

The Convenience Factor in Education and Learning

Abstract

In a world undergoing dynamic social, environmental, technological, and institutional change, education and learning are touted as essential to solving the world's problems and continuing civilization's progress. The average nation spent 4.43% of its gross domestic product on academic, technical, or vocational education (*GEM Report*, 2020). Despite this global effort, most occupational and educational organizations rely on traditional, deeply institutionalized pedagogical delivery methods to impart learning to the masses (Onwuegbuchulam, 2021). Research dating back to the 1970s shows how such methods are minimally effective and are exasperating barriers to effective learning (Bransford et al., 1999), (Grandstaff, 1976). Compounding these challenges is the rapid evolution and abundance of new technology and media content that often overwhelm populations with information (overload) and social and psychological complexity (Allbeck, 1972). These conditions combined give rise to a phenomenon the author calls the Convenience Factor. First presented at the California Council for Adult Education in 2015, this phenomenon is shared by educators, students, consumers, and teaching institutions (Sealana, 2015). It is argued that the convenience factor minimizes efficacy in learning by emphasizing expediency over thoroughness. Drawing on research from cognitive load theory, gratification theory, rational choice theory, and specifically the notion of "satisficing," an argument is made that students, faculty, and the institutions they represent succumb to the convenience factor. It is further argued that unless populations are appropriately prepared, the convenience factor becomes the default driver for the learning process. A convenience factor-mitigating model, the Andragogical Delivery Method, is proposed to minimize the convenience factor and enhance learning.

This theoretical concept paper brings together ideas from various academic disciplines, including cognitive psychology, educational theory, and organizational behavior, to provide a novel perspective on the convenience factor in human learning and its profound implications for the future of education.

Definitions of Learning

In exploring barriers to learning, as described in the convenience factor, it is important to establish a common definition of what constitutes learning (Onwuegbuchulam, 2021), (Qadir & Imran, 2018). Dictionary.com defines learning as "Knowledge acquired by the systematic study in any field of scholarly application." Merriam-Webster offers that learning is "modification of a behavioral tendency by experience" (Wahyuni, 2021), (Gowda & Suma, 2017), (Ananga, 2020). By contrasting these simple dictionary definitions, we see two important concepts. The first definition emphasizes acquiring knowledge through study, and the second definition speaks to applying what was learned through behavioral change. Academics concur that learning constitutes a multifaceted process encompassing diverse cognitive, emotional, and social dimensions. This process may occur across a multitude of environments, including educational institutions, professional settings, and commonplace experiences (Gowda & Suma, 2017), (Dunlosky et al., 2013).

According to cognitive psychology research, learning involves the encoding, storage, and retrieval of information in the brain (Gowda & Suma, 2017), (Ananga, 2020). The learning process should not be regarded as a passive endeavor; instead, it is an active engagement wherein the learner develops their comprehension founded upon previous knowledge and experiential encounters. More comprehensive definitions highlight learning as a "combination composed of human elements, materials, facilities, equipment and procedures that influence the achievement of learning objectives." Learning is a "systematic and systemic process or activity that is interactive and communicative between educators and students, learning resources, and the environment to create conditions that allow learning actions to occur." (Wahyuni, 2021), (Rayanto et al., 2020). The objective of education is to augment our repository of knowledge, cultivate our competencies, and sharpen our talents to improve our capacity to address intricate issues, arrive at judicious conclusions, and adjust to evolving situations.

Deep Learning

Higher-order learning, commonly denoted as deep learning, is elucidated as a complex cognitive mechanism that encompasses not only the grasping of knowledge but also its practical application, in stark juxtaposition to more superficial learning paradigms that emphasize rote memorization and the mere reproduction of information (Xie et al., 2019), (Balaji et al., 2015), (Sequeira, 2012). This advanced form of learning necessitates the capability to critically analyze information, discern patterns and interconnections among concepts, and adeptly apply knowledge to novel and unfamiliar contexts. This author posits that deep learning represents the most significant and transformative iteration of learning, as it endows individuals with the cognitive flexibility and comprehensive understanding requisite for success in an ever-changing global landscape.

