the British Open University in 1971 marked a significant era for distance learning opportunities, inspiring universities such as Germany's FernUniversität, Netherlands's Open Universiteit, Spain's Universidad Nacional de Educación a Distancia, and many others across the globe to follow suit [52].

By the 1920s radio and educational radio-shows transformed distance education, bringing the voices of the instructors directly to the learners and diminishing the delivery time requirements of the postal service. However, the dominance and popularity of radio as a distance learning medium were soon challenged by the introduction of television as an instructional medium in 1934 by the University of Iowa [17]. These inventions and initiatives show how flexibility has been afforded through technological advancements such as radio, television, other satellite communication technologies, and finally, the Worldwide Web or the internet, which changed the whole scenario by adding limitless possibilities to the field [16, 108].

While the use of technologies enables flexibility in the exchange of information between instructors and learners, the breadth of flexibility in education has been enhanced beyond that, bringing focus to flexible pedagogies, learner autonomy, and learner-centered approaches [11, 54, 97]. The establishment of the first Open University in the United Kingdom in 1970 [103], and the development and dissemination of massive open online courses (MOOCs) by numerous educational entities since 2008 in North America [69] are some evidences of the ever-growing demand for flexibility in higher education. Moreover, the growing percentage of adult students in the higher education sector has created a unique demand for flexibility [60] as it aligns with the paramount objectives of adult education—learner independence and self-directed learning [41]. Brookfield [13] emphasizes the ability of learners to independently plan and conduct learning as one of the most highlighted purposes of adult education. This stance is echoed by many researchers [25, 27, 81, 110] stressing the significance of self-directed learning and individual flexibility as these embody both the goal and process of successful learning for adults.

Driven by this push toward flexibility in higher education, various course design models surfaced over time building on the principles of online learning and distance learning, which particularly underscored flexibility as one of their core components. Some of the most highlighted ones are blended course design [44], hybrid course design [67], flipped course design [10], and the HyFlex model [6]. First, as the name suggests, blended course design blends face-to-face interactions and online instructions to create an integrated learning experience. This approach encompasses all technologically supported learning environments, except pure online or solely traditional face-to-face learning experiences [44, 84, 107]. On the other hand, hybrid course design emphasizes the intentional use of technologies to accommodate diverse learning preferences. This pedagogy aims at promoting active learning in class, and increased guidance for out-of-classroom learning activities which often result in reduced traditional face-to-face class time [67, 98].

The main concept of the flipped classroom model or course design is to reverse or flip the traditional instructional approach [10]. The students get exposed to the instructional materials before the class via online media, and they come together at the in-person class for discussion, collaboration, and problem-solving. The inventors of this approach, Jonathan Bergmann and Aaron Sams, intended to leverage online technologies to maximize the learning opportunities within the shortly available resource—class time [98, 113]. Moreover, the flipped classroom model allows flexible adaptation to different teaching modes while maintaining learner satisfaction and learning outcomes [40]. Finally, the HyFlex model by Brian J. Beatty [6, 8] combines hybrid learning modalities with flexible learning components built on four fundamental principles: learner choice, equivalency, reusability, and accessibility. The most unique attributes of the HyFlex model are the scope of simultaneous learner engagement across platforms, and the choice given to the learners for choosing either to participate in-person or online, synchronously, or asynchronously as the instruction materials are readily available and accessible anytime they want [8–8, 63, 88].

Fast forward to 2020, COVID-19 has caused an unprecedented disruption in global higher education settings, dramatically changing conversations around the demand and scopes of flexible learning [35, 51, 94]. Higher education institutions worldwide had to shift to the online space within a very limited timeframe, and these course design models became the only viable options for continuing teaching–learning activities amidst the pandemic [30, 33, 73, 75]. This sudden transition has encouraged the exploration, adoption, and integration of technology in higher education, as well as flexible pedagogical practices. This wave of flexible learning experiences has possibly changed the whole trajectory and future scenario of higher education as the "genie is out of the bottle" and the demand for flexibility in education has become the new normal [5, 30, 71].

