

Is There a Best Way to Teach? Evaluating the Traditional and E-Learning Pedagogies from the Promise and Perils Perspectives

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Abstract

This review reveals that there is no instructional method that is inherently bad; misuse rather than use is the culprit. The question whether there is a “best” teaching option between lecturing and technology-enhanced learning is fundamental, but a somewhat challenging undertaking, more so at a time when e-learning pedagogies are still undergoing negotiations in pursuit of full development. At this particular bend, the focus should shift from deciding the “best” teaching option to aligning instructional methods (whether fully developed or underdeveloped) to specific educational contexts, with much attention to answering questions like; what implications do the existing instructional strategies have on varying educational contexts? How effectively can individual students learn while using these methods as modes of instruction? How can e-learning instructional strategies produce learning outcomes that are similar or superior to the lecture method, and vice versa? And what unique features of these instructional methods best align with students learning needs? If these concerns are given priority, then the journey to creating an effective learning environment that empowers students to engage meaningfully and productively just got much smoother.

Keywords

Education, Teaching and Learning, Traditional Instructions, E-Pedagogy, Instructional Alignment

1. Introduction

Decades of research have birthed a new era of radicalism spanning the belief that certain instructional methods are more effective in enhancing students’ thought processes and creativity than their counterparts. With an inclination towards the

lecture method, fundamentalists of traditional pedagogy argue that, besides being flexible and economical, it empowers students to think critically, generate understanding, and develop interest in a subject area (Macarana, 2022; Liu et al., 2023; Sahin & Arseven, 2022; Krishna, 2012; Killen, 2011; Govender, 2016; McCarthy & Anderson, 1999). Although this submission may excite an idealist, most pragmatists have continued to question the effectiveness of this instructional method, notwithstanding their agreeable position that it gives teachers control over the teaching and learning process. Research further reveals that besides plugging learners into a passive mode and presuming that all students learn at the same pace, the lecture method is found to be less capable of transforming learning beyond the lower-order learning level as per Bloom's levels of learning (Ssemugenyi, 2023; Abd Elgadir et al., 2023). The method glorifies teacher presence and dominance, which in turn render students passive and less capable of using the acquired lower-order knowledge (remembering, understanding, and applying) as a building block to navigate into the most desired higher-order learning space, with much focus on analysis, evaluation, and creation of knowledge.

On the contrary, as society evolves and human needs rapidly change, so does the education system. The emergence of the fast-paced world (the Fourth Industrial Revolution) based on artificial intelligence, Big Data, and Internet of Things has had a direct impact on instructional methods and the education system as a whole. A paradigm shift mediated by technology is being witnessed as learning shifts from universal learning to customized learning, from learning by absorption to learning by doing, from confined physical classrooms to virtual classrooms, from teacher-directed to learner-directed, and from deductive teaching to interactive teaching (Friedman, 2016; Kamp, 2016). Besides disrupting traditional instructional methods, the advent of internet and e-learning tools has opened up education to a global audience, making it accessible, cheap, and personalized, with increased access to information, and global connectivity. Personalizing learning for increased involvement and creativity has been central to e-learning and a distinctive feature that is still contestable in the lecture method (Ssemugenyi, 2023). It is of no surprise, thus, the three main domains of learning (e.g., cognitive, affective, and psychomotor) are easier achieved with technology-enabled learning, unlike the other (Stephenson, 2018; Harasim, 2017; Roberts, 2004), teachers' willingness and commitment to achieving them notwithstanding. This stands to reason that the way knowledge is processed and acquired, with technology being utilized as an enabler, is by and large a less-trodden terrain for a traditional teacher whose orientation is inclined towards dominating the teaching and learning process instead of empowering learners to construct their own knowledge in quest for practical solutions to societal challenges.

With this preceding submission, it is tempting to assume that e-learning is more involving and empowering than the lecture method, and thus a better option, but to vindicate this assumption, we need to sufficiently interrogate the question posed in the title as to whether "*there is a best way to teach*" and, if so,

how teachers should be helped to implement it. Although, considerable progress to answering this question has been noticeable in the past three decades, admittedly, this effort has only birthed contradictions, for there is no agreement on how to conceptualize and measure “best”. This largely remains unanswered and something that most educationalists and researchers are still grappling with to this day. Therefore, this review is birthed out of this gap, to humbly contribute to the debate in the quest for a connection between research and practice and vice versa.

2. Conceptualizing Instructional Effectiveness

In the pedagogic and didactic sense, effective learning would imply an instructional process through which learners are empowered to engage meaningfully and productively in learning how to apply knowledge (Brewer & Cunningham, 2023; Titus & Muttungal, 2023; Edgerton, 2001; Smith et al., 2005; King & Watson, 2010; Rockoff & Speroni, 2010; Ssemugenyi, 2023). It is basically a process of stimulating learners to link knowledge to action (Ssemugenyi, 2022). In view of these submissions and in the context of this review, it is not only prudent, rather imperative to conceptualize instructional effectiveness as a process through which teachers empower learners to construct knowledge by themselves in response to worldly challenges through involvement and engagement. From this definition, three critical elements emerge thus; empowerment, involvement, and engagement, as an interconnected web for meaningful learning. These constructs are being used in this review as a baseline to examine whether the same can be sufficiently achieved with e-learning and/or lecture methods.