In comparison, surface learning tends to be more expedient and focused on meeting minimal requirements, such as memorizing facts just long enough to pass a test, without the deeper engagement and integration of the material that is characteristic of deep learning. The author argues that the growing prominence of the convenience factor in education and learning could potentially undermine the achievement of deep, meaningful learning and instead risk reducing the learning process to a more transactional, surface-level exercise.

For elderly individuals seeking to augment their cognitive abilities, the implementation of deep learning methodologies is particularly imperative as this demographic encounters the distinctive challenges associated with the aging process, which encompasses reductions in processing velocity, working memory capacity, and fluid intelligence, in addition to significant social and lifestyle transformations that can profoundly influence their educational experiences and resultant outcomes. Researchers have established that deep learning techniques, such as connecting new information to existing knowledge frameworks, rigorously evaluating evidence, and actively participating with educational materials, are vital for assisting older adults in mitigating the effects of age-related cognitive decline and sustaining elevated levels of cognitive performance, even amidst normative cognitive deterioration (Ho & Lim, 2020), (Hattie & Donoghue, 2016), (Laird et al., 2008), (West et al., 2020), (Dart et al., 2000).

The Importance of Engagement for Learning

The author posits that efficacious learning hinges on engagement, which is the emphasis of his andragogical delivery method. This involves the engagement of the student/participant, the instructor/facilitator, the learning institution, and engagement with the learning

content/materials, as is echoed in educational literature (Katuk, 2013), (Shuell, 1992), (Kearney & Maakrun, 2020), (Michelene & Wylie, 2014), (Sealana, 2015).

Michelene and Wylie (2014) articulated a four-dimensional student engagement framework that encompasses behavioral, emotional, cognitive, and social dimensions. Behavioral engagement refers to the student's proactive participation in the educational framework, which encompasses regular attendance in lectures, completion of academic tasks, and engagement in scholarly discussions. Emotional engagement incorporates the spectrum of the student's affective responses to their educational journey, their interest and enthusiasm for the subject matter, as well as their sense of belonging within the educational setting (Longenecker & Abernathy, 2013), (Silalahi et al., 2022). Conversely, cognitive engagement involves the deep mental processing and investment of effort required to comprehend complex ideas, make meaningful connections, and apply knowledge flexibly to novel situations. Lastly, social engagement entails the learner's ability to interact and collaborate with peers, instructors, and the broader learning community to collectively construct knowledge, exchange diverse perspectives, and navigate the learning process in a socially supportive environment. Employing this theoretical framework, the authors contend that engagement, in its diverse expressions, is crucial for enabling learners to cultivate the cognitive agility, knowledge reservoir, and adaptive proficiencies requisite for flourishing in an ever more intricate and swiftly evolving environment.

Behaviorally engaged students demonstrate prolonged focus, resilience, and proactive involvement in educational endeavors. Emotionally engaged students encounter affirmative emotional states such as curiosity, pleasure, and a feeling of inclusion that drive their motivation to acquire knowledge. Cognitively engaged learners employ deep learning strategies, such as elaboration, critical thinking, and self-regulation, to construct meaning and master new concepts (Michelene & Wylie, 2014).

Empirical research has consistently indicated that elevated levels of engagement correlate positively with enhanced learning outcomes, encompassing improved knowledge retention, skills development, and overall academic success (Shuell, 1992), (Michelene & Wylie, 2014). Scholars who demonstrate elevated levels of engagement are more predisposed to invest the cognitive resources essential for comprehensive information analysis, forge associations with previously acquired knowledge, and implement the assimilated knowledge in novel situations. Disengaged learners, on the other hand, often struggle to derive meaningful learning from educational experiences, as they tend to prioritize efficiency and convenience over the cognitive exertion necessary for deep, lasting understanding.

Cognitive Load Theory (CLT) further substantiates engagement in educational endeavors. CLT asserts that the human cognitive system possesses a finite capacity for processing information (Paas et al., 2010). When students encounter a state of disconnection and are overwhelmed by unnecessary cognitive pressures, their cognitive resources become excessively strained, consequently obstructing their ability to encode, retain, and access new information with efficacy.

The author argues that the andragogical delivery method provides a potent antidote to the convenience factor by systematically fostering multidimensional engagement - behavioral, emotional, cognitive, and social - throughout the learning journey, thereby empowering learners to transcend the allure of superficial, transactional learning in favor of deep, transformative understanding.

