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Perspectives on Technology and Teaching in Self-Directed Learning

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Perspectives on Technology and Teaching in Self-Directed Learning

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Abstract

Self-directed learning in the digital age encompasses the roles of technology and teaching in achieving the best learning outcomes. Using evocative autoethnography, the purpose of this paper is to explore the nuances of online learning during a period of uncertainty brought on by the COVID-19 pandemic. It is a reflection of the personal stories of the researcher-participant drawn heavily from the recollection of previous experiences as fragments of memory that are explored and analyzed within the framework of the self and the surrounding culture. In my reflection, I indicated that technology is both neutral and value-laden and aids in honing the critical thinking skills of online students. At the same time, the teacher as facilitator promotes interactive communication, guiding students to become fully responsible and adaptable knowledge creators. The global reach of online learning solidifies interconnectedness and intellectual mobility placing emphasis on technological affordances and teaching capacities as hallmarks of a globalized education.

Keywords: facilitative learning; online teacher; self-directed learning; technology in online learning.

It was 2019 when I was a continuing student in an open university, when the world was affected by the COVID-19 pandemic. I was stationed away from home to fulfill my economic duties with the family. In order to provide continuity of my learning needs, I decided to continue with my post-graduate course while working overseas. My tales of solitude, isolation, and triumph highlighted my resilient character as an online learner. They were articulated in the previous papers published in *SiSAL Journal*. For instance, in the first publication, I articulated that communicating in English as a second language is fraught with readiness issues that are centered on fear and anxiety, giving rise to cultural hybridity through the blending of local and foreign expressions relevant to their social world without encroaching on local sensibilities (Olobia, 2023). The discussion on second language communication deepened in my next publication when I discovered that familiarity and self-perceived competence in communication (SPCC) affect each other iteratively, and their close relationship creates a thread of interconnectedness so that a strange place, for instance, can contribute to a dismal interaction, or

an unfamiliar topic can lead to stuttering of speech, while a familiar environment with familiar people essentially gives comfort and ease to the speaker, making one's utterances spontaneous and engaging (Olobia, 2023).

These papers were grounded on my personal experiences, especially when I felt lost in communicating effectively, especially in the English language, because it was not my native tongue. Due to this language issue, my learning was not optimized. In effect, I realized that my personal struggles resonated with my culture considering that I came from a colonial country where the use of English was not paramount in classroom and everyday conversations, hence, the papers implied that familiarity and readiness to speak the second language was paramount in communicating effectively along with a deep understanding of self-perceived competence to communicate as a form of assurance that my communication practice was meaningful. I continued my online learning journey in the succeeding publications, this time highlighting social media uptake and the use of the native language to enhance second language communication. The former pondered on personal and liberal perspectives on mediated communication using social media tools that opened up more engaging conversations, while the latter asserted the power of understanding and honing the native language to aid in second language communication. The paper exemplified that social media is to be construed as an aid to writing and speaking effective English rather than to manipulate it for the sake of personal comfort, which will provide immediacy in my communication practice (Olobia, 2024).

More specifically, my narratives on self-directed learning continued, highlighting the fact that students who engage in online learner autonomy assume complete accountability and exercise control over the learning process, thereby strengthening their capacity for independent and cooperative learning (Olobia, 2024). Lastly, my most recent publication centered on the role of the native language in enhancing second language communication. It was found that using the native language to enhance second-language communication promotes cross-cultural understanding, and appropriating a foreign language within a local context should go beyond merely blending distinct linguistic sensibilities; instead, the native language must be actively integrated into speech and thought to deepen comprehension of both languages (Olobia, 2024).

Building on these insights, this present paper is a continuation of my personal reflections on self-directed learning, this time, highlighting technological utilization in online learning and how the shift to teaching facilitation helped me in achieving my learning goals, viewed from the

lens of autoethnography. Indeed, the proliferation of technology in today's education has prompted teachers and learners to utilize different platforms to achieve optimal learning, and I was affected by the shift from face-to-face to an online setting. For one, the role of the teacher shifted from instructor to facilitator. I noticed this change largely because I had numerous learning tasks already, including various virtual activities and written reports to submit. In fact, one teacher hardly spoke during our virtual meetings. I often referred to her as a 'silent participant'. However, the pressure of communicating well about the lessons was still the top priority considering that the teacher was listening to us all the time. Overall, my stories traversed between the self and the cultural milieu, mirroring connectivity against the backdrop of personal struggles and triumphs in a period of uncertainty.

In the pandemic situation, several institutions provided policies to carry out online learning to prevent and minimize the spread of the COVID-19 virus (Mafruudloh et al., 2021). As my university was an open university, all classes were conducted online even before the pandemic. However, I did not really grasp the essence of technology then because I was more focused on learning and did not consider technology as an aid. As the pandemic deepened and the university had to switch to another modality, slowly, I embraced technology's capacity to provide learning continuity. With that, technology has emerged as a catalyst for innovation in education, enabling educators to adopt student-centered pedagogies that cater to diverse learning styles and abilities (Kalyani, 2024). In effect, I became more positive and accepting of the possibilities that it provided. Since students are familiar with technology and they will learn better within the technology-based environment, the issue of Information Communication Technology (ICT) integration in schools, specifically in the classroom is vital (Ghavifekr & Rosdy, 2015). True enough, I gradually immersed myself in technology's capacity so that I was no longer bothered because it provided some comfort and learning autonomy in navigating through the Internet.

Related Literature

In my online education, I utilized a vast amount of Internet resources, navigating through Google pages mostly to search for online reading materials. This process occupied most of my technological needs. Indeed, online learning encompasses a range of technologies such as the worldwide web, email, chat, new groups and texts, audio and video conferencing delivered over

computer networks to impart education (Dhull & Sakshi, 2017). For instance, I would type “www” on my computer screen to search for a specific site, but as the Internet innovated, the letters “www” were no longer needed in order to find the internet site. As with the use of chats, it was very popular among students since it was the only mode of communication we had as distance learners. Also, I found it convenient and easy to contact my classmates.

Furthermore, the use of technology in education has removed educational boundaries, both students and teachers have collaborated in real time using advanced educational technologies (Roy, 2019). Most of our online classes were conducted asynchronously, so it was not in real time. My teachers would give us learning tasks to accomplish in a given time. Having said that, I declared a sense of freedom to choose, edit, and even reject online resources that I thought best fit my learning needs. In fact, my personal capacity to be an autonomous learner meant that I was in control of my use of technology.

With such independence, I became more connected with the global community because everything was possible at the click of the mouse. Truthfully, the internet is a multipurpose means of conveying information to learners around the world. Moreover, Internet sites may contain various media, including text, audio, graphics, animation, video, and downloadable software (Yuhanna et al., 2020). Hence, due to the internet’s accessibility, remote learning may now be supported by technological means (Mdhlalose & Mlambo, 2023). As with my personal journey, I found the rich texts, audio, and graphics found in various sites such as YouTube engaging and entertaining as well. In fact, I was learning a lot just by navigating through page after page.

Some studies report that students may have a hard time concentrating, experience a lack of motivation, distract easily, lack of teacher control, and waste of time as negative sides of online learning (Zaki, 2022). As with me, there were troubling situations that disturbed my concentration, especially since there was a general fear brought on by COVID-19 transmissions going around so fast. This condition seriously affected my attitude about online learning when my health was in jeopardy. Nevertheless, I managed to stay motivated as it was also a form of therapy and diversion.

Moreover, the various technological tools I utilized in enhancing learning helped me a lot. For instance, I relied on some Massive Open Online Courses (MOOC) as alternative learning platforms. The process made me expand knowledge viewed from different lenses through

structured lectures that were embedded with learning activities, all done asynchronously, meaning I could watch video lectures anytime. Indeed, to cope with this educational challenge during the post-pandemic era, technologies have been adopted to facilitate a new mode of learning, namely Online-Merge-Offline (OMO), as a learning mode that relies on hybrid infrastructure and open educational practices to merge online and offline (i.e., physical classrooms) learning spaces together in real-time while simultaneously seamlessly teaching students in both the physical classroom and online (Huang et al, 2021).