3. Material and Methods

In this qualitative study, document analysis was applied to evaluate documents both printed and electronic to elicit meaning, gain deep understanding, and develop empirical knowledge (Corbin & Strauss, 2008; Creswell, 2009). This method is good at providing an overview of what has been written about a particular topic, identifying trends and/or patterns in that topic, gathering interrelated evidence about the same topic to support practice, and evaluating the same evidence to birth new lines of reasoning. In this study (mainly in the literature review section), the focus was on the research and review articles published between 2022 and 2023 with sound evaluation on the efficacy of e-learning and lecture methods towards influencing a desirable learning experience. The selection of these articles followed these steps; first, the researchers conducted a web search to identify articles with relevant information on the topic under review; second, setting a criterion for inclusion thus; only those articles that met the following inclusion criteria were selected: 1) articles published between 2022 and 2023, 2) articles written in either British or American English, and 3) both research and review articles, and third; establishing interrelated and divergent views in the reviewed literature to work as building blocks towards creating new

perspectives for improved practice. With these criteria, a total of 36 articles (ref. **Table 1**) with an open access status in the databases (e.g., Web of Science, ERIC, Scopus, and PsycINFO) were selected for this review; however, it is important to note that several potential studies published in other forms such as commentary articles, editorial news papers, unpublished dissertations, book chapters, books, and articles with restricted access were never considered in this review, an issue that may in one way or another raise concerns of validity. Nonetheless, it should be noted that the focus was not on the representation, rather on producing rich and nuanced evidence to meaningfully contribute to the ongoing debate in the field of instructional methods.

Table 1. Reviewed literature on the parameters of meaningful learning.

Parameters	Reviewed Literature (n = 36)
Empowerment, Engagement, and Involvement	Macarana (2022); Liu et al. (2023); Sahin & Arseven (2022); Brewer & Cunningham (2023); Titus & Muttungal (2023); Abd Elgadir et al. (2023); Ssemugenyi (2023); Tronchoni et al. (2022); Dogani (2023); Haryanti et al. (2023); Klein et al. (2023); Silva et al. (2022); Yarmohammadi et al. (2023); Gamo (2022); Abdull Mutalib et al. (2022); Greenhow et al. (2022); Pires et al. (2022); Rospigliosi (2023); Arif et al. (2023); Yang et al. (2022); Nazare et al. (2022); Cohen et al. (2022); Archambault et al. (2022); Salas-Pilco et al. (2022); Tsai (2023); Dimitrova et al. (2022); Surahman & Wang (2022); Rahman et al. (2022); Charbonneau-Gowdy et al. (2023); Martin et al. (2022); Gomes (2022); Ssemugenyi (2022); Ting et al. (2022); Kalimaposo & Chivunda (2023); Machado et al. (2023); Calabrese (2023).

4. Literature Evaluation

4.1. Lecture Method

Even though the traditional lecture method may be criticized for oversimplification and denying learners an opportunity to imagine a world beyond their immediate, the pertinent questions to ask are; 1) does the method serve the purpose for which it is applied? 2) and why has it endured to this day despite several attacks? In response to question 1, the primary goal of any instructional method is to achieve the intended learning outcomes in the form of knowledge, skills, and attitudes. In light of this assumption, the lecture method has, inter alia proven to be a suitable instructional method in stimulating students' inquisitiveness and alertness of the mind to pursue a pre-organized and structured body of knowledge embedded in standard and approved curricula. Given the fact that a majority of teachers rely heavily on pre-structured and logically arranged curricula to teach learners, they oftentimes choose the lecture method for its endorsed

practicability to present any subject matter that is scientifically and logically structured. Researchers such as Ssemugenyi (2023); Klein et al. (2023); Liu et al. (2023); Macarana (2022); and Tronchoni et al. (2022) agree that whereas student centered learning methods are critical to effective learning, the traditional lecture method is not only a necessary, but sufficient condition in contexts where curriculum does not only require but demand a logical presentation of content to learners, and in contexts where learning progresses systematically from simple to complex and from concrete to abstract with much guidance from a teacher.

Consistently, with reference to the Medieval era, the forefathers of education believed that the best way to transfer a textually-grounded knowledge was through the lecture method, for, knowledge acquisition was limited to the authority of the text, transmitted orally by the lecturer. Relatedly, Kalimaposo & Chivunda (2023) attest that when textual scarcity reinforced an understanding of knowledge as more a matter of recovery than discovery, the lecture was configured in terms of the authority of the textual sources from which this knowledge was recovered. The processes of dictation and notation ensured that the lecturer did not stray far from this textual authority (Kalimaposo & Chivunda, 2023). The main source of knowledge was textual and access was unfortunately limited to teachers alone (Macarana, 2022). This thus suggests that a few teachers with access to books would impart knowledge or pass on information to large groups of students orally through dictation. While the tradition of dictating notes has since faded and been replaced with light-weight teaching interventions such as classroom-based discussions, PowerPoint presentations, and provision of learning resources (e.g., modules, slides, monographs, etc.) ahead of the lessons, pragmatists still insist that such interventions have only reduced pressure on students but not made the lecture method a unique and competitive instructional strategy, as its proponents seem to allude. This is because, with these interventions learners have continued to demonstrate high levels of passiveness, low retention, and attention span (Liu et al., 2023; Dogani, 2023).

In response to question 2, it is important to note that the survival of the lecture method to the present day has surprisingly found very few answers however, a critical evaluation of the available body of literature shows that its survival is dependent more on cultural, historical, and economic factors than on its efficacy to transmit knowledge, for there are many more powerful and effective ways to do this. For instance, with reference to Asia, Ting et al. (2022) indicate that an attempt to adopt active teaching and learning methods in schools has been a daunting undertaking for decades due to rigid traditions that still regard teachers as the only source of knowledge and beacon of wisdom. In Asia, it is believed that teachers dispense truth and no one has the powers to challenge that truth, a reason justifying why teacher-centered methods (i.e., lecture method etc.) are still dominant to this day. While this submission may attract debate for oversimplification and generalization, relatedly, Baer (2022) supports this view. He mentions that the cultural norms and traditions that reify knowledge and

reinforce status differentiation between teachers and students have since made the change to learner-centered education more challenging for universities in Asia. Although this may be perceived as an outmoded practice, it is important to note that schools, colleges, and universities reflect the basic values of a society, and for long, the Asian education system has been shaped and guided by their psyche, which compels them to believe that teachers are always right; ‘correct’ answers and/or truth only exist in books; and it is the responsibility of teachers to interpret that truth for others. Be that as it may, attempts to adopt pedagogies of engagement that encourage active learning are underway, but the slow rate of adoption is in part explainable by the aforementioned rigid traditions.