A Framework for the Convenience Factor in Education and Learning

In his initial study at the University of San Francisco, the author examined and documented the efficacy of andragogical instructional delivery methods compared to traditional (pedagogical) instructional delivery methods to improve teaching and training methodologies for learning government-mandated course content (Sealana, 2014). The qualitative findings from that study provided insights into the motivational factors that influenced adult learners when they were required to participate in continuing education programs. Three principal themes were identified in the research: (1) the impetus for pursuing educational and training opportunities, (2) the level of acquaintance with various educational and training methodologies, and (3) the degree of stringency inherent in educational and training methodologies. Cost and convenience were the two most significant drivers of learner motivation. Building upon his foundational research, in this article, the author explores the traditional and contemporary barriers to learning, which combined he calls the convenience factor, and how employing the andragogical delivery method can serve as an effective strategy to address these barriers, ultimately enhancing the overall learning experience and outcomes for learners.

Defining Convenience

The concept of convenience represents a complex construct incorporating multiple dimensions of ease, efficiency, and accessibility. According to the American Heritage Dictionary of the English Language (2000), convenience is articulated as “something that enhances comfort or reduces labor.” Convenience is frequently framed as a function of temporal investment, exertion, and accessibility, with the most advantageous option being that which demands the least amount of time and effort to obtain or employ (Zhang et al., 2018). The psychological and behavioral dimensions of convenience have been investigated within the realm of marketing research, which has recognized convenience as a fundamental determinant of consumer behavior (Brown, 1989). This principle extends beyond the consumer realm, as individuals across various domains, including education and learning, often exhibit a similar preference for options that minimize the time and effort required, even if such choices come at the expense of optimal outcomes (Bettman et al., 1998).

In contemporary society, the notion of convenience has emerged as a crucial determinant in the decision-making process, owing to the widespread adoption of digital technologies that have facilitated a diverse array of on-demand services and experiences, effectively addressing the intrinsic human inclination towards simplicity and accessibility. Most recently, one of the significant contributors to the appeal of convenience in education and learning is the rise of remote and online education. The worldwide emergency instigated by the COVID-19 pandemic in 2020 has catalyzed and expedited the integration of online distance education, affording students remarkable levels of flexibility and accessibility heretofore unattainable. As Wladis and others highlighted, the flexibility, time efficiency, and variety of resources available through online learning have made it a more attractive option for learners, who can now access education from anywhere and at any time (Cano, 2022).

The appeal of convenience has also been observed in the context of college-level education. According to a study by Cano and Richardson, prospective online distance learners often prefer the ability to obtain a quality education without compromising time with family or incurring additional costs for travel (Cano, 2022). Furthermore, convenience has been a key driver in the shift towards a more "digital-centric" learning experience, where students engage with course content and activities wherever they go rather than being confined to a

specific physical location. (Chen, 2021), (Cano, 2022), (Mollenkopf et al., 2020), (Shaikh & Asif, 2022).

Introducing the Convenience Factor in Education and Learning

This author defines the convenience factor in education and learning through the lens of *learning barriers*. As discussed here, the convenience factor is defined as a combination of traditional barriers to learning and contemporary factors. It is characterized by the desire of students, faculty, and institutions to seek an easier, more convenient path to learning or teaching due to situational, institutional, or dispositional barriers. This may mean students prioritize obtaining information rapidly over deep engagement with the material. As Uskov, Qadir, and Imran note, students may seek to learn based on what meets their "time, pace and place of learning" preferences rather than challenging themselves with more rigorous study habits and materials (Uskov, 2004), (Qadir & Imran, 2018).

Faculty members may similarly opt for more traditional, conservative, and instructor-centered pedagogical strategies that prioritize conserving time and resources over adopting innovative, research-informed teaching methodologies that may entail greater temporal investment. Educational institutions, in turn, may be compelled to prioritize convenience for both students and faculty by promoting online and hybrid course formats, utilizing pre-packaged instructional materials, and implementing standardized learning objectives and evaluative measures (Millikin, 2023), (Peters & Hewitt, 2010), (Keller, 2016), (Kahn et al., 2016), (Qadir & Imran, 2018). Despite research and evidence demonstrating the substantial educational benefits of more engaging, collaborative, and autonomy-supportive learning approaches, learners, faculty, and institutions often default to the convenience factor out of a desire to minimize time, effort, and cognitive load (Uskov, 2004), (Phan & Ngu, 2021), (Sealana, 2015).

The rise of online and distance education provides a salient example of the convenience factor in action. Many students are attracted to virtual educational programs due to their inherent flexibility, accessibility, and capacity for self-directed learning despite the possibility that such modalities might not be ideally structured for profound learning experiences (Han et al., 2020). While these modalities may offer convenience for students, they often require significantly more time and effort from faculty to develop and facilitate, as they necessitate the creation of new course materials, engagement strategies, and assessment approaches tailored to the online environment (Roddy et al., 2017).

The convenience factor is also driven by several psychological mechanisms, including cognitive load theory, which suggests that individuals have finite mental resources to devote to learning and will naturally seek to minimize mental effort (Morrison & Anglin, 2005). Comparably, the gratification theory asserts that individuals tend to pursue instantaneous rewards instead of postponing gratification in favor of potentially greater long-term benefits (Bembenutty, 2009).

The concept of convenience has gained significant prominence within the domain of human learning as individuals traverse the continuously transforming environment of educational resources and alternatives (Kross et al., 2021). The rapid growth of online and blended learning modalities, the proliferation of educational technology tools, and the increasing emphasis on "personalized" and "flexible" learning have all contributed to the rise of the convenience factor.

Theoretical Foundations for the Convenience Factor

Cognitive load theory, rational choice theory, and gratification theory are cited as theoretical foundations for understanding the convenience factor in learning. These theories are presented as foundations for the psychological mechanisms that drive individuals to prioritize convenience, such as the desire to minimize cognitive effort, the tendency to seek immediate rewards, and the inclination to “satisfice” rather than optimize for the best possible learning outcomes (Cloete, 2001), (Minutillo et al., 2020), (Chakraborty & Nafukho, 2014), (Uskov, 2004).

Cognitive Load Theory

Sweller's cognitive load theory, formulated in 1988, delineates two distinct categories of cognitive load that can significantly influence the educational process: intrinsic and extraneous (Sweller, 2011). Cognitive load theory asserts that a finite capacity for processing information constrains human cognition and that overwhelming cognitive demands may impede both learning and performance (Paas et al., 2010), (Martin, 2014). Scholars broadly concur that the cognitive load encountered by learners can be delineated into three distinct categories: intrinsic, extraneous, and germane cognitive load.

Intrinsic cognitive load pertains to the fundamental complexity of the educational content itself, whereas extraneous cognitive load arises from suboptimal instructional design or delivery methods. In contrast, germane cognitive load represents the mental effort that learners direct toward the construction of schema and the deeper processing of information, which is essential for meaningful and long-lasting learning (Martin, 2014). According to cognitive load theory, when faced with competing cognitive demands, learners will naturally prioritize strategies that minimize their overall cognitive load, even if this means sacrificing deeper engagement with the material in favor of more superficial, convenience-driven results.

Rational Choice Theory

Rational choice theory serves as a theoretical paradigm for elucidating the processes underlying decision-making, grounded in the premise that individuals undertake selections based on a thorough evaluation of costs and benefits. They diligently scrutinize the potential merits and drawbacks of the diverse options at their disposal to maximize their personal utility or degree of contentment.

Further exploration into the notion of satisficing shows that learners may be inclined to select the first option that meets their minimum requirements and minimizes the cognitive effort required rather than systematically searching for the absolute best possible alternative. This author posits that “non-strategic satisficing” is a major contributor to the convenience factor by being another dispositional barrier to learning. This is discussed in the section on “Contemporary Factors Contributing to the Convenience Factor.”

Gratification Theory

Formulated by eminent communication theorists Elihu Katz, Jay Blumler, and Michael Gurevitch, gratification theory provides a robust conceptual framework for elucidating the mechanisms through which individuals deliberately seek and engage with various media modalities, encompassing television, radio, or digital platforms to fulfill their fundamental psychological and social needs (Katz et al., 1973). This theoretical framework can be effectively employed within the sphere of adult education, as it posits that individuals are

inherently inclined to engage in educational pursuits that yield immediate rewards, incorporating factors such as accessibility, enjoyment, and social affirmation, as opposed to those that necessitate a more substantial investment of time and effort. Gratification theory contributes to the convenience factor by highlighting the tendency for learners to prioritize educational options that offer a more streamlined, enjoyable, and socially rewarding experience, even at the expense of deeper, more meaningful learning.

Consequences of the Convenience Factor

The convenience factor has several deleterious consequences for learning outcomes. First, students who prioritize convenience over depth of learning may only engage with material superficially, retaining information for short-term purposes like exams rather than integrating it into their long-term knowledge base (Roediger & McDermott, 2019). This can lead to a lack of transfer of learning to new contexts. Secondly, educators who depend on conventional, instructor-centered pedagogical approaches may neglect to engage students effectively or assist them in cultivating analytical reasoning and problem-solving competencies (Halpern & Hakel, n.d.). Finally, institutions that succumb to the convenience factor may inadvertently create barriers to learning, for example, by prioritizing online courses without adequate support for self-directed learning (Hart et al., 2019), (Chen, 2021).

According to a study by Wladis et al., the flexibility and accessibility of online learning can also come with significant drawbacks, such as learners' difficulty in understanding course content, retaining information, and maintaining focus in a virtual environment (Taghap, 2023). Furthermore, Naddeo and colleagues identified that students' adverse perceptions regarding online education are frequently associated with technological difficulties and the efficacy of learning management systems, which may diminish the perceived advantages of this educational modality (Naddeo et al., 2021).

Liu & Lin observed that seeking convenience “could potentially eliminate any positive learning process”. For example, when using a conventional book dictionary, the user must temporarily utilize their working memory by mentally holding the word while actively searching through the pages. “This continuous rehearsal could potentially be helpful for incidental vocabulary learning” (Liu & Lin, 2011, p. 374).

This author proposes an andragogical delivery method to mitigate the convenience factor that draws on adult learning theory principles. This method emphasizes active, self-directed learning, with the instructor as a facilitator rather than a transmitter of information (Sealana, 2014), (Sealana, 2015). By cultivating agency, intrinsic motivation, and deep engagement with learning materials, this approach can help counter the tendency towards convenience-driven, surface-level learning (Lowry et al., 1951).

A Closer Examination of Barriers to Learning

In his 2014 text, Sealana builds upon the scholarly work of K. P. Cross to identify several key barriers that can undermine the learning process and contribute to the convenience factor for learners (Cross, 1992). Cross described a model of lifelong learning that integrates the theoretical frameworks of Knowles's (1980) andragogy and Rogers and Freiberg's (1993) discussion on experiential learning. Cross discussed three barrier categories to adult participation in learning: (1) situational, (2) institutional, and (3) dispositional.

Cross' explanation of these barriers fell into three key domains:

1. Situational barriers: Obstacles related to an individual's life circumstances, such as job/family responsibilities, lack of time and financial resources, or geographic

isolation. They arise from one's situation or environment at a given point, such as family and work, poverty and adult identity, cultural issues, and learning tracks.

2. Institutional barriers: Policies, practices, or structures within educational institutions that hinder or discourage adult participation, such as inconvenient course schedules, lack of student support services, or prohibitive tuition costs. These obstacles may include rigid entrance requirements, programs offered at locations or times that are inaccessible for many adult learners, limited course offerings and inflexible schedules, as well as administrative policies and procedures that fail to account for the unique needs of adult students (Nedungadi et al., 2020).
3. Dispositional barriers: Psychological or attitudinal factors within the learner, such as low self-confidence, negative perceptions of one's abilities, or anxiety about returning to an academic environment. Additionally, cognitive load theory becomes a dispositional barrier to learning as it suggests that the human mind has a limited capacity to attend to and process multiple streams of new information simultaneously, and when this capacity is exceeded, it can lead to cognitive overload and diminished learning outcomes for the adult learner.

Earlier in this text, this author introduced the notion of cognitive load. Here we elaborate on the notion as a dispositional barrier. Since Cross discussed it as a dispositional barrier to learning, more recent research has expanded on this concept. When extraneous cognitive load is high, it can divert the learner's limited mental resources away from the essential elements of the learning task, thereby undermining their ability to engage in deeper, more meaningful learning and acknowledged that before memory can become durable and recallable, additional processes (e.g., deep processing, elaboration, or cognitive effort) are usually involved (Costley et al., 2020), (Bannert, 2002), (Sweller et al., 2019), (Baddeley, 1998), (Lockhart & Craik, 1990). However, according to cognitive load theory, such use of working memory could leave fewer resources available for meta-cognitive processes, potentially impeding reading comprehension (Sweller, 2011). Therefore, as we seek to address the deleterious consequences of the convenience factor, we must consider how the management of cognitive load can profoundly impact their capacity for engagement, knowledge retention, and transfer of learning (Torcasio & Sweller, 2009), (Costley et al., 2020), (Sweller et al., 2019), (Bannert, 2002).

Contemporary Factors Contributing to the Convenience Factor

In 2015, Sealana built upon Cross's work by adding three contemporary factors (additional barriers to learning). The three are (1) technological complexity, (2) learning institutionalism, and (3) non-strategic satisficing. For his part, Sealana sees learning institutionalism as an additional institutional barrier within Cross' framework and technological complexity and non-strategic satisficing as additional dispositional barriers (Sealana, 2015).

Technological Complexity

The rapid growth of technology in society can be a significant barrier for some learners, who may lack familiarity or confidence with new digital tools and platforms required for online/hybrid learning experiences (Tzafilkou et al., 2022). The speed and complexity at which technology changes can contribute to a sense of disconnection and frustration, undermining the learner's engagement and motivation (Jakubik, 2020), (Maloney et al., 2023), (Kee & Emmanuel, 2020), (Picciano, 2009), ultimately contributing to the convenience factor (Sealana, 2015).

In contemporary times, the swift advancement of artificial intelligence (AI) within the realms of education and learning has introduced an additional layer of intricacy for adult learners, educators, and educational establishments collectively. As digital assistants, intelligent tutoring systems, and tailored learning algorithms proliferate, learners may experience difficulties in adapting to the rapid technological advancements, possibly feeling inundated or daunted by the perceived complexity of these instruments.

Colleges and universities are also grappling with how to effectively leverage AI-powered learning technologies in ways that enhance the learning experience (Popenici & Kerr, 2017). The existing academic policies and procedural frameworks have not sufficiently evolved in response to the swiftly transforming technological environment, resulting in numerous educational institutions being inadequately prepared to offer the essential support and direction required for adult learners to effectively engage with these digital tools and platforms, thereby avoiding cognitive overload that may detrimentally impact their educational experience.

The proliferation of AI tools for scholars (e.g., AI-powered writing assistants, citation managers, and research synthesis generators) also presents opportunities and challenges for adult learners to adapt and integrate these technologies into their academic workflows meaningfully and productively. This may contribute to another dispositional barrier to learning. It contributes to the convenience factor by prioritizing immediacy over in-depth exploration, critical analysis, and thoughtful application of the material to real-world problems and contexts. It should be noted that this dynamic is not unique to AI tools in education but rather reflects broader societal trends of shortened attention spans, the desire for "quick fixes," and an overreliance on technology to the detriment of deeper engagement.

Due to the expositional growth and adaptation of artificial intelligence in scholarship, including its use in the preparation of this paper, the author addresses its use in a separate section as an *autobiographical illustration* and relates it to the convenience factor.

Learning Institutionalism

As described earlier in this text, Patricia Cross described institutional barriers as policies, practices, or structures within educational institutions that hinder or discourage adult participation, such as inconvenient course schedules, lack of student support services, or prohibitive tuition costs (Cross, 1981). Numerous students regard conventional educational establishments as excessively inflexible, lacking in personal engagement, and detached from their actual professional and personal requirements, engendering dissonance between their educational experiences and their quotidian existence. Though schools have made significant strides in expanding their online and flexible learning options, the academic culture, policies, and expectations of these programs may still feel incongruent with the unique needs and preferences of some learners (Tzafilkou et al., 2022), (Urueta, 2023), (Kee & Emmanuel, 2020).

Students hailing from historically marginalized or underrepresented backgrounds may discover that the implicit norms, values, and expectations inherent in conventional academic environments are not sufficiently congruent with their distinct cultural identities, learning preferences, or lived experiences. Without a comprehensive recognition and accommodation of diