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Aligning assessment, pedagogy and learning spaces: A rapid literature review

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Abstract

This paper aims to determine how assessment is aligned with pedagogy and learning spaces through a rapid literature review. This methodology facilitates the analysis of newly published data to identify and summarize available information regarding different approaches. The reviewed and analyzed literature highlighted the nature of various learning spaces. Pedagogical approaches were organized according to specific learning spaces, while assessment approaches were aligned with these pedagogical approaches. The findings showed that learning space is clearly defined as distinct from the learning environment; physical, virtual, and hybrid learning spaces were explained; and the transformation of schools into venues for active learning spaces was expounded. Notably, the literature showed that a learning space is more specific than a learning environment. It refers to a place where learning related to curriculum implementation takes place. The use of various learning spaces has implications for teachers' utilization of assessment as a tool for learning improvement. Creating an active learning environment, a learner-centered approach grounded in constructivist theory, responds to the need for knowledge construction by focusing on activities and strategies that foster higher-order thinking skills. It is recommended that schools transform themselves from traditional classrooms into dynamic and active learning spaces where learners are actively involved in the teaching and learning process. Such transformation would require the integration of key elements, namely: (a) active learning pedagogy; (b) active learning spaces; and (c) activity-based assessment.

Keywords: *educational assessment, teaching and learning, learning environment, student-centered learning, classroom environment, education research*

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1. Introduction

One of the global educational trends focuses on Sustainable Development Goal (SDG) 4, which emphasizes quality education. Educational quality depends on the quality of students' learning enhanced by pedagogical approaches, including assessment, that are aligned with available learning spaces. A learning space is a dedicated place (Glass, 2022), whether real or virtual, purposefully designed for teachers and learners to meet and engage in knowledge creation. Therefore, integrating learning spaces into the teaching-learning planning process is considered essential.

The evaluation of physical learning spaces often focuses mainly on the technical aspects of facilities, while little attention is given to how these facilities align with educational goals, objectives, and pedagogical usefulness (Van Merrienboer, 2017). However, the emergence of modern pedagogies, such as project-based education, task-centered learning, competency-based education, team-based learning, and problem-based learning, demands a paradigm shift in aligning pedagogy with the design of physical and digital/virtual learning spaces. Consequently, educators must be mindful in designing assessment approaches that are appropriate for physical, virtual, and integrated learning spaces.

In response to these developments, teachers must gradually transition their assessment practices by incorporating diagnostic and formative tasks that suit contemporary learning spaces. Through these approaches, teachers move away from treating students as isolated individuals during the assessment process and instead provide opportunities for learners to access resources that address their individual needs. Moreover, teachers can integrate digital resources into face-to-face sessions and connect classroom learners with students studying from other locations. Such practices expand the concept of assessment tasks within virtual, digital, and collaborative learning spaces. They also enable students to construct responses using various resources needed to complete authentic tasks, thereby promoting more meaningful and collaborative learning experiences.

This rapid literature review aims to synthesize the alignment of assessment, pedagogy, and learning spaces. Specifically, it seeks to determine how and why educators should align assessment practices, pedagogical approaches, and the nature of learning spaces. The findings of this study are significant for stakeholders involved in improving educational quality. In particular, this review provides teachers with a clearer understanding of how

aligning assessment, pedagogy, and learning spaces contributes to greater teaching efficiency and effectiveness.

This rapid literature review aimed to answer the following questions:

1. What are the differences and similarities between learning environments and learning spaces?
2. What are the various physical and virtual learning spaces?
3. How are these physical and virtual learning spaces aligned with pedagogy and assessment?
4. Why is there a need to align assessment with pedagogy and various learning spaces?

2. Literature Review

Assessment is considered one of the important aspects of quality teaching. It is one of the main educational tools that can maximize learning, motivate students, and improve their performance so that they can meet pre-specified goals and standards (Oyinloye & Imenda, 2019). Despite its importance, assessment poses several challenges for both teachers and students. During the pandemic, one of the leading competencies teachers needed to master was assessing learning with the support of digital technology (Badowski et al., 2021; Chan & Luo, 2020; Yerly & Issaieva, 2021; Gallardo et al., 2023). Moreover, ensuring the reliability and validity of assessment became difficult because of paperless assessments. Assessment of performance tasks also became time-consuming due to the lack of interactivity between teachers and students (Gallardo et al., 2023).

Studies have shown that learning can be effectively conducted through online modalities; however, instructional design must be aligned with the mode of delivery, whether synchronous or asynchronous. Gallardo et al. (2023) emphasized that both students and faculty had positive perceptions of learning assessment and learning outcomes practices during the pandemic. However, students still preferred the on-site modality because it provided greater opportunities for interaction, learning, and feedback. Similarly, Jopp et al. (2023) argued that empowering students with assessment choices can positively affect student satisfaction and success. Their findings showed that a more flexible approach to assessment could enhance engagement and performance. Furthermore, Lestari and Yusuf

(2025) asserted that aligning learning objectives and assessment practices is critical to effective teaching and learning. However, they also identified time constraints, lesson-planning issues, and difficulties in designing assessment tasks and rubrics as barriers to effective alignment. These findings suggest that teachers are challenged to align pedagogy and assessment effectively.

Pedagogy, which refers to the art and science of teaching children, serves as a guiding framework for teachers. It encompasses the principles, methods, and approaches used to facilitate a learner-centered environment. According to Ahmed (2024), understanding the dual dimensions of pedagogy, its scientific foundation and artistic application, enables educators to create more engaging, meaningful, and impactful learning experiences. For this reason, pedagogy remains the cornerstone of effective learning.

Research has consistently shown that quality pedagogical approaches contribute to quality learning outcomes. Janardhanan and Charles (2024) revealed a significant positive correlation between pedagogical approaches and student performance, which emphasize the importance of effective instructional methods. They further highlighted the need to align pedagogical strategies with contemporary teaching methodologies to improve student performance. This finding was corroborated by Paurom and Paglinawan (2024), who underscored the importance of innovative teaching methods in enhancing student engagement. Their study suggested that tailored pedagogical practices contribute to improved learning outcomes and foster students' appreciation for scientific inquiry. These studies reinforce the need to align assessment with pedagogy.

A learning space may be physical or virtual and is designed to facilitate, support, and enhance the learning process. Learning spaces range from traditional classrooms and laboratories to informal, flexible, and technology-rich environments. Wu (2018) explains that rapid technological development has expanded the concept of learning spaces to include virtual environments where learning occurs. Consequently, learning spaces now encompass everything from digital text displayed on screens to fully developed online classroom models (Cahapay, 2020). Furthermore, Christou et al. (2023) define learning spaces as physical or virtual places purposefully designed by instructors or facilitators where students are invited to meet and engage in knowledge creation.

Research has also shown that learning spaces significantly influence how students learn. However, there remains limited understanding of how learning spaces contribute to

students' work and learning engagement. As argued by Zeivots and Schuck (2018), it is necessary to investigate the factors that promote or hinder the achievement of quality learning outcomes. Although some literature discusses the contributions of learning spaces to learning performance and the relationship between assessment and pedagogical approaches, little attention has been given to the alignment of assessment, pedagogy, and learning spaces. Because of this gap, this study sought to examine the nature of physical and virtual learning spaces and how these conceptualizations can be aligned with pedagogy and assessment.

3. Methodology

This study utilized the Rapid Literature Review (RLR) method. Garritty et al. (2021) define a rapid literature review as a form of knowledge synthesis that accelerates the process of conducting a traditional systematic review through streamlining and omitting specific methods to produce evidence for stakeholders in a resource-efficient manner. This method involves a sequential process consisting of: (a) setting the research questions; (b) establishing eligibility criteria; (c) conducting the search process; (d) selecting relevant studies; (e) extracting data; (f) assessing the risk of bias; (g) synthesizing information; and (h) writing the report.

At the beginning of the study, the researchers identified four specific research questions. These questions served as the basis for formulating the selection criteria. The criteria included the year of publication (limited to studies published within the last ten years), relevance to the major topics and their relationships (assessment, pedagogy, and learning spaces), publication in peer-reviewed journals, and publication in either local or international journals. These criteria guided the search for published articles and the selection of studies that met the objectives of the research.

After the selection process, the researchers conducted data extraction and verified the accuracy of the extracted information. To minimize bias, an external reviewer was invited to evaluate the extracted data and determine its correctness and validity. The synthesis of information was considered essential in organizing the findings into themes that addressed the specific research questions. Finally, the discussion of findings from this rapid literature review was consolidated into a research report. The researchers ensured that all sources of information were properly acknowledged throughout the report.

4. Findings and Discussion

4.1. Differences and Similarities of Learning Environment and Learning Spaces

Table 1

Similarities and differences of learning environment and learning spaces

Similarities	Differences
Both LE and LS have the capacity to influence learning	LE influences learning in and out of the school; LS influences learning of contents of the school curriculum.
Both LE and LS can be designed and structured	LE can be designed for cultural, social and cognitive dimensions of learning; LS is to foster social connections, inspire exploration, facilitate collaboration, and stimulate meaningful discussions
Both can affect learning motivation, engagement as well as academic performance	LE is, generally, a dynamic system that involves various interacting factors that influence learning; Specifically, LS significantly influence the teaching and learning experience (curriculum)
Both may utilize modern digital technologies/learning platform	LE may utilize modern technologies within or outside of the school; LE utilizes modern technology designed within the school to support curriculum implementation.

The terms learning space and learning environment are closely related and are often used interchangeably. However, distinctions exist between these concepts. A learning environment is broader and more general in nature. It consists of various components that interact to facilitate the learning process both within and outside the school setting. It encompasses the cultural, social, and cognitive dimensions of learning. Thus, a learning environment is considered a dynamic system involving various interacting factors, whether inside or outside the school, that influence learning (Shehata, 2024). A learning space, on the other hand, refers more specifically to the setting where the central activities of educational institutions, particularly curriculum implementation, take place. Learning spaces may include both formal settings, such as classrooms, and informal situations that emerge through interactions among individuals. According to Papaioannou et al. (2023), an educational learning space encompasses a wide spectrum, ranging from traditional classrooms to contemporary online platforms and immersive virtual reality environments, which support versatile teaching approaches such as collaborative, project-based, and experiential learning.

These spaces may include classrooms, laboratories, libraries, online learning platforms, and other educational settings (Shehata, 2024).

Learning spaces may be physical or virtual/digital in nature. Regardless of their form, learning spaces significantly influence the teaching and learning experience (Suraini & Aziz, 2023; Shehata, 2024). They have the capacity to foster social connections, inspire exploration, facilitate collaboration, and stimulate meaningful discussions (Shehata, 2024). Because of these characteristics, the term learning space is more appropriate when discussing the teaching and learning process. Therefore, reflective professionals who engage in assessing learning outcomes must understand how the dynamic nature of learning spaces influences what and how they teach. Such understanding enables educators to design assessment methods, approaches, techniques, and strategies that are appropriate to the context of available physical and virtual learning spaces.

4.2. The Physical and Virtual Learning Spaces

Figure 1

Continuum of physical learning spaces

Source: Wilson (2009 as cited in Healey, 2022)

Figure 1 depicts that physical learning spaces can be situated along a continuum ranging from unstructured or informal settings to structured or formal environments. Healey (2022) reported the framework of the continuum of physical learning spaces developed by Wilson (2009). Within this continuum, learning spaces may include parks or gardens, homes, pools, gyms, coffee shops, canteens, art museums, social learning spaces, libraries, learners' learning spaces, specialist spaces, seminar rooms, collaborative teaching and learning spaces, theaters or auditoriums, and active learning spaces such as laboratories. Traditionally, physical learning spaces in school systems range from the school plant, including buildings, classrooms, libraries, laboratories, toilet facilities, learning materials, and other infrastructures that may motivate students toward learning (Akomolafe & Adesua, 2016).

The utilization of physical learning spaces should be directed toward promoting student learning.

Experiences have shown that the availability of physical learning spaces tends to increase students' interest in learning, which often leads to improved academic performance. Physical learning spaces that incorporate both technical and aesthetic aspects aligned with pedagogical functions have a significant impact on expected student outcomes and support evolving educational trends (Suraini et al., 2023). Students' academic performance is often associated with the availability of inviting and well-designed physical learning spaces. Research has further indicated that inadequate physical facilities can adversely affect students' interest in learning (Akomolafe & Adesua, 2016; Arshad et al., 2018). Consequently, physical learning spaces may significantly influence students' academic performance. Therefore, reflective practitioners in assessment and evaluation must consider the nature of available physical learning spaces when designing assessment methods, approaches, strategies, and techniques.

Figure 2

Continuum of digital/virtual learning spaces

Source: Dalsgaard & Rybergb (2023)

The framework developed by Dalsgaard and Ryberg (2023) presents a continuum of digital or virtual learning spaces that emphasizes different types of social forms, namely the individual, group, set, and net. Social interactions occurring among learners within digital or virtual learning spaces are facilitated through digital technology. As shown in Figure 2, these digital learning spaces include the individual space, working group, community of interest, and open connections, with technology functioning respectively as a cognitive partner, collaboration tool, sharing tool, and facilitator of network relations and effects.

In the individual space, the learner independently governs his or her own actions, manages personal learning strategies, and develops individual capabilities. The learner's self-

directed actions emerge from personal goals, problems, and questions. To achieve meaningful learning, the learner must consciously utilize available tools, remain aware of learning goals, and actively perform tasks directed toward the attainment of learning outcomes. Within this space, digital technology acts as a "digital partner," meaning that the learner and technology collaboratively navigate the learning process toward the intended outcomes (Dalsgaard & Ryberg, 2023).

In the working group space, learners collaboratively work toward the achievement of shared learning outcomes. Through collaborative and cooperative activities within a digital learning space, group members closely interact and work together toward a common direction (Dalsgaard & Ryberg, 2023). In this context, technology serves as a collaboration tool that enhances learners' ability to work together effectively. While engaging in learning tasks, technology enables learners to share inputs, outputs, suggestions for improvement, and revisions of their work products.

Another type of digital learning space is the community of interest, also referred to as the "set." In this learning space, learners are united by a shared interest. They may engage in collective activities in which learners are not only directed toward similar learning outcomes but also contribute to a broader activity that an individual alone may not be able to accomplish (Dalsgaard & Ryberg, 2023). In this setting, digital technology functions as a sharing tool that promotes transparency by enabling learners to exchange learning targets, learning materials, learning strategies, ideas, thoughts, and feelings with other members of the learning community.

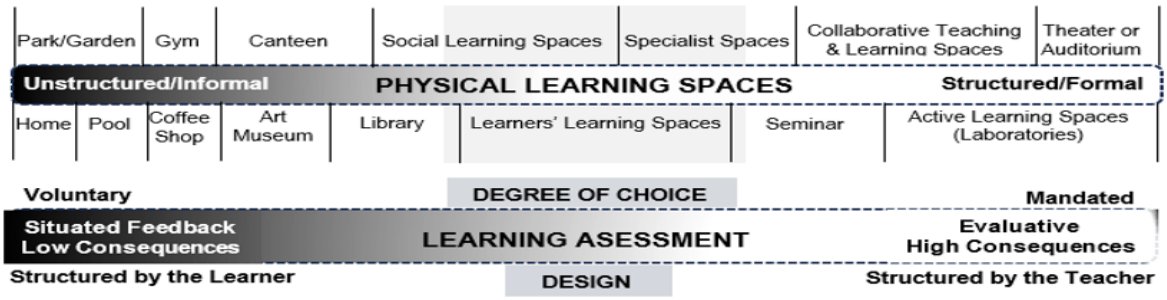
The final type of digital or virtual learning space is the open connections or "net." In this learning space, the social form is referred to as stigmergic production, where learners build, contribute to, and activate their social networks. According to Boldini et al. (2024), "stigmergy" refers to an indirect form of communication among members of a group through dynamic environmental modifications and is considered a fundamental self-organizing mechanism observed in animal swarms. Stigmergic production is closely associated with network structures, as individual learners both contribute to and benefit from network participation. For example, when learners post ideas on platforms such as Facebook, X (formerly Twitter), personal blogs, or Instagram, they are no longer fully in control of how others interpret, repost, share, or respond to their content across different contexts (Dalsgaard & Ryberg, 2023). In this type of learning space, technology functions to establish network

relations and network effects. The connections formed among learners, and even clusters of learners, within the "net" have the potential to bind them together toward the achievement of common learning outcomes.

4.3. The alignment of assessment, pedagogy, and learning spaces

Figure 3

Alignment among physical learning spaces, pedagogy and assessment



Source: Wilson (2009 as cited in Healey, 2022)

Figure 3 highlights that teachers must be familiar with the available physical learning spaces within and outside the school so that they can appropriately design and redesign assessment strategies and approaches based on these spaces. Healey (2022) reported the framework of the continuum of physical learning spaces developed by Wilson (2009). Similarly, the National Research Council (2009) introduced the continuum of learning assessment in terms of two dimensions: who designs the assessment and the degree of students' choice.

The framework demonstrates that physical learning spaces range from unstructured or informal settings to highly structured or formal environments. Pedagogy and assessment designed according to curricular standards can therefore be implemented through the appropriate use of available learning spaces. For example, the home may be considered an unstructured or informal living space, yet it can also function as a structured personal learning space. In this context, parents play an important role in supporting the educational journey of their children.

School parks or gardens, gymnasiums or sports centers, and school canteens are examples of school spaces that can be utilized for socialization. Socialization is a lifelong

process through which learners acquire the norms, customs, values, attitudes, and behaviors expected within a group or society through social interaction. In these learning spaces, learners informally adjust to group norms and learn behaviors that are socially acceptable. Similarly, homes, swimming pools, art museums, and community libraries are informal learning spaces outside the school where learners are provided with experiences related to curriculum implementation based on personal choice. According to Thibodeaux et al. (2019), giving learners the freedom to choose their learning spaces positively enhances metacognitive practices, opportunities for reflection, and the development of learners' voices. In such informal or unstructured learning spaces, teachers are challenged to design assessment approaches that appropriately fit the nature of the environment. In these contexts, assessment should be voluntary, learner-designed, and focused on situated feedback such as reflections or self-reports with minimal consequences. Information obtained from feedback and self-reports should then be compared with teachers' observations. When the results from both sources are consistent, the information regarding learners' progress toward learning outcomes becomes more reliable.

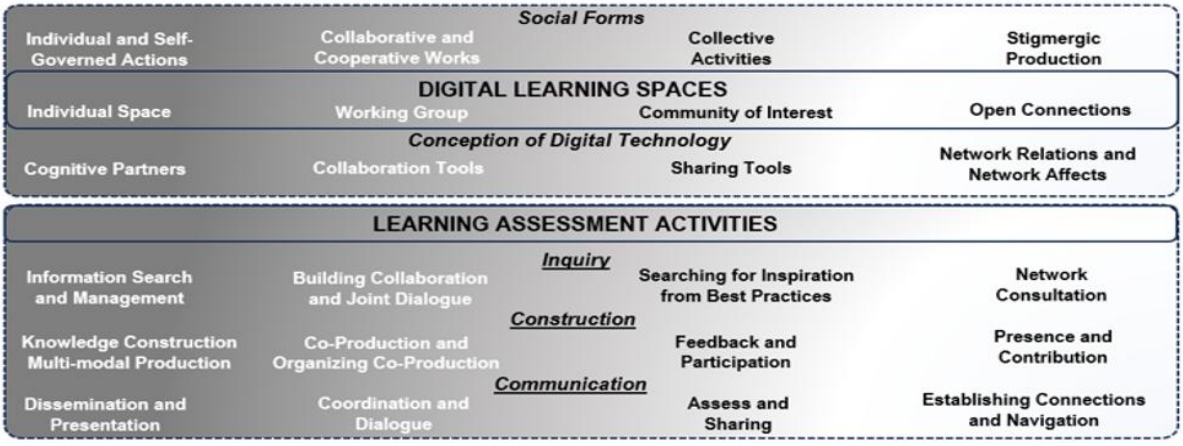
Social learning spaces, specialist spaces, school libraries, learners' learning spaces, and seminar spaces are examples of physical learning spaces that support the formal implementation of the curriculum. Through the availability of teaching-learning materials, teachers' pedagogical expertise, educational technology, and opportunities for collaborative and active learning, meaningful formal learning can occur in these environments. Within these spaces, learners may choose to work individually or collaboratively, allowing them to respond according to their preferred learning styles. However, giving students complete control over classroom learning is often unrealistic. Teachers still need to decide whether to provide learners with choices or implement strategies they consider appropriate based on the content, context, and available instructional support. Consequently, in learning spaces situated at the middle of the continuum, both teachers and learners should collaboratively decide on the degree of choice and the design of assessment. For example, although teachers traditionally prepare formal classroom pen-and-paper tests, learners may still be consulted regarding the topics to be covered, the test-item formats, and the number of items to be included in unit or quarterly examinations.

Highly structured physical learning spaces include collaborative teaching and learning spaces, theaters or auditoriums, large seminar venues outside the school, and

laboratories. In these environments, learning is highly formal and stricter compliance with standards is expected. Some schools, for instance, utilize collapsible or openable walls to accommodate large groups of learners. These spaces are typically equipped with proper ventilation, high-definition sound systems, technology-assisted projection materials, and formalized systems for monitoring learning. To monitor learner engagement, tools such as meta cards may be used to encourage learners to share written ideas and post outputs on designated boards for others to view. Microphones may also be placed along aisles to facilitate oral participation. Assessment practices in these structured learning spaces are generally formal, highly regulated, and teacher-designed. For example, formal pen-and-paper examinations may be administered before or after learning engagements. Overall, the framework presented in Figure 3 serves as a guide in understanding the relationship between assessment and the nature of physical learning spaces. Teachers must therefore examine the availability and nature of these spaces before planning instruction, as a clear understanding of the continuum supports the implementation of contextualized assessment practices.

Figure 4

Alignment among digital/virtual learning spaces, pedagogy and assessment



Source: Dalsgaard & Rybergb (2023)

Figure 4 presents the modified assessment framework developed by Dalsgaard and Ryberg (2023), which illustrates the continuum of digital or virtual learning spaces emphasizing different social forms such as the individual, group, set, and net. Social interactions among learners within these digital or virtual learning spaces are facilitated through digital technology.

Digital learning spaces include the individual space, working group, community of interest, and open connections, with technology functioning respectively as a cognitive partner, collaboration tool, sharing tool, and facilitator of network relations and effects.

Assessment in the individual space. Assessment of learners' inquiry skills in the individual digital or virtual learning space may focus on how learners access and manage large amounts of digital information. According to Dalsgaard and Ryberg (2023), searching for information is not a simple task but requires extensive knowledge in using various search engines, websites, and digital platforms. Managing digital information is therefore an important information skill that can be assessed in the individual space. This may involve evaluating learners' proficiency in using digital storage tools such as hard disk drives, flash drives, solid-state drives, optical storage devices, and Google Drive. Reflective activities, self- and peer-evaluation, and performance-based assessments may be utilized to gather information about learners' skills in accessing and managing digital information.

Assessment of knowledge construction in the individual space focuses on what learners can accomplish with the assistance of digital technologies. Knowledge construction involves utilizing technological tools as cognitive partners in performing tasks and processes. For example, learners may use computers to calculate, correct spelling and grammar, create three-dimensional visualizations, or conduct statistical analyses for research purposes. Assessment in this context determines whether learners can apply their knowledge through the use of digital tools to create multimodal products that combine audio, text, video, and images (Dalsgaard & Ryberg, 2023).

Assessment of learners' communication skills in the individual digital or virtual learning space relates to how learners disseminate and present their outputs. According to Holgaard et al. (2021, as cited in Dalsgaard & Ryberg, 2023), dissemination traditionally occurs after learners finalize their work. However, digital products can easily be shared during the development stage, enabling learners to obtain feedback and suggestions from teachers and peers for improvement. Once the product is completed, learners may present their outputs to a wider learning community. The essence of digital project presentation is therefore to assess how effectively learners communicate their outputs to others.

Assessment in the working group space. Assessment of inquiry skills in the working group space may focus on how learners establish connections and engage in collaborative dialogue with group members within digital or virtual environments. Assessment can

examine how learners utilize digital technologies to share information and contribute to the development of shared digital resources. Teachers may evaluate the use of file systems, links, bookmarks, reference managers, or shared note-taking applications that support group collaboration (Caviglia et al., 2018; Dalsgaard & Ryberg, 2023). Inquiry skills may also be assessed by observing learners' engagement in collaborative discussions and evaluating the quality of annotations or contributions related to group activities.

To assess learners' knowledge-construction skills in the working group space, teachers should examine both co-production and the organization of co-production. Co-production skills may be assessed by evaluating how learners use collaborative digital tools for writing, drawing, presentations, image editing, and research production. In this process, teachers assess not only the quality of the final product but also the quality of learners' participation during the collaborative process. Assessment of organizing co-production may involve examining how learners manage multiple digital tools simultaneously during collaborative writing, chats, or video conferences in virtual group meetings (Davidsen et al., 2020; Dalsgaard & Ryberg, 2023).

Communication skills in the working group space may be assessed by evaluating learners' coordination and engagement in productive dialogue. Teachers may observe how learners coordinate activities, collaborate with peers, and align their work with the contributions of other group members. Information gathered from shared calendars, to-do lists, project management tools, or assignment boards may provide valuable evidence for assessing coordination skills (Dalsgaard & Ryberg, 2023). Participation in discussion forums, video conferences, and chat interactions may also be examined to determine the quality of learners' communication and engagement.

Assessment in the community of interest space. A community of interest, also referred to as a "set" or class, is a learning community united by a common purpose of achieving learning objectives. Assessment of inquiry skills in this space may focus on how learners seek inspiration and benchmark best practices from other members of the learning community. Teachers may examine what motivates learners in gathering resources and contributing to collective learning activities. Interviews or reflective activities may also be conducted to determine the sources of learners' inspiration and the relevance of gathered information.

Assessment of knowledge-construction skills in the community of interest space may be based on learners' feedback and participation. Teachers may evaluate how learners contribute to group discussions, provide peer feedback, and support the learning of others. For instance, a learner who discovers a solution to a classmate's problem and shares it in a discussion forum demonstrates meaningful participation in knowledge construction. Teachers may also assess the extent to which learners contribute actively to collaborative learning activities and support a culture of participation (Ryberg & Davidsen, 2018; Dalsgaard & Ryberg, 2023).

Assessment in the open connections space. Assessment of inquiry skills in the open connections space requires teachers to focus on learners' networking and consultation activities. In this learning space, learners utilize networks to obtain information, resources, and perspectives from various sources. Teachers may assess how learners engage with online networks to expand their knowledge, skills, and values related to learning content. Learners may demonstrate their networking activities through platforms such as X (formerly Twitter), Instagram, YouTube, and Messenger. Networks extend learners' inquiry skills beyond institutional and national boundaries by providing access to diverse sources and perspectives (Downes, 2019; Dalsgaard & Ryberg, 2023).

Assessment of knowledge construction in the open connections space may focus on learners' presence and active contribution within digital networks. Learners demonstrate their presence through the sharing of ideas, images, links, stories, and opinions. Knowledge construction in this context involves creating representations that can connect with other individuals in the network. Teachers may therefore assess learners' active participation through their online content sharing and interactions. Through stigmergic production, learners contribute to broader knowledge networks and develop as global citizens who engage with the wider world (Dalsgaard & Ryberg, 2023).

Assessment of communication skills in the open connections space may focus on learners' ability to establish connections and navigate digital resources effectively. Teachers may evaluate both how learners build online networks and the extent of valuable information acquired through these connections. The process of establishing and navigating networks is therefore an essential communication skill that must be considered in assessment within this type of learning space.

4.4. The Need for Aligning Assessment with Pedagogy and Various Learning

Today's schools are increasingly viewed as venues for active learning. Doolittle et al. (2023) defined active learning as a student-centered approach to knowledge construction that focuses on activities and strategies fostering higher-order thinking. This definition revolves around three major themes: (a) active learning is grounded in student-centered constructivist theory; (b) active learning promotes higher-order thinking and deep learning; and (c) active learning involves instructional strategies characterized by activity, participation, and engagement. These perspectives highlight the need for schools to transform from traditional classrooms into dynamic active learning spaces where learners are actively engaged in the teaching and learning process.

Schools, whether physical or virtual learning spaces, significantly influence students' learning experiences. Consequently, transforming schools into active learning spaces has become a necessity. According to Carlos et al. (2023), active learning spaces emphasize the centrality of student learning through collaborative work supported by technology-enhanced environments. This transformation reflects a paradigm shift in viewing learning not merely as the absorption of knowledge but as the active construction of knowledge. Furthermore, the development of modern information technology has shifted the concept of learning spaces from conventional classrooms toward environments designed to stimulate students' interest in learning, enhance participation, promote social interaction, support collaborative learning, and improve the overall learning experience (Ye, 2020).

The transformation of schools into active learning spaces requires the integration of several key elements: (a) active learning pedagogy, (b) active learning spaces, and (c) activity-based assessment. Active learning pedagogy is interdisciplinary, collaborative, school-wide in implementation, grounded in constructivist theory, and expressed through varied learning outputs (Cattaneo, 2017). Active learning spaces are characterized by technology-enhanced environments that support collaborative student engagement (Carlos et al., 2023). In addition, the increasing demand for Outcomes-Based Education (OBE) has made the use of Activity-Based Assessment (ABA) essential. According to Evardo (2024), OBE aims to create effective teaching and learning environments that produce globally competitive graduates who meet international educational and labor standards. To achieve this goal, activity-based assessment should focus on educational purposes and generate meaningful information that supports guidance and educational improvement.

5. Conclusion

This rapid literature review highlights the importance of aligning assessment, pedagogy, and learning spaces to improve educational quality. Assessment is not merely a measure of learning but a strategic process that must correspond with pedagogical approaches and the nature of both physical and digital learning spaces. Physical learning spaces exist along a continuum ranging from informal to formal settings, requiring assessment and pedagogy to adapt accordingly. Similarly, digital learning spaces range from individual to open networked environments, where assessment must address inquiry, knowledge construction, and communication. Such alignment supports outcomes-based education by ensuring coherence among teaching practices, assessment strategies, and learning contexts.

The review further emphasizes that learning environment and learning space are related but distinct concepts. A learning environment refers to the broader cultural, social, and cognitive conditions that influence learning, whereas learning spaces focus more specifically on curriculum implementation and instructional interaction. Although both concepts influence learner motivation and performance, learning spaces require deliberate alignment with pedagogy and assessment practices. This alignment promotes higher-order thinking, collaboration, learner agency, and continuous improvement in teaching effectiveness and educational quality.

Educational institutions should therefore institutionalize constructive alignment in curriculum planning and instructional design by ensuring coherence among pedagogy, assessment, and both physical and virtual learning spaces. Teachers must thoughtfully design and maximize the use of physical learning spaces while strengthening their digital competence to effectively utilize virtual learning environments. Professional development programs should emphasize authentic and activity-based assessment practices that reflect contemporary learning realities. Such programs should also provide practical training on integrating technology as a cognitive partner, collaboration tool, sharing platform, and networking medium to enhance learners' inquiry, knowledge-construction, and communication skills.

Furthermore, schools must intentionally improve their physical and digital infrastructures to ensure pedagogical functionality. Flexible seating arrangements, collaborative zones, technology-enabled classrooms, and access to laboratories and libraries

should be aligned with instructional goals. Likewise, digital platforms should support individual work, collaboration, community interaction, and networked learning. Educational policies should also promote blended learning models that harmonize face-to-face and virtual learning spaces.

Finally, teachers should gradually transition from purely summative assessment practices toward formative, diagnostic, and performance-based approaches that evaluate both learning processes and learning outcomes. Future research should empirically validate existing alignment frameworks and examine their effects on student achievement and motivation. Policymakers should likewise incorporate alignment indicators into quality assurance and accreditation systems to sustain innovation, inclusivity, and academic rigor in education.

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