In other contexts of the Global South, the situation is no better, for the education system is designed as a mechanism to protect and sustain the less-democratic and oppressive political, and social systems. This education system builds on the view that leaders are always right, teachers know everything and are the only final authority for truth, and the role of subordinates and/or students is to comply with the directives and/or instructions of the master (Gomes, 2022). This education setting gives teachers a much wider latitude to dominate the teaching-learning process and regards learners as merely empty vessels to be filled with knowledge. Even though there is practical evidence of a concerted effort to liberate education from this “captivity”, the existing cultural rigidities and conservative values of society are still making progress more challenging. However, it is important to mention that education serves the interests of the society and its eminence cannot outmatch that of its society (Ssemugenyi & Obsiye, 2022); to imply that, the progress to changing the instructional methods to what is assumed “*best*”, shall always stifle, for as long as it is perceived as a contradiction to the existing traditions of a society. Therefore, what is taught and how it is taught in schools, colleges, and universities is in part a true representation of society’s worldview in terms of its values, beliefs, and aspirations. It would simply be foolhardy for schools, colleges, and universities to adopt teaching strategies which do not align with society’s history, traditions, and values; it cannot be thus!

4.2. Lecture Method for Meaningful Engagement and Involvement

Even though the preceding background does not clearly endorse the lecture method for reasons that seem systemic than methodological, latest research is coming full circle to endorse it from a methodological point of view. For instance, Haryanti et al. (2023) while investigating the efficacy of the lecture method in comparison with inquiry-based learning, found out that the lecture method was more effective at producing structure learning achievement than its counterpart. Since learning is a cognitive process that progresses systematically from simple to complex and from concrete to abstract, preferably with teachers as guides, the lecture method is not only preferred for its simplicity but also for its conformity to structural learning materials that have a set order and progression of topics (Haryanti et al., 2023). In support of this finding, Klein et al. (2023); Silva et al. (2022); and Yarmohammadi et al. (2023) submit that, the lec-

ture method is an effective teaching strategy, for it allows teachers to logically present subject matter and systematically track the impact of teaching intervention on the learners through numerous forms of assessments. While one may argue that other teaching methods such as problem-based, project-based, active learning, and inquiry-based among others, are preferred to the lecture method, it should not be forgotten that the lecture method remains an essential element in every pedagogical practice (Ssemugenyi, 2023; Macarana, 2022). It is not only effective as an independent method, rather extends into other teaching methods to make them effective as well (Gamo, 2022; Ssemugenyi, 2023).

It is also important to note that the success of any instructional method lies in its flexibility, feasibility, and teachers' preparedness. Being economical and flexible to effectively support most content areas irrespective of the class size (Silva et al., 2022), the lecture method has continued to enjoy warm reception from a majority of teachers to this day. It nurtures a teach-think-grow habit in both teachers and learners (Macarana, 2022), an element that is essential in determining the pace and direction of learning through teacher-student engagements. Through such engagements, teachers and learners are granted the opportunity to assess their position on a particular topic, instill a broader sense of community, and refine their worldview through experiential learning. A study by Calabrese (2023) not only supports this view, but also extends the argument of the proponents to claim that this method is the most suitable instructional strategy for content-laden curricula that require the involvement of a teacher to work through challenging materials with learners aboard. The study further mentions that the interactive lecture method, which directly involves learners in the learning process to pursue a well guided learning course, empowers students to take responsibility for their learning, consider new perspectives, and have increased self-efficacy.

With this evidence, it is tempting to believe that the lecture method is a reliable instructional method that has stood the test of time due to its overarching impact on the teaching and learning process, notwithstanding the controversial and contradictory gestures it has attracted over time. But to make it work very effectively, teachers ought to learn how to craft engaging lectures that capture attention and stimulate curiosity for enhanced understanding and retention. True, some credible studies are endorsing this method, but since it has been a subject of scholarship scrutiny over time, it is necessary to intensify the investigations through longitudinal studies to carefully assess its enduring effects on student learning and engagement and also evaluate the influence of instructor characteristics on effective delivery.

4.3. E-Learning

The belief that digital learning is a foundation of creative and active learning is not only central to our discourse to this day, rather, has spurred much enthusiasm in recent decades than ever in the history of Higher Education (HE). This belief builds on the assumption that the emerging knowledge society that is

guided by the forces of Industry 4.0, rests entirely on technology, and hence, integrating technology into the teaching and learning processes has not only become a requirement, but a yardstick for quality and meaningful education (Abdull Mutalib et al., 2022; Greenhow et al., 2022; Pires et al., 2022; Rospigliosi, 2023; Arif et al., 2023; Yang et al., 2022; Nazare et al., 2022; Cohen et al., 2022). It opens learning space for learners to keep constructively engaged with instruction (Archambault et al., 2022; Salas-Pilco et al., 2022). Although this may be a truism, it is important to mention that the mere inclusion of technology in education may not necessarily lead to creative and/or active learning, as most idealists seem to allude. In light of this, (Tsai, 2023) is not convinced that ICT will bring the pedagogical benefits that have been so much touted about, rather will continue to influence the way teachers teach and students learn in the rapidly growing digital space. They further mention that it is necessary to investigate (case by case) where the traditional instructions have failed, if at all anyway, and further establish if the inclusion of technology would improve teaching and learning effectiveness.

Attempts to investigate this dichotomy are underway, and the results are collectively suggesting that it is no longer a question of whether technology should be integrated in the teaching and learning process, rather a question of when and how to do it. With this in mind, it is imperative to take an ontological and epistemological step to delineate the role of technology in the teaching and learning process on a case-by-case basis in pursuit of “*the how*”. This is important because educational contexts differ in many ways; while technology may be the chief instructional enabler for schools in the Global North, it may not be the case for the Global South, and within these two segments, schools are not at the same level technologically. These variations call for ontological and epistemological interrogations that are context-specific to determine how the role of technology is perceived vis-à-vis schools’ readiness to integrate it in the teaching process. Therefore, a socially constructed meaning of *technology* is required as our point of departure for proper integration, instead of applying the existing generic social constructions that are often misleading. For simplicity, let us think of these analogies, thus; a bank note remains a merely piece of paper (object-based ontology) to a child who sees no value in it, but a piece of monetary value to an economic mind in a purely subject-based ontology. Relatedly, yet, epistemological in nature; a statement that “the White House is more ‘*beautiful*’ than the Pentagon” is a subjective assessment that cannot be measured in the correct sense of the word, and therefore relates more to a subjective epistemology. However, to state that the Whitehouse is taller than the Pentagon is quantifiable and measurable based on an objectivistic epistemology (Machado et al., 2023). With these illustrations, it is clear that how we define the beauty of certain things depends on our social construction of “*beauty*” in some way, even though their objective ontology may be quite clear.