As with teaching, it was a great deal that my teachers were more facilitative rather than instructive. They made me become more creative and constructive in finding meanings. Likewise, I possessed learning control because I decided independently what to study. Indeed, learning flexibility was abundant in my online learning journey. Teachers have the responsibility to help the student become an autonomous learner (Wiraningsih & Santosa, 2020). In facilitative learning, the teacher must create a learning environment that facilitates learning activities that, in turn, make the students achieve the desired learning outcomes (Biggs, 2011, as cited in Bye, 2017). This view generally construes self-directed learning of students, where the teacher guides the learning process without imposing too much on the students. However, it is commonly accepted that a lack of self-monitoring and self-regulation among students will lead to poor academic results (e.g., Lan, 1996; Borkowski & Thorpe, 1994, as cited in Bye, 2017). In an online setting, because of the individuality of the learners, courses need to remain flexible, and the instructor needs to support this (Berge, 1995). Supporting flexibility, indeed, implies that the teacher should not impose learning upon the students. Allowing students to partake in their learning process is critical, and the teacher must listen a lot to the facilitating process.

Although the literature studies mentioned were rich in content, I noticed that self-directed learning was not discussed from an autoethnographic stance. It was important to enrich personal tales into my learning activities because they echoed nuances of my learning experiences viewed from the self and the surrounding culture and society. Truthfully, my personal storytelling served as a good benchmark for creating balance between technological utilization and teacher facilitation in digital learning. Building on the aforementioned insights, I use autoethnography as a qualitative inquiry that highlights my introspective storytelling, comprising fragments of memory recollection of my previous experiences that are analyzed within the self and cultural praxis, revolving around technological utilization and teacher facilitation in online education. In

doing so, I am a voluntary participant throughout the research process, where at no time am I placed at risk or endangered because it is my own free will with full consent to indulge in self-introspection. Moreover, the benefits that accrue to this inquiry include my personal values and realizations on self-directed learning as a popular mode of education amidst disruption brought on by the pandemic.

My Autoethnography

Technological Facets in Online Learning

I was enrolled in an open university when the COVID-19 pandemic struck the world in 2019. While it was coined a disruptive learning scenario because institutions had to shift to the ‘new normal’ mode of learning, shifting from face-to-face classes to virtual sessions, I was not altogether disturbed because I was already enrolled as an online student before the pandemic.

In my online learning, I utilized a range of technologies that facilitated my flexible learning process. Truthfully, technology helps the learner to learn at their own pace, according to their own convenience (Dhull & Sakshi, 2019). In my situation, controlling technology use meant regulating its capacity to meet my educational demands, including setting limitations. For instance, there were times when using offline technology, such as DVD-ROM materials, became of vital importance as I could control their use. Whenever I wanted to critically think about its content, I could easily pause the video, giving me more time to process my thoughts, and then I would resume playing. In some instances, my thoughts were quite parallel with those from the DVD-ROM, indicating that I had processed my thoughts the same way the learning resource was designed. I considered it a positive learning achievement. Indeed, offline learning was accustomed to benefit my demands in a way that I was not disrupted by technological facets in terms of overall functionality. Thus, learning control was a personal attribute that I enjoyed while navigating the technology.

As online learning became more popular in school, the use of an online learning portal, called a Learning Management System (LMS), was imperative for students; hence, I adopted the system. LMS reinforces the learning process through online classroom environments (Bradley, 2020). Utilizing the LMS made my online learning more effective, giving me more freedom and flexibility to choose topics that serve my needs. However, one of the crucial experiences I encountered with its use was the difficulty in navigating the system. It happened before the 2019

pandemic when I first enrolled in the university as a master's student. In 2014, I started online learning as an alternative mode of education because I was busy working abroad; thus, online education offered the best solution to my learning needs. Being new to the digital platform, I got lost many times trying to find answers to some technology-related questions which seriously affected my learning journey. For instance, in the only discussion forum, in one of the features where the teacher would post questions and students would give their comments, I could hardly input my thoughts because I was not familiar with the portal to begin with. Because of my inability to navigate through, my thoughts disappeared as I started typing. I almost gave up on my studies because of those technological issues I experienced. Clearly, my motivation went down during this time.

Looking back, I realized that technological navigation was generally feared for starters like me. As a digital immigrant, I found it confusing to even apply the basic functions, such as clicking appropriate icons, and going page after page, among others. Adding to my discomfort was the fact that I found it difficult to ask for technical assistance, as I did not know what button to click. In these instances, I was really disturbed as to whether I would continue or not. Truthfully, students, teachers, and administrators are likely to integrate LMS into their daily practices if they have access to technical assistance and possess the right competencies for full optimization (Rosario & Dias, 2022). Over time, I managed to learn the process with the help of my virtual classmates, and when the support team was finally made available. With trials and experimentations, I learned to find solutions.

Corollary to this, the concept of technological neutrality dawned upon me, implying that learners and designers create meaning in their use of technology. According to Harasta (2018, as cited in Puhakainen & Vayrynen, 2021), the term “technology neutrality” is used to describe how emerging technologies should be regulated, mainly in the field of ICT. I realized that technological neutrality in online learning is a built-in mechanism that human users can find wonders about technological utilization based on its inherent functionality. When I say built-in mechanism, technology has general functional properties that I could make sense of. Its neutrality offered wider opportunities for self-exploration. Throughout my learning, technological affordance created various levels of support that I determined.

However, technology can also be value-laden, and its value-ladenness can derive from both the intended functions as well as the harmful non-intended functions of technological

artifacts (Heyndels, 2023). In my online learning, technology presented some moral aspects of its intended use, especially given the prevalence of cybercrimes, for instance, instigated that certain features of technology were tailored to answer such calls. Moreover, certain web pages were restricted by the university because I believe they were controlling mechanisms in a pervasive online world. Having this in mind, I trusted what was presented on my laptop as an educational resource.

In another dimension of technological learning, the Actor-Network Theory as a theory of the mechanics of power, concerning itself with the establishment of hegemony, became relevant in my learning journey. I developed a certain connection with the technology that I employed to the extent that I felt I was in the zone of some form of human and non-human interaction. It happened when my thinking and typing were fluid and uninterrupted. The feeling was like communicating in person with a real person listening to me. Moreover, my ideas were captured by the technology in the sense that what I uploaded as learning content seemed to have some form of acceptance by the technology. The phrase, ‘file downloading’, was not a physical downloading of a file, but rather, it was a computer thinking process of capturing my thoughts as bits of information. And the reverse was even more pronounced, digital content being processed by myself. This allowed me to engage in learner-content interaction. For instance, e-content is a package of course readings, multimedia links for demonstration, simulations, elaborative explanations, case studies, course assignments, and discussion forums, having the potential to promote learning (Kumar et al., 2021). With that, I constructed meanings from the data, allowing my mind to explore and wonder as a kind of networked relationship. The interconnection between me and technology created value and essence in what I was reading. In fact, the proliferation of digital platforms such as Facebook can be understood as an ever-changing, growing infrastructure where the algorithms are changed and cultivated over time (Norstrom et al., 2020), indicating an active relationship between user and technology.

Indeed, the introduction of innovative technologies in the educational process has become an integral part of modern educational systems development. ICT vary the teaching-learning process by making it more entertaining for the students and more beneficial for the teachers as it allows using more resources and a wider range of exercises to form and develop students’ skills (Borova et al., 2021). With this, I thought that innovative technologies paved the way for a more profound knowledge search, but, at the end of the day, I had to make sense of innovation. With

the many possibilities available, I sought to recognize learning patterns that aligned with my demands so that technology made sense.