5 Key components of flexible course design

The core concepts of flexible learning include easy access and accessibility, and learner empowerment through increased control and choice. When integrated into course design, these concepts manifest as two major types of flexibility: logistical and pedagogical [23, 37]. Logistical flexibility addresses the more tangible aspects of flexible learning and delivery that are often associated with technological affordances, such as out-of-hours and off-site availability, 24/7 accessibility to course contents, extendable deadlines, reduction of costs, portability, etc. On the other hand, pedagogical flexibility delves deeper into the instructional approach and learning experience. It concerns forms of communication and learners' participation, customizable learning environments, adaptability to learners' different learning preferences, choice of content, and assessment formats [24, 123].

There are several factors to consider when integrating flexibility in course design, and most can be categorized into four major dimensions: where we want to access the learning resources from, when we want to learn, how we like to learn, and what we want to learn. The following discussion revolves around how the different components of flexibility can be integrated through the four dimensions of flexibility.

First, the "where" dimension of flexible course design pertains to providing choices in the location of learning. These choices can be offered considering the diverse needs of the enrolled students, such as learners with mobility challenges due to a physical disability, residential students with a sports scholarship with frequent travel demands, or students with caregiving responsibilities for children or elderly family members [71]. The flexible options for where learning will take place can take the form of different combinations of face-to-face and online modes, and range between deciding on the format of the entire course (e.g., virtual or hybrid) or coming up with a system to determine the location of individual class meetings [49].

Second, the "when" in flexible course design revolves around the timing, sequence, and pace of study. Having the option to access and study course materials or complete assignments on their own time can provide learners with the

flexibility to deal with conflicting priorities and challenges related to synchronicity [49]. Another way to offer temporal flexibility to learners is by allowing them more control over their pace of study. This approach will enable students to personalize their learning experience to better fit their learning preferences, capabilities, lifestyles, and unique needs. Howard and Scott [53], in their study on the impact of flexibility in a technology-enhanced language learning program, found that learners appreciated the option to set their pace of study as per the time they have available and the ability to work on a particular topic repeatedly to gain a better understanding or develop better skills. However, challenges such as noncompletion and loss of motivation are often associated with this sort of flexibility in courses which calls for research on pedagogical strategies and modifications in the administrative settings to address those challenges [71].

The third dimension of flexible course design concerns "how" we want to learn. The choices offered based on this aspect can consider learners' preferred format for engagement with the course elements (e.g., individually vs. in a group, or face-to-face vs. online, etc.) [49]. Another aspect for consideration here would be the fact that every learner is unique and learns in different ways. Making the course content available in a range of formats (e.g., text, audio, video, etc.) can accommodate the needs and learning preferences of a diverse set of learners and lead to positive outcomes including increased learner engagement and motivation [36].

Finally, the fourth or "what" dimension pertains to the content of learning in a course. Flexibility in this aspect would mean giving the learners a voice in what content they want to learn in the course, and it can range from open learning where learners make all the decisions, to options within a predeveloped framework set by the instructor. Such a degree of control can significantly contribute to learner satisfaction, specifically among adult learners [49]. A practical way to provide this kind of flexibility can be by adopting the concept of microlearning where the contents are broken into smaller and manageable units, that are suited for customization according to learner needs and interests [70].

These four dimensions provide a basic framework for design choices and considerations for building and delivering flexible courses that are adaptable to changes in demand and trends, and customizable for individuals among increasingly diverse learners around the world. There are also some other underlying components of flexibility within these dimensions, such as the entry requirements or prerequisites for course participation, assessment, amount and availability of learning resources and support, and the goals and orientation of courses; these factors are important in developing a holistic approach to flexible course design [65].

6 Significance of incorporating flexibility in higher education

In an era of rapidly advancing technologies, evolving learner demographics, and increasing focus on accessibility and inclusion, flexible course design and delivery are essential and indefeasible. Researchers have been advocating for flexible learning in the true spirit of a student-centered approach for decades [116]. Currently, the post-COVID-19 higher education landscape has made it more vital than ever to focus on incorporating flexibility in course designs and structures to enhance the capacity of HEIs to adapt to the changing demands of learners and the future workforce.

Collis and Moonen [24] argue that changing learner demographics in postsecondary education is one of the major arguments for flexible learning and course offerings. They further contend that HEIs can no longer expect to meet the demands of their rapidly diversifying student population following the old standard model that is best fitted to serve young, professionally inexperienced, full-time resident students. Current higher education students are highly diverse in terms of age, gender, experience, background, professional affiliation, and other factors, as are their expectations of the learning environment offered by HEIs [45, 57, 74, 78, 114].

Moreover, the universal shift to remote instruction during the recent pandemic has influenced the significant and irreversible global demand for flexible learning opportunities [71]. Recent studies have shown that the current widely heterogeneous body of learners is seeking flexibility in different aspects of their learning experiences, including course design and delivery, that best fit their preferences, schedules, and requirements [99, 114, 120]. Students express a need for flexible learning environments that are personalized, enable easy access to learning materials, and enable learners to have a choice in when, where, and for how long they want to study. They are also showing interest in informal learning opportunities, away from traditional classrooms where they can study alone or with their peers [53, 114].

This demand indicates a need for innovative and modern pedagogical transformations with a deliberate focus on the digitalized classroom, customizable, future-oriented content, deeper student engagement, technology integration, and flexible modalities to demonstrate learning and development [2, 42, 72]. Incorporating flexibility in course design and delivery fosters flexible space for learning that enables the application of more student-centered teaching–learning practices, and provisions for allowing learners' control over the place, pace, and time of their learning [105, 121].

Such a move toward establishing learners at the heart of the design and development process of courses and overall learning experiences facilitates self-directed learning opportunities and enhances the learning outcomes. Integration of flexibility in courses has been proven to have positive outcomes in terms of student impact, commitment to learning, learner engagement, motivation, and performance [38, 27, 54, 72, 91, 96, 101]. Moreover, flexible course design by principle makes education more inclusive, accessible, and equitable for adult learners who aspire to join tomorrow's workforce for the fourth industrial revolution by obtaining higher education opportunities despite their varied life circumstances and obstacles [15, 71, 116, 120].

7 Strategies for incorporating flexibility in course designs

7.1 Content flexibility

Enabling learners to have choices in what to learn can significantly affect their satisfaction and help enhance the flexibility of the learning experience, particularly for adult learners [49]. Therefore, incorporating flexibility in content is one of the key aspects of flexible course design and the literature recommends multiple ways to achieve this in higher education settings.

The most highlighted strategy found across the literature is the *modularization* of course content. Modularization of a course entails breaking the course content into multiple independent, self-contained units, and each of those units includes a carefully planned series of learning activities designed to facilitate the accomplishment of well-defined learning objectives [80]. Scholars suggest that self-contained module course content allows greater choice or autonomy to students in constructing their learning journey by allowing them to complete courses in different orders that match with their interests, prior knowledge, and preferences [4, 21]. Modularization is also referred to as "chunking" and it is recognized to have benefits for instructors, as they can divide their courses into weekly or topic chunks and easily recombine or reorder those for the students [18]. This approach to creating shorter modules is also found to be sustainable, and reusable, and allows straightforward incorporation into learning paths [104]. Another important aspect of content flexibility is making and offering the course materials in a *variety of formats* (e.g., text, audio, video, etc.) to meet the requirements, needs, and preferences of different learners, which also contributes to increased motivation and engagement among learners [36].

Pedagogical openness, or *content co-creation* has been cited as a useful strategy for incorporating content flexibility that can simultaneously enhance learners' autonomy and reduce instructors' loads. As flexible teaching extends beyond content delivery and makes the instructors responsible for adapting instructional methods to learners' needs and preferences, a shared responsibility can be beneficial for both instructors and learners. Barnett [4] emphasizes pedagogical openness or content co-creation as one of the foremost conditions of flexibility, specifically in higher education settings. This strategy entails utilizing students as educational resources where they can actively contribute to content co-creation, rather than as passive consumers. Collis and Moonen [24] stress the importance of using existing course content and learning resources so that instructors can focus more on designing learning activities and opportunities. Here, students can play a significant role in co-generating content or course materials for courses, which also influences greater learner engagement [18, 19]. Cornelius and Gordon [26] recommend promoting collaborative investigations where learners can define their topics, conduct research, and generate content to present and discuss. However, adequate support mechanisms from instructors, as subject-matter experts, need to stay in place to guide students in performing their roles and responsibilities [49].