In light of these illustrations, it is clear that our social construction of technology varies from context to context, and the rate of adoption always depends

on both perceived and real affordances. While it may be inevitable to apply technology in schools and colleges that are in Society 4.0 (based on their social construction of technology), it may not be the case for schools and colleges that are still struggling to tap into the opportunities of Society 3.0. Thus, while the traditional methods may be inappropriate in some contexts, they may instead be the most appropriate instructional methods in other contexts, and the reciprocal is true for technology-enhanced learning.

4.4. E-Learning for Meaningful Engagement and Involvement

In light of the aforementioned background, it is crystal clear that e-learning as an emerging pedagogy is still undergoing scrutiny to establish how *learning* is effectively assessed and measured. The reviewed articles seem to differ both in interpretation and application, although collectively agree that e-learning as a medium has not only made learning flexible, rather, opened a whole new world of possibilities where students are empowered to be in charge of their learning process through meaningful involvement and engagement. It is associated with learning speed, flexibility, versatility, and interactivity, all of which are critical variables for meaningful learning (Dimitrova et al., 2022; Abdull Mutalib et al., 2022; Archambault et al., 2022). Although e-learning is progressively reshaping the direction of instruction, it should not be forgotten that it is still littered with philosophical and methodological gaps, all of which are counterproductive in one way or another. There is evidence to suggest that its efficacy is still reduced to flexibility, access to the internet, internet speed, access to tabs, and ease of use. True, these are essential elements for any sound e-learning environment but not necessarily sufficient conditions to make e-learning a reliable undertaking from a methodological point of view. There is a need to measure how *flexibility* as a variable impacts learning and how learning as an outcome variable relates to *flexibility, access to the internet, internet speed, access to tabs, and ease of use*. While it is necessary to engage in these measurements for a clear way forward, this review has not delved deep into this, for it bases its views on the already published works whose contents do not extend deep into those analyses. Therefore, this review paper does not have any pretensions of being a comprehensive study detailed in every respect; rather, the style and method demonstrated in this article is simply impressionistic and panoramic.

5. Discussion from the Promise and Perils Perspectives

With reference to the evaluated literature, it is clear that both lecture and e-learning instructional strategies are mere sets of distinct elements but with identical intentions. Nonetheless, if we were to agree that students must strive for higher levels of thinking and understanding (Bloom, 1956), then we must forge a common position on how to move students to those much-needed learning zones. Of course, some teachers have the skill to do this whilst using a variety of instructional methods, yet to others, it is like “*turning a vessel in the*

middle of the Suez Canal. Whereas evidence to support technology-enhanced instructions in simulating higher-order learning is replete with inconsistencies (Tsai, 2023; Surahman & Wang, 2022; Sarwar et al., 2020; Abbasi et al., 2020; Wang & Chen, 2020; Zheng et al., 2021; Al-Taweel et al., 2020), latest findings demonstrate that the lecture method is an effective instructional method (Macarana, 2022; Klein et al., 2023; Liu et al., 2023; Barkley & Major, 2018; Gooblar, 2019; Weimer, 2019), notwithstanding the widespread propaganda that it is an ineffective and obsolete teaching method. In our opinion, the question should not be whether the method is obsolete or not, but rather how well a chosen method is aligned with the learning context to achieve specific learning goals. It has much to do with teacher-creativity and less with a method, although e-learning methods seem to give more grounds for creativity than lecture methods. Conversely, being limited by teaching instruments should not be used as an excuse; rather, teachers' creativity should transpose teaching instruments and intent.

It is observably clear that technology is changing rapidly in the teaching and learning space, making it hard for teachers to master and adopt, but it is this swiftness that makes teachers more alert, active, and creative (Pires et al., 2022; Rospigliosi, 2023; Arif et al., 2023; Yang et al., 2022; Nazare et al., 2022; Cohen et al., 2022; Ssemugenyi & Nuru Seje, 2021; Pei & Wu, 2019; Zheng et al., 2017; Gaupp et al., 2016). However, for the lecture method, the space for creativity is slim, but the method gives teachers a much wider latitude to naturalize learning processes, which e-learning is still devoid of to this day. Therefore, while e-learning provides a platform for creativity, it falls short of natural learning, yet an effective teaching and learning process takes both. This suggests that if we were to succeed as effective teachers, then we ought to treat both instructions as complementary forces where the strength of one method offsets the weaknesses of the other, in our quest for a balanced learning approach that is geared towards stimulating the affective, psycho-motor, and cognitive abilities of learners (Bloom, 1956).

Notably, proponents of technology-enhanced learning are almost succeeding at convincing the public that digital-based learning is the future of education, despite limited research to empirically justify their position. Although a significant boom in digital learning research has been noticed since COVID-19 eruption, it is important to report that most of these investigations have only reported students' perceived satisfaction but not the actual impact of e-learning modes on learning effectiveness (Charbonneau-Gowdy et al., 2023; Zheng et al., 2017; Kaczmarek et al., 2020). While students' opinions are important, research has demonstrated a poor correlation between students' perceived learning and actual learning gains (Rahman et al., 2022; Persky et al., 2020). How learning is affected while using technology as an enabler is still very much in dispute, despite widespread propaganda that it is the gateway to effective learning going forward. Just because the world is rapidly changing and steadily shifting to Society 5.0, does not mean that schools should just join the movement; there is a

need to carefully assess whether e-learning instructional strategies can produce learning outcomes that are similar or superior to the face-to-face lecture method as a starting point through experiments.