Related to my experience on technological uptake had to do with the interaction of technology and knowledge production in my learning. With the many instances that I was surrounded by technology, my immersive use created a deep knowledge generation, combined with multiple online engagements in the various discussion forums posted in the university portal, which ultimately deepened my sense of belonging in the learning community. In here, the theory called Technological Pedagogical Content Knowledge (TPCK) made sense to me. Developed by Mishra and Koehler (2006), TPCK asserts technological knowledge through the use of technology such as computers and the Internet, combined with pedagogical and instructional knowledge in an online teaching scenario, resulting in optimal learning (Mishra & Koehler, 2006 as cited by Schmidt et al, 2009). The use of ICT in online learning was a direct application of TPCK probing the many facets of technology and resource-based education as transformative learning in this age of digital revolution. In today's digital environment, the inevitable nature of the technological environment has created a dichotomy among the institutes of teacher education; one group has technology-rich infrastructures and teachers with sound TPCK, while the other is deprived of it. The National Council of Teacher Education has made ICT infrastructure mandatory for the institution, but it could not ensure the sound TPCK among teacher educators (Zaidi & Hussain, 2020). With that, TPCK in my online learning proved to be an important technological framework focusing on technology, pedagogy, and content knowledge as an interplay of interrelated forces affecting optimal learning. But still, I had to find meaningful learning in the aforementioned theory. It was a thoughtful revelation of finding essence and value in what I was doing that made learning meaningful. Realizing that technology was only a tool or a medium to understand, it was still important for me to gain knowledge as my learning direction. In other words, knowledge acquisition was the ultimate goal of my technological pursuits. In recognizing the relevance of the TPCK theory, there was still the biggest question about familiarity and readiness for emerging technologies that would benefit my distance education practice. So much has happened since my early days of DVD-ROM utility up until now in a world of digital, Internet-based learning, I have yet to familiarize the navigation process in every application coming my way. But it was more of a positive challenge to embark

upon new ways of doing things. I was always eager to incorporate learning with technological know-how.

In essence, the proliferation of digital resources enhanced my learning autonomy. For instance, the Internet, as a vast information space, exemplified my desire to fully immerse myself in an information space without limits. Also, the sense of belongingness I mentioned previously dawned upon me a sense of oneness and unity with technological utilization, a kind of mutual dependency that could only be enhanced with persistent utilization. At the macro-level, interconnectedness flourishes even greater when technology assumes a bigger role in societal transformation, as in the case of commerce and educational expansion that heavily rely on technology. Yet, the digital growth of information and communication led to the often-lamented information overload for humans, whose mental capacities get crunched by the ambitions of the information economy (Hilbert, 2020). True enough, I experienced information overloading with the vast array of learning content found on the Internet. There were moments when I could not process Internet information anymore, leading me to consider the validity and reliability of what I read. But, even with such observation, it was still vital to consider that I was still responsible for every information I got from technology.

In doing so, I qualified learning resources to be educational so that I could find their significance. Open educational resources (OER) are digital content, available online, free of copyright issues (Patel et al., 2016). Because their nature is open, meaning abundantly accessible in the Internet space, I had all the freedom to utilize whatever I found on the Internet. I edited some resources to fit my demands, giving me flexibility. To me, it was the most glorious celebration of flexible, independent learning, knowing that I was freely navigating information that aligned with my learning preference. Next, using critical thinking, I probed what I absorbed, giving me a deep sense of critical responsibility so that I was not just absorbing what I read. Indeed, learning autonomously was a gesture of self-directed learning where I was at the center of everything that I did. The process helped me a lot with my academic papers, virtual discussions, and other online activities.

Facilitating Guru in Virtual Space

Unfortunately, the teacher's facilitation in my online class was sometimes misconstrued as a form of "didactic instruction", as opposed to a conversational approach to instruction,

because I felt that we had to follow everything the teacher told us. Emphasis on conversation was supposed to usher in a kind of personal connection with the teacher. However, there were moments when mediated communication was not facilitative but rather a little bit imposing and commanding. This was evident in a teacher's dominating posts on the student portal. In other words, I noticed that the same form of instruction that happened in face-to-face classes was also happening in online learning. At times, those lengthy posts made me think that my teacher was banking on my education with lengthy information deposits. This was aggravated when online learning adopted classes via Zoom, where the teacher instructed synchronously. Out of fear of being called during recitation, I opted to remain silent. This habit made me become a passive learner.

However, I had other teachers who practiced the art of facilitative learning, administered in order not to disrupt the flow of discussion. Hence, facilitation required sensitivity, making sure that our insights and opinions were prioritized. This statement reminded me of Paulo Freire's banking type of education, where the teacher would pour out all knowledge to the students, perceived as knowledge receptacles. Towards the end, he recommended a participative educational experience where the students would take part in the discussion as active agents in societal transformation using critical discourse. In this case, I noticed a great deal of lively discussions from my classmates, with the teacher silently listening.

During my stay at the university, technology was generally construed as instrumental, deemed to enhance my autonomous and collaborative skills in online learning. Indeed, with so much to do while the teacher acted as a facilitator, I was a little bit confused with the immensity of the tasks, especially with meeting deadlines, when Internet connectivity was sometimes unstable. Despite the insurmountable challenges, I had one teacher whose facilitative role was so remarkable. In virtual discussions held at the student portal, he would post 2-3 questions to be addressed for a week, then our task was to answer in the form of threaded discussions with my classmates. The questions asked were generally practical, allowing me to process my thoughts easily rather than having to recall difficult concepts. Furthermore, the teacher gave us freedom and also practiced the art of "fading out in the scene" – a silent participant, in other words. His minor presence eliminated fear and reservation, not to mention, formality in discourse, because I thought I was just speaking my mind spontaneously. The teacher was acting more as a silent

consultant. Indeed, academic freedom was always a treasured gift that nurtured my thinking capacity by reasoning out persuasively.

In the overall scheme of teacher facilitation, the teacher guided the formation of knowledge coming from the students. By putting emphasis on dialogue as a method, facilitation encouraged engagement between students and the teacher, fostering deep interactions with follow-up questions while listening and suggesting further improvement of work. This, in turn, emphasized the emergence of meaningful learning through dialogic interaction. Now that I am a teacher who uses technology in teaching my students, I am certain to claim that I allow my students to discover their own learning journey, as evident by their capacity to freely navigate the Internet to explore learning opportunities. In ensuring the validity of their work, I let them present their written output, giving them a sense of freedom to express their thoughts in the manner that fits their learning styles. As a facilitator, my role is to guide and listen to their outpouring of ideas, applying the knowledge and skills they have as digital learners.

Epilogue

Studying in an open university that utilized technology during the COVID-19 pandemic was both a relief and a great challenge. On the positive side, I embraced technological affordance with an open mind due to the many opportunities available for my personal learning growth. I felt joy with every click of the ‘mouse,’ navigating page after page on the Internet. Next, technology allowed me to ponder my thoughts more critically because I felt that there was an interaction between me and the content presented on screen. Due to my attachment to technology, there were some points when it was no longer just a tool for learning, but navigating through the Internet was learning itself. It made me realize that learning progress was realized when I equated it with openness to innovation, for instance. To me, technological utilization amidst the pandemic was not only an alternative route to learning optimality that benefited me personally but also one that progressed society because of technological innovation.

On the downside, the use of technology created some confusion, especially in the beginning, due to the complexity of navigating through the Learning Management System, which became the mantra of online learning and management in the digital space. There were moments that I questioned my endurance to withstand the intricate procedures I had to abide by

technological demands, and the process was so perplexing that ultimately jeopardized my learning motivation.

Notes on the Contributor

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References

- Berge, Z. L. (1995). Facilitating computer conferencing: Recommendations from the field. *Educational Technology*, 35(1), 22–30.
- Bradley, V. (2020). Learning management system (LMS) use with online instruction. *International Journal of Technology in Education*, 4(1), 68–92.
<https://doi.org/10.46328/ijte.36>
- Bye, R. (2017). The teacher as a facilitator for learning – Flipped classroom in a master’s course on artificial intelligence [Paper presentation]. *9th International Conference on Computer Supported Education*. <https://doi.org/10.5220/0006378601840195>
- Dhull, I., & Sakshi, M. S. (2017). Online learning. *International Research and Education Journal (IREJ)*, 3(8), 32–34. <https://ierj.in/journal/index.php/ierj/article/view/1273>
- Ghavifekr, S., & Rosdy, W. A. W. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education*, 1(2), 175–191.
- Heyndels, S. (2023). Technology and neutrality. *Philosophy & Technology*, 36(4), 1–22.
<https://doi.org/10.1007/s13347-023-00672-1>
- Hilbert, M. (2020). Digital technology and social change: The digital transformation of society from a historical perspective. *Dialogues in Clinical Neuroscience*, 22(2), 189–194.
<https://doi.org/10.31887/DCNS.2020.22.2/mhilbert>
- Huang, R., Tlili, A., Wang, H., Shi, Y., Bonk, C., Yang, J., & Burgos, D. (2021). Emergence of the online-merge-offline (OMO) learning wave in the post-COVID-19 era: A pilot study. *Sustainability*, 13(6), 3512. <https://doi.org/10.3390/su13063512>

- Kalyani, L. (2024). *The role of technology in education: Enhancing learning outcomes and 21st century skills*.
- Kumar, P., Saxena, C., & Baber, H. (2021). Learner-content interaction in e-learning—The moderating role of perceived harm of COVID-19 in assessing the satisfaction of learners. *Smart Learning Environments*, 8(1), 1–15. <https://doi.org/10.1186/s40561-021-00149-8>
- Mafruudloh, N., Arifatin, F., & Chasanah, U. (2021). The role of technology in online learning: An examination towards English teachers' perception and practices. *PROJECT (Professional Journal of English Education)*, 4(2), 267–277. <https://doi.org/10.22460/project.v4i2.p267-277>
- Mdhlalose, D., & Mlambo, G. (2023). Integration of technology in education and its impact on learning and teaching. *Asian Journal of Education and Social Studies*, 47(2), 54–63. <https://doi.org/10.9734/AJESS/2023/v47i21021>
- Norström, L., Islind, A., & Lundh Snis, M. (2020). Algorithmic work: The impact of algorithms on work with social media. *ECIS 2020 Research Papers*, 1–18. https://aisel.aisnet.org/ecis2020_rp/185
- Olobia, L. P. (2023). Readiness in communicating in English as a second language. *Studies in Self-Access Learning Journal*, 14(3), 380–398. <https://doi.org/10.37237/140308>
- Olobia, L. P. (2024). Utilizing social media in communicating in English as a second language. *Studies in Self-Access Learning Journal*, 15(1) 109–118. <https://doi.org/10.37237/150103>
- Olobia, L. P. (2024). Tales of online learner autonomy: Highlights and challenges in the disruptive age. *Studies in Self-Access Learning Journal*, 15(3), 564–574. <https://doi.org/10.37237/150313>
- Olobia, L. P. (2025). Issues in utilizing the native language to communicate a second language. *Studies in Self-Access Learning Journal*, 16(1), 251–259. <https://doi.org/10.37237/160113>
- Patel, K., Prakash, K., & Parekh, Y. (2016). Open educational resources: An overview. *Towards Excellence*, 13(2), 295–306. <https://doi.org/10.37867/TE130224>
- Puhakainen, E., & Vayraynen, K. (2021). The benefits and challenges of technology-neutral regulation – A scoping review [Paper presentation]. *Pacific Asia Conference on Information Systems*. <https://aisel.aisnet.org/pacis2021/48>

- Rosario, A., & Dias, J. (2022). Learning management systems in education: Research and challenges. In *Digital Active Methodologies for Educative Learning Management* (pp. 47–77). <https://doi.org/10.4018/978-1-6684-4706-2.ch003>
- Roy, A. (2019). Technology in teaching and learning. *International Journal for Innovation Education and Research*, 7(4), 414–422. <https://doi.org/10.31686/ijier.Vol7.Iss4.1433>
- Wiraningsih, P., & Santosa, M. H. (2020). EFL teachers' challenges in promoting learner autonomy in the 21st century learning. *Journal on English as a Foreign Language*, 10(2), 290–314. <https://doi.org/10.23971/jefl.v10i2.1881>
- Yuhanna, I., Alexander, A., & Kachick, A. (2020). Advantages and disadvantages of online learning. *Journal Educational Verkenning*, 1(2), 13–19. <https://doi.org/10.48173/jev.v1i2.54>
- Zaki, M. (2022). Advantages and disadvantages of online learning. *Uluslararası Sosyal Araştırmalar Dergisi / The Journal of International Social Research*, 15(92), 1–12. <https://doi.org/10.17719/jisr.2022.75162>