Content flexibility can also be offered by providing a choice among a *variety of learning resources* in courses. Cornelius and Gordon [26], and Irwin and Hepplestone [56] highlight the importance of the diversity of learning resources. The authors suggested that the inclusion of an array of learning materials, such as texts, presentations, audio materials, and video materials is crucial for meeting individual learners' preferences and matching their unique learning approaches. This strategy can be employed by including curated repositories of educational resources that are categorized by topic, scope, and format and can be accessed by learners according to their inclinations [70]. Incorporating such a versatile approach by enabling access to diverse types of learning materials ranging from print-based materials such as articles and books, to e-materials such as PDFs, and websites, to complement the tutoring and mentoring of human experts is recognized as valuable for enhancing the depth of the learning experience [49].

Other strategies for integrating content flexibility stressed in the literature include content that *reflects the world's contexts* and encourages solving problem-based practical problems [19, 66]. Finally, an essential consideration regarding

content flexibility would be ensuring that the course content is *compatible with technology-enhanced learning*, which is an inseparable component of flexible learning. It is crucial to confirm that the course content is designed in such a way that the knowledge and skillset targeted by each content module can be accumulated by learners in the absence of an instructor [76].

7.2 Pedagogical flexibility

Pedagogical flexibility refers to providing students with flexible learning contexts where they would have choices in how they want to learn [123]. Without prioritizing effort and focusing on pedagogy, flexible learning generally leads to the mere usage of a learning management system that serves the purpose of providing course materials and administration. This section discusses some ways to integrate pedagogical flexibility in courses recommended by researchers and practitioners in the field of higher education.

The core concept of flexible pedagogy is adopting a *learner-centered approach*. Learners would be at the center of the learning experience where they will have the power to make choices and decisions regarding their learning activities and modalities. They would actively engage in shaping their educational journeys by exercising choice in products, tools, and procedures for learning and demonstrating learning [38, 47, 49]. A pivotal strategy to achieve this state is to *enable the personalization of learning pathways*. This would mean that learners will have the opportunity to choose and build their trajectories through the course content or modules at their own pace and based on their needs, choices, and requirements [4, 9]. In the higher education setting, personalization of learning can be enabled in several ways. Costello [28] suggested incorporating a credit accumulation scheme that would allow learners to negotiate and construct their degree programs by choosing from a range of subject content and building up credits toward a degree that best meets their individual needs. Siemens [106] and Zhang et al., [125] recommend the integration of learning analytics for the application of predictive models based on the learners' learning behavior, personality traits, and other psychological attributes to help align learning strategies with those of individual learners.

An important consideration for the personalization of learning pathways was cited as the required emphasis on listing specific and relevant learning objectives and outcomes for the modules that are both measurable and attainable. This *alignment with learning objectives* would be helpful for learners in tracking their achievement of the goals of courses even if they follow their own, unique routes through course modules [54]. Utilization of innovative models for aligning learning objectives with assessment tasks while mapping the desired competencies for each learning activity can provide a structured approach to support self-directed learning [46].

For learners to exercise autonomy in learning, they need to take responsibility for their development to successfully reach their individual goals. For this reason, flexible learning scholars emphasize the significance of *self-directed learning* and one of the most cited strategies for facilitating self-directed learning is to integrate course designs into adaptive learning systems such as Canvas, Moodle, and Blackboard [3, 9, 59, 83, 95, 125]. Casey and Wilson [18] underscore the importance of considering the level of understanding of students and determining how much support they need to realistically manage independent and self-directed learning. Adaptive learning management systems can offer effective solutions in this respect, as they can be equipped with features that can help identify the knowledge level and learning preferences of students and modify delivery methods, resources, and assignments accordingly [83].

Flexible prerequisites or entry requirements for courses or course modules are another [24, 65]. Removing entry requirements and providing alternative entry and exit points enable easier and more equitable access to learning opportunities and more flexible navigation through courses and course modules [24, 32, 68]. Rather than imposing entry requirements, recognizing learners' prior knowledge and experiences through some form of assessment can help nontraditional students gain access to courses based on their individual preferences and conditions [68, 89].

A consensus among flexible design and learning researchers regarding flexible instruction is engaging the students *using a variety of teaching–learning methods and activities* to cater to their diverse learning preferences [54, 56, 91]. The numerous instructional methods and activities recommended in the flexible course design literature put specific emphasis on enhancing engagement, interactivity, and improving motivation among learners. For example, utilization of digital content delivery methods such as online tutorials, webinars, mini-recoded lectures with relevant web links and short readings; interactive learning activities such as online discussions, debates, digital storytelling using text, images, audio, and interactive tutorials; and experiential learning opportunities focusing on real-world application through project-based learning, and case studies, are some of the instructional methods that are endorsed to be effective at meeting the needs of a diverse set of learners [4, 37, 47, 54, 79, 89, 118]. Gamification is another highlighted method in the literature that can engage learners in an interactive and dynamic learning environment [8, 43, 54, 125]. Recent studies

underline the advantages of the flipped classroom model as a teaching delivery approach as it facilitates self-regulated learning by enabling access to varied resource formats that learners can learn at their own pace [39, 40]. While integrating these varied teaching–learning activities in course design, it is important to ensure that the activities are aligned with the intended learning outcomes of the course and are positively related to learners' performance and satisfaction [125].

Another important aspect of integrating learners' autonomy is *facilitating varied study modes*. Adequate resources need to be provided that can assist in both independent study and group work [26, 54]. However, promoting collaborative investigations where learners can construct knowledge through a social and collective approach has been underscored in the literature to be essential for engagement and motivation [38, 18, 26, 47, 66]. Sasson et al. [101] argue that altering the learning environment into a more open and collaborative setting rather than an orthodox lecture-style setting can enhance learning at both the individual and group levels.

However, proper *planning for flexibility* is required ahead of time to design activities to best accommodate individual learning methods, pace, and collaboration preferences [68]. Casey and Wilson [18] suggest utilizing tools such as student profilers to determine the appropriate degree of flexibility based on learners' current and desired levels of development. They also recommend using visualization tools such as blend diagrams to strategically plan and integrate flexibility in different aspects of course design. This approach ensures a balanced implementation that resonates with Chen's provisos of flexibility emphasizing the condition of making one aspect of instruction structured to make another flexible [21] Such an elaborate scheme of planning and implementing flexible instruction can be made less of a load for the instructors by practicing *documentation and design sharing for reusability*. Documenting the design process in a specific format that can be easily reviewed, modified, and adapted by others can enhance the design repertoire of a whole community of instructors [9]. Hence, Casey and Wilson [18] advocate promoting open learning and instructional design communities for developing such shareable models of flexible learning.

7.3 Flexible assessment and evaluation

Incorporating flexibility in assessment and evaluation is crucial for fostering student-centered learning and assessment environments. The following is a discussion of several key flexible assessment evaluation strategies that apply to higher education settings.

The most basic principle of flexible assessment is deploying *student-centered assessment planning and implementation*. Researchers emphasize the importance of involving students in the planning and decision-making process of course assessment activities. Instructors should plan to share detailed information, guidance, and evaluation rubrics for all the assessment activities at the beginning of the course terms. Discussion regarding assessment formats and the possible implications for learners should be helpful for them to make informed decisions regarding the assessment plan they can co-construct with the instructors [38, 56, 96]. Another important component of assessment planning is ensuring timely and individual feedback loops from instructors and peers to share informative updates regarding learners' progress in a formative manner [4, 47, 49, 124].

Wanner et al. [118] recommend the utilization of *personal assessment plans* that involve students preparing and negotiating a plan for their chosen assessment, deadlines, and preferred feedback mechanisms at the beginning of the course. McCurdy [79] and Rideout [96] proposed the idea of using *learning contracts* with the students that can help guide them through their assessment choices, and to keep them committed to their assessment plans which can also contribute to enhancing their chances of success. However, it is also important to strike a *balance between the mandatory components and flexibility* and to ensure the maintenance of a fixed value for certain mandatory components of learning and assessment to best safeguard the achievement of learning outcomes [79].