It is also true that technology-enhanced learning is gaining more prominence than ever, despite the lack of a universally acceptable e-pedagogy to guide teaching and learning to the desired levels on the learning pyramid. Of course, efforts to achieve this are underway, but how soon this should be made available is still unclear. However, for fear of being labelled outmoded and obsolete; schools, colleges, and universities are joining the movement at breakneck speed instead of investing more time in establishing how students learn with technology being used as an enabler and then developing teaching and learning approaches that are well aligned with context. The focus is much more on investing in technology than learning itself, but giving technology much attention as the case is may itself defeat the main intention technology is set out to address. The focus should be on effective learning that is based on appropriate stimulants but not on any other! Just like in the traditional setting where decades of research have led to an established theoretical and pedagogical foundation to guide instructions for desired learning outcomes, it is imperative that we devote our energies to establishing a theoretical and pedagogical foundation for e-learning as a precursor for a sound learning environment in getting ready for the years ahead.

6. Recommendations

Even though the drive to integrate technology into the existing traditional pedagogies is justifiable in the emerging digital web of the 4th and 5th industrial revolutions, the methodological questions about the art and science of teaching and learning while using technology as an enabler are not yet addressed in sufficient terms (Serdyukov, 2015). Digital learning is not a mere transposition of traditional techniques to a new medium; it cannot be thus (Andrade, 2015; Serdyukov, 2015; Greenhow et al., 2022; Archambault et al., 2022). A clearly thought-out pedagogy based on a new philosophical and theoretical foundation must be established a priori in the quest to understand how to teach and learn in an exclusive digital learning environment. Like the traditional pedagogy that has stood the test of time, e-pedagogy would describe the purpose of education in terms of the educational theories, principles, and methodological directions built on research to understand how critical elements of instruction influence knowledge acquisition among learners.

There is a need to recognize that traditional teaching and learning methods are different from e-learning techniques in terms of structure, interaction, instructional tools, and learning processes, although curricular and learning outcomes oftentimes look similar. Probably it is this similarity that is deluding conventional teachers to assume that a straightforward integration of technology into traditional teaching methods is just good enough for e-learning! With the

likelihood that e-learning may persist post-pandemic, there is a need to do the right thing instead of continuing to use *emergency remote approaches* whose validity may not endure the post pandemic period (Pires et al., 2022; Charbonneau-Gowdy et al., 2023; Martin et al., 2022; Elangovan et al., 2020). The post-pandemic institutions of learning ought to dive deep into the understanding of how technology impacts learning and how e-learning instructional strategies can produce learning outcomes that are similar or superior to face-to-face lecture methods in an attempt to guide teachers on the “*best*” teaching strategies. To simply initiate a shift based on popularism is not right. Just because digital learning is gaining popularity doesn’t mean that we should straight away abandon the native teaching strategies whose reliability has stood the test of time.

The debate on whether teachers should abandon lecture methods for technology-enhanced instructions and vice versa shall continue to intensify unless teachers get to a point of carefully examining how certain variables interact over time to influence the choice of a particular instructional method. At the moment, a majority of schools choose certain instructional methods depending on how convenient and/or simple the methods may be to their teachers but not on how suitable they are towards satisfying the learning needs of individual learners (Fulford & Mahon, 2020; Charbonneau-Gowdy et al., 2023). It is also important to note that, in some learning contexts, the onus is upon teachers to choose what is good for them, and because the lecture method has lived longer than any other, teachers unintentionally just go for it. This is not to say that the lecture method is bad, but choosing a method based on convenience does not only put the teaching fraternity in disrepute, but is also counterproductive and a gateway to decadency. Going forward, it is necessary to redirect our energies as teachers to an understanding of what is working and why, and use this to increase inclusion, innovation, and creativity in the quest for a pragmatic consensus. With this, a new breed of teachers, capable of using instructional methods as a mechanism of change where learners are empowered to self-actualize and reshape their thought processes will emerge.

7. Conclusion

With the emergency of Societies 4.0 and 5.0 that are influenced by smart technologies and data science, the teaching fraternity is almost convinced that digital learning is the future of education, despite limited research to empirically justify this position. Even though there is a concerted effort to examine how technology impacts learning for wider acceptance, there is also evidence of widespread propaganda that most of the traditional teaching methods are useless. It is true that, a focus on grading rather than learning has for long made lecture methods look less effective, but at the same time, a focus on technology rather than learning as the case seems with digital learning, is equally a false dichotomy. To simply initiate a shift based on popularism is not right. Just because digital learning is gaining popularity doesn’t mean that we should straight away aban-

don the native teaching strategies whose reliability has stood the test of time. The debate about whether the lecture method is useful is finally coming full circle; in the emerging evidence coming to light, the lecture method is making a comeback as an acceptable teaching strategy. The truth is, there is no single best method for teaching, but misuse rather than use is the culprit. To this end, the focus should shift from deciding the “best” teaching option to aligning instructional methods to specific educational contexts, with much attention to answering questions like; what implications do the existing instructional strategies have on varying educational contexts? How effectively can individual students learn while using these methods as modes of instruction? How can e-learning instructional strategies produce learning outcomes that are similar or superior to lecture method, and vice versa? And what unique features of these instructional methods best align with students learning needs? If these concerns are given priority, then the journey to creating an effective learning environment that empowers students to engage meaningfully and productively just got much smoother.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Abbasi, S., Ayoob, T., Malik, A., & Memon, S. I. (2020). Perceptions of Students Regarding E-Learning during Covid-19 at a Private Medical College. *Pakistan Journal of Medical Sciences*, 36, 57-61. <https://doi.org/10.12669/pjms.36.covid19-s4.2766>
- Abd Elgadir, I. B. E., Lahodin, S., & Mohd Nadzir, Z. B. (2023). The Lecture Method, Its Steps, and Its Educational Aspects in Teaching Arabic to Non-Native Speakers. *International Journal of Academic Research in Business and Social Sciences*, 13, 1798-1805. <https://doi.org/10.6007/ijarbss/v13-i10/19059>
- Abdull Mutalib, A. A., Akim, A., & Jaafar, M. H. (2022). A Systematic Review of Health Sciences Students' Online Learning during the COVID-19 Pandemic. *BMC Medical Education*, 22, Article 524. <https://doi.org/10.1186/s12909-022-03579-1>
- Al-Taweel, F. B., Abdulkareem, A. A., Gul, S. S., & Alshami, M. L. (2020). Evaluation of Technology-Based Learning by Dental Students during the Pandemic Outbreak of Coronavirus Disease 2019. *European Journal of Dental Education*, 25, 183-190. <https://doi.org/10.1111/eje.12589>
- Andrade, M. S. (2015). Teaching Online: A Theory-Based Approach to Student Success. *Journal of Education and Training Studies*, 3, 43-56. <https://doi.org/10.11114/jets.v3i5.904>
<http://jets.redfame.com>
- Archambault, L., Leary, H., & Rice, K. (2022). Pillars of Online Pedagogy: A Framework for Teaching in Online Learning Environments. *Educational Psychologist*, 57, 178-191. <https://doi.org/10.1080/00461520.2022.2051513>
- Arif, T. B., Munaf, U., & Ul-Haque, I. (2023). The Future of Medical Education and Research: Is Chatgpt a Blessing or Blight in Disguise? *Medical Education Online*, 28, Article ID: 2181052. <https://doi.org/10.1080/10872981.2023.2181052>

- Baer, A. (2022). Perspective-Taking and Perspectival Expansions: A Reflection and an Invitation. *Communications in Information Literacy*, 16, 38-41. <https://doi.org/10.15760/comminfolit.2022.16.1.4>
- Barkley, E. F., & Major, C. H. (2018). *Interactive Lecturing: A Handbook for College Faculty*. Jossey-Bass.
- Bloom, B. S. (1956). *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain*. David McKay Company.
- Brewer, E., & Cunningham, K. (2023). *Integrating Study Abroad into the Curriculum: Theory and Practice across the Disciplines*. Taylor & Francis.
- Calabrese, J. (2023). A Pilot Study to Compare Lecture and Active Learning. *Journal of Occupational Therapy Education*, 7. <https://doi.org/10.26681/jote.2023.070208>
- Charbonneau-Gowdy, P., Salinas, D., Oyanedel, J. C., & Magaña, H. (2023). Designing the 'New Normal': Key Insights from the Pandemic for Transforming Online Learning Going Forward. *Contemporary Educational Technology*, 15, ep446. <https://doi.org/10.30935/cedtech/13389>
- Cohen, A., Soffer, T., & Henderson, M. (2022). Students' Use of Technology and Their Perceptions of Its Usefulness in Higher Education: International Comparison. *Journal of Computer Assisted Learning*, 38, 1321-1331. <https://doi.org/10.1111/jcal.12678>
- Corbin, J., & Strauss, A. (2008). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (3rd ed.). Sage <https://psycnet.apa.org/doi/10.4135/9781452230153>
- Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE.
- Dimitrova, M., Krastev, A., Sabev, N., & Nunez-Gonzalez, J. D. (2022). *Digital and e-Learning Accessibility for People with Special Educational Needs: A Robotic Perspective*. TechRxiv. <https://doi.org/10.36227/techrxiv.20101814.v1>
- Dogani, B. (2023). Active Learning and Effective Teaching Strategies. *International Journal of Advanced Natural Sciences and Engineering Researches*, 7, 136-142. <https://doi.org/10.59287/ijanser.578>
- Edgerton, R. (2001). *Education White Paper*. Report Prepared for the Pew Charitable Trusts, Pew Forum on Undergraduate Learning.
- Elangovan, S., Mahrous, A., & Marchini, L. (2020). Disruptions during a Pandemic: Gaps Identified and Lessons Learned. *Journal of Dental Education*, 84, 1270-1274. <https://doi.org/10.1002/jdd.12236>
- Friedman, T. L. (2016). *Thank You for Being Late: An Optimist's Guide to Thriving in the Age of Accelerations*. Straus and Giroux.
- Fulford, A., & Mahon, Á. (2020). A Philosophical Defence of the University Lecture. *Oxford Review of Education*, 46, 363-374. <https://doi.org/10.1080/03054985.2019.1702013>
- Gamo, J. A. (2022). Anatomy Education-Paradigm Shift from Passive to Active Learning-Effects on Student Engagement, Comprehension and Retention a Review of Literature from 2012 to 2022. *The FASEB Journal*, 36, 87-99. <https://doi.org/10.1096/fasebj.2022.36.s1.l7949>
- Gaupp, R., Körner, M., & Fabry, G. (2016). Effects of a Case-Based Interactive E-Learning Course on Knowledge and Attitudes about Patient Safety: A Quasi-Experimental Study with Third-Year Medical Students. *BMC Medical Education*, 16, Article 172. <https://doi.org/10.1186/s12909-016-0691-4>
- Gomes, A. (2022). Paulo Freire: Review of "the Pedagogy of the Oppressed". *Harm Reduction Journal*, 19, Article No. 21. <https://doi.org/10.1186/s12954-022-00605-9>

- Gooblar, D. (2019). *Is It ever Ok to Lecture?* The Chronicle of Higher Education. <https://www.chronicle.com/article/Is-It-Ever-OK-to/245458>
- Govender, S. (2016). Students Perceptions of Teaching Methods Used at South African Higher Education Institutions. *South African Journal of Higher Education*, 29, 23-41. <https://doi.org/10.20853/29-3-486>
- Greenhow, C., Graham, C. R., & Koehler, M. J. (2022). Foundations of Online Learning: Challenges and Opportunities. *Educational Psychologist*, 57, 131-147. <https://doi.org/10.1080/00461520.2022.2090364>
- Harasim, L. (2017). *Learning Theory and Online Technologies*. Taylor & Francis. <https://doi.org/10.4324/9781315716831>
- Haryanti, S., Kustinah, K., & Widayanti, S. R. (2023). A Comparative Study on Students' Grammar Achievement Taught by Lecture and Inquiry Methods. *International Journal of Active Learning*, 8, 92-102. <http://journal.unnes.ac.id/nju/index.php/ijal>
- Kaczmarek, K., Chen, E., & Ohyama, H. (2020). Distance Learning in the COVID-19 Era: Comparison of Student and Faculty Perceptions. *Journal of Dental Education*, 85, 1197-1199. <https://doi.org/10.1002/jdd.12469>
- Kalimaposo, K., & Chivunda, K. (2023). Issues Associated with Excessive Use of Lecture Method as a Teaching Technique among Teachers in Secondary Schools of Lusaka, Zambia. *IRE Journal*, 6, 99-107.
- Kamp, A. (2016). *Engineering Education in the Rapidly Changing World: Rethinking the Vision for Higher engineering Education*. Delft: TU Delft, Faculty of Aerospace Engineering. <https://repository.tudelft.nl/record/uuid:ae3b30e3-5380-4a07-afb5-dafd30b7b433>
- Killen, R. (2011). *Teaching Strategies for Quality Teaching and Learning*. Juta.
- King, S. H., & Watson, A. (2010). Teaching Excellence for All Our Students. *Theory into Practice*, 49, 175-184. <https://doi.org/10.1080/00405841.2010.487751>
- Klein, K., Calabrese, J., Aguiar, A., Mathew, S., Ajani, K., Almajid, R., & Aarons, J. (2023). Evaluating Active Lecture and Traditional Lecture in Higher Education. *Journal on Empowering Teaching Excellence*, 7, Article 6.
- Krishna, R. (2012). A Review of Teaching Methods—Lecturing and Facilitation in Higher Education (HE): A Summary of the Published Evidence. *The Journal of Effective Teaching*, 12, 61-76.
- Liu, F., Wang, X., & Izadpanah, S. (2023). The Comparison of the Efficiency of the Lecture Method and Flipped Classroom Instruction Method on EFL Students' Academic Passion and Responsibility. *SAGE Open*, 13, 46-61. <https://doi.org/10.1177/21582440231174355>
- Macarana, J. R. G. (2022). Appreciating the Lecture Method: A Critical Essay. *International Journal of Philosophy*, 23, 218-224.
- Machado, L. M. O., Martínez-Ávila, D., Almeida, M. B., & Borges, M. M. (2023). Towards a Moderate Realist Foundation for Ontological Knowledge Organization Systems: The Question of the Naturalness of Classifications. *Journal of Information Science*. <https://doi.org/10.1177/01655515231160031>
- Martin, F., Xie, K., & Bolliger, D. U. (2022). Engaging Learners in the Emergency Transition to Online Learning during the COVID-19 Pandemic. *Journal of Research on Technology in Education*, 54, S1-S13. <https://doi.org/10.1080/15391523.2021.1991703>
- McCarthy, J. P., & Anderson, L. (1999). Active Learning Techniques versus Traditional Teaching Styles: Two Experiments from History and Political Science. *Innovative Higher Education*, 24, 279-294. <https://doi.org/10.1023/b:ihie.0000047415.48495.05>

- Nazare, J., Woolf, A., Sysoev, I., Ballinger, S., Saveski, M., Walker, M. et al. (2022). Technology-assisted Coaching Can Increase Engagement with Learning Technology at Home and Caregivers' Awareness of It. *Computers & Education*, 188, Article ID: 104565. <https://doi.org/10.1016/j.compedu.2022.104565>
- Pei, L., & Wu, H. (2019). Does Online Learning Work Better than Offline Learning in Undergraduate Medical Education? A Systematic Review and Meta-Analysis. *Medical Education Online*, 24, Article ID: 1666538. <https://doi.org/10.1080/10872981.2019.1666538>
- Persky, A. M., Lee, E., & Schlesselman, L. S. (2020). Perception of Learning versus Performance as Outcome Measures of Educational Research. *American Journal of Pharmaceutical Education*, 84, ajpe7782. <https://doi.org/10.5688/ajpe7782>
- Pires, F., Masanet, M., Tomasena, J. M., & Scolari, C. A. (2022). Learning with Youtube: Beyond Formal and Informal through New Actors, Strategies and Affordances. *Convergence: The International Journal of Research into New Media Technologies*, 28, 838-853. <https://doi.org/10.1177/13548565211020545>
- Rahman, L., Omar, N., Mohd Fatzel, F. H., & Mohd Isa, N. S. (2022). Predictors of Student Satisfaction and Perceived Learning in Online Distance Learning: The Effects of Self-Efficacy and Interaction. *International Journal of Academic Research in Business and Social Sciences*, 12, 785-803. <https://doi.org/10.6007/ijarbss/v12-i10/14804>
- Roberts, T. S. (2004). *Online Collaborative Learning: Theory and Practice*. IGI Global.
- Rockoff, J. E., & Speroni, C. (2010). Subjective and Objective Evaluations of Teacher Effectiveness. *American Economic Review*, 100, 261-266. <https://doi.org/10.1257/aer.100.2.261>
- Rospigliosi, P. (2023). Artificial Intelligence in Teaching and Learning: What Questions Should We Ask of Chatgpt? *Interactive Learning Environments*, 31, 1-3. <https://doi.org/10.1080/10494820.2023.2180191>
- Sahin, E. K., & Arseven, İ. (2022). Comparison of Grammar Teaching by the Intuitive and Direct Lecture Methods in Terms of Their Effect on Student Achievement and Attainment. *International Journal of Curriculum and Instruction*, 14, 1071-1087. <https://files.eric.ed.gov/fulltext/EJ1331625.pdf>
- Salas-Pilco, S. Z., Yang, Y., & Zhang, Z. (2022). Student Engagement in Online Learning in Latin American Higher Education during the COVID-19 Pandemic: A Systematic Review. *British Journal of Educational Technology*, 53, 593-619. <https://doi.org/10.1111/bjet.13190>
- Sarwar, H., Akhtar, H., Naeem, M. M., Khan, J. A., Waraich, K., Shabbir, S. et al. (2020). Self-Reported Effectiveness of E-Learning Classes during COVID-19 Pandemic: A Nation-Wide Survey of Pakistani Undergraduate Dentistry Students. *European Journal of Dentistry*, 14, S34-S43. <https://doi.org/10.1055/s-0040-1717000>
- Serdyukov, P. (2015). Does Online Education Need a Special Pedagogy? *Journal of Computing and Information Technology*, 23, 61-74. <https://doi.org/10.2498/cit.1002511>
- Silva, H., Lopes, J., Dominguez, C., & Morais, E. (2022). Lecture, Cooperative Learning and Concept Mapping: Any Differences on Critical and Creative Thinking Development? *International Journal of Instruction*, 15, 765-780. <https://doi.org/10.29333/iji.2022.15144a>
- Smith, K. A., Sheppard, S. D., Johnson, D. W., & Johnson, R. T. (2005). Pedagogies of Engagement: Classroom-Based Practices. *Journal of Engineering Education*, 94, 87-101. <https://doi.org/10.1002/j.2168-9830.2005.tb00831.x>
- Ssemugenyi, F. (2022). Trapped at the Crossroads: Does Problem-Based Learning Make a Difference? The Moderating Role of Traditional Mode of Instruction. *Cogent Educa-*

- tion, 9, Article ID: 2068398. <https://doi.org/10.1080/2331186x.2022.2068398>
- Ssemugenyi, F. (2023). Teaching and Learning Methods Compared: A Pedagogical Evaluation of Problem-Based Learning (PBL) and Lecture Methods in Developing Learners' Cognitive Abilities. *Cogent Education*, 10, Article ID: 2187943. <https://doi.org/10.1080/2331186x.2023.2187943>
- Ssemugenyi, F., & Nuru Seje, T. (2021). A Decade of Unprecedented E-Learning Adoption and Adaptation: Covid-19 Revolutionizes Teaching and Learning at Papua New Guinea University of Technology (pnguot). *Cogent Education*, 8, Article ID: 1989997. <https://doi.org/10.1080/2331186x.2021.1989997>
- Ssemugenyi, F., & Obsiye, F. A. (2022). Entrepreneurship a Misguided Quest: A Higher Education Review. *World Journal of Vocational Education and Training*, 4, 23-35. <https://doi.org/10.18488/119.v4i1.3131>
- Stephenson, J. (2018). *Teaching & Learning Online: New Pedagogies for New Technologies*. Routledge. <https://doi.org/10.4324/9781315042527>
- Surahman, E., & Wang, T. (2022). Academic Dishonesty and Trustworthy Assessment in Online Learning: A Systematic Literature Review. *Journal of Computer Assisted Learning*, 38, 1535-1553. <https://doi.org/10.1111/jcal.12708>
- Ting, F. S. T., Shroff, R. H., Lam, W. H., Garcia, R. C. C., Chan, C. L., Tsang, W. K. et al. (2022). A Meta-Analysis of Studies on the Effects of Active Learning on Asian Students' Performance in Science, Technology, Engineering and Mathematics (STEM) Subjects. *The Asia-Pacific Education Researcher*, 32, 379-400. <https://doi.org/10.1007/s40299-022-00661-6>
- Titus, A., & Muttungal, P. V. (2023). Empowered Learning in School: A Scoping Review. *International Journal of Evaluation and Research in Education (IJERE)*, 12, 729-738. <https://doi.org/10.11591/ijere.v12i2.24429>
- Tronchoni, H., Izquierdo, C., & Anguera, M. T. (2022). A Systematic Review on Lecturing in Contemporary University Teaching. *Frontiers in Psychology*, 13, Article 971617. <https://doi.org/10.3389/fpsyg.2022.971617>
- Tsai, Y. C. (2023). Empowering Learner-Centered Instruction: Integrating ChatGPT Python API and Tinker Learning for Enhanced Creativity and Problem-Solving Skills. In Y. M. Huang, & T. Rocha (Eds.), *Innovative Technologies and Learning* (pp. 531-541). Springer. https://doi.org/10.1007/978-3-031-40113-8_52
- Wang, H. C., & Chen, C. W. Y. (2020). Learning English from YouTubers: English L2 Learners' Self-Regulated Language Learning on YouTube. *Innovation in Language Learning and Teaching*, 14, 333-346. <https://doi.org/10.1080/17501229.2019.1607356>
- Weimer, K. R. (2019). Maximizing Mentoring Relationships. *General Music Today*, 32, 12-17. <https://doi.org/10.1177/1048371318805226>
- Yang, D., Zhou, J., Shi, D., Pan, Q., Wang, D., Chen, X. et al. (2022). Research Status, Hotspots, and Evolutionary Trends of Global Digital Education via Knowledge Graph Analysis. *Sustainability*, 14, Article 15157. <https://doi.org/10.3390/su142215157>
- Yarmohammadi, A., Mostafazadeh, F., & Shahbazzadegan, S. (2023). Comparison Lecture and Concept Map Methods on the Level of Learning and Satisfaction in Puerperal Sepsis Education of Midwifery Students: A Quasi-Experimental Study. *BMC Medical Education*, 23, Article No. 251. <https://doi.org/10.1186/s12909-023-04247-8>
- Zheng, M., Bender, D., & Lyon, C. (2021). Online Learning during COVID-19 Produced Equivalent or Better Student Course Performance as Compared with Pre-Pandemic: Empirical Evidence from a School-Wide Comparative Study. *BMC Medical Education*, 21, Article No. 495. <https://doi.org/10.1186/s12909-021-02909-z>

Zheng, M., Bender, D., Reid, L., & Milani, J. (2017). An Interactive Online Approach to Teaching Evidence-Based Dentistry with Web 2.0 Technology. *Journal of Dental Education*, *81*, 995-1003. <https://doi.org/10.21815/jde.017.051>