Another highlighted strategy for flexible assessment is providing a *variety of assessment modes or tasks* to address diverse learning needs and preferences. Implementing both formative assessments to monitor progress (e.g., observation, discussion, etc.) and summative assessment to measure final learning outcomes approaches (e.g., practical and theoretical examinations, interviews, etc.) utilizing a variety of assessment instruments such as online examinations, e-portfolios, presentations, products, and artifacts creation, etc. and also facilitating different formats such as self-assessment and peer-assessment are cited in the literature to be effective in providing flexibility while achieving desired learning outcomes [47, 50, 54, 56, 79]. Allowing choices from such a range of assessment methods can cater to the diverse strengths and learning and assessment behaviors of learners [4]. Utilizing assessment tasks that encourage *reflective practices* and encourage learners to reflect on their level of understanding and ability to apply learning in practical scenarios can also be a useful assessment tool for providing flexibility and observing their perceptions of the different strategies employed [19, 26].

Creating *assessment rubrics* can be an efficient way to provide and maintain clear criteria and standards for performance across the various assessment formats deployed [56].

Authentic assessment has been discussed as an effective flexible assessment strategy because it involves stimulating real-world problems. Learners can choose to create and showcase products that apply to real-world contexts, such as designing posters, artifacts, reports, etc., that would also better prepare them for entering the workforce [47, 79]. Authentic assessment can also include projects that mimic real workplace working environments so that learners can learn to plan, collaborate, and communicate with each other. It is also important to design assignments that *foster higher-order thinking* and engage learners in critical analysis of their current and future learning and professional contexts [26]. *Peer assessment* techniques and online discussion forums can be useful in encouraging active learning and critical thinking through critiquing exercises and debates [47].

The *Alignment of the assessment tasks with the learning objectives* is a pivotal consideration when planning flexible assessment strategies. Irwin and Hepplestone [56] stress the importance of carefully refining assessment criteria to align with desired learning outcomes rather than relying on incidental outcomes. This suggestion is echoed by Casey and Wilson [18], who further emphasize giving particular attention to drafting assessment criteria at the planning stage and ensuring that the learners and staff properly assume those, as they reflect the educational values of the institution.

In regard to grading, flexibility can be integrated by enabling students to have a *choice in weighing the assessment tasks* themselves. At the beginning of the course, students can be encouraged to develop a plan that includes a list of assessment tasks relevant to the course, based on their strengths and interests. They can also determine the value for each of the assignments they choose and map out how their final grade will be calculated. Empowering students to have such control over their assessment, performance, and grading has significant potential to increase motivation and commitment to their self-designed course of action [56, 96]. To avoid choice overload for learners, instructors can consider offering a range of options in terms of assessment tasks that students can choose from. Instructors can also provide a default grade to tasks that students can modify based on their preferences and meet the final grade requirements of the course [96]. In addition, McCurdy [79] and Wanner et al. [118] stress allowing learners to negotiate submission dates within a reasonable time frame and the opportunity to resubmit their work based on the feedback they receive.

7.4 Flexibility in time, place, and pace

Eliminating the constraints of fixed time and place of learning prevails as one of the kernel concepts of flexible learning and course design. It is important to acknowledge that the higher education student cohort has a diverse set of needs, dealing with varied circumstances. This section discusses some strategies recommended in the literature to best provide flexibility in the time and place of learning, as well as the accompanying considerations that are necessary.

First, in terms of *variability in learning location*, flexible learning scholars recommend providing different options for the place where learning can occur, such as fully online, face-to-face, or a blend of both [21, 24, 49, 53, 54, 65, 68, 123]. Second, for incorporating time flexibility in learning, *providing both synchronous and asynchronous learning options* for accommodating changeability in learners' schedules, time zones, and other life situations is highly emphasized in the relevant literature [11, 21, 24, 49, 54, 65, 68, 114, 123].

Finally, another related strategy for offering learning autonomy is integrating *flexibility in the pace of learning* which includes allowing learners to navigate through course modules according to their own pace of learning, interest, and need [4, 9, 17, 26, 65, 68]. These strategies underscore an integral aspect of time, place, and pace flexibility, which is the ubiquity of learning environments. Utilizing technological advances, ubiquitous learning environments emphasize seamless access to resources and personalization of learning experiences [1, 117].

To offer flexibility in terms of time, place, and pace of learning, the instructor needs to ensure that the learners have *24/7 access to course materials from any device* [38, 66, 68, 122]. The use of platforms and multimedia that are accessible through and optimized for all types of devices, including mobile devices, and the development of learning materials that are compatible with both face-to-face and remote settings need to be prioritized for facilitating time, place, and pace independence of learning [38, 9, 26, 56, 116]. Andrade & Alden-Rivers [2] propose *developing a conceptual framework that includes time, place, pace, and access*, and engaging peer faculty members to create a shared vision for designing the direction of flexible learning. Being mindful of *teaching presence* can aid the instructors in effectively designing and facilitating knowledge development through instructional management. This responsibility can be shared with learners so that they can contribute to the design and delivery process of instruction while building a better understanding of the desired learning outcomes [48].

Researchers also suggest employing a dedicated unit for managing the infrastructural aspects of flexible learning and *providing readily available support* to both faculty and learners [38, 2, 4, 9]. An essential consideration in integrating flexibility in these aspects of course design is adhering to international standards and specifications such as the universal design for learning (UDL) to ensure accessibility for all learners, irrespective of their backgrounds, abilities, and compatibility across different platforms and institutions [9, 91].

Another highlighted strategy in several studies includes *sessions for real-time interactions* with instructors and peers utilizing easily available real-time communication tools to foster a sense of community [4, 66, 87, 124]. Hill [49] recommends setting designated time aside for direct interactions with students, as well as checking and replying to their messages and queries to maintain class dynamics and providing support to meet learners' needs. Instructors can inform enrolled learners of their availability from the onset of the course and develop a tiered priority system for responding to learners' messages, where the basic messages can be automated and questions in need of in-depth discussion can be addressed in due time [93].

8 Conclusion

The comprehensive review of flexible learning and course design in higher education underscores its pivotal role in helping HEIs adapt to the changing and shifting needs of an increasingly diverse student population. However, flexible course design still encompasses several major challenges such as technological and infrastructural limitations, connectivity issues, and budgetary constraints in ensuring access to devices [34, 77]. These issues are further exacerbated by the learners' diverse educational backgrounds, geographical locations, technological skills, and unique requirements of different disciplines [77, 87]. Also, studies suggest that instructors are being challenged by the demands of flexible course delivery models as these require substantial effort and time commitments, which can significantly increase their workload in the absence of proper technical support, and cooperation [118]. Furthermore, some studies reveal that without maintaining a proper framework to balance between standards and flexibility across the four major dimensions of flexible learning – where, when, how, and what to learn, flexible learning approaches can lead to confusion and procrastination among students which can affect their learning outcomes [34, 64, 84, 87].

Future research in this area can look more closely into the optimal degree of flexibility across the dimensions of flexible learning and develop a better understanding of how much choice is beneficial without causing confusion for learners and instructors. Further research is also needed to investigate the constraints of flexible course design and delivery including but not limited to access, connectivity, institutional policies, legal regulations, and the logistical and administrative barriers that can hinder the design and implementation of flexible courses in higher education.

Despite these challenges, this move toward flexibility, particularly after the COVID-19 pandemic embodies more than simple convenience and represents a much-needed and timely transformation for developing a more accessible, inclusive, and modern educational system. This approach marks the commencement of building empathetic learning environments that acknowledge the varied life circumstances of adult learners and facilitate the required choices and flexibilities to help them succeed in meeting their academic and professional goals by overcoming existing barriers. Although HEIs globally have started embracing the concepts of flexibility and learner autonomy worldwide, achieving a deeper understanding and agreement on the appropriate strategies for incorporating flexibility in course design is a critical step toward reaching the desired goal.

Acknowledgements The authors did not receive support from any organization for the submitted work.

Author contributions L.B. conducted the literature review and drafted the manuscript B.B.L. supervised the research and guided the writing All authors reviewed the manuscript

Funding The authors did not receive support from any organization for the submitted work.

Data availability No datasets were generated or analysed during the current study.

Declarations

Competing interests The authors have no relevant financial or non-financial interests to disclose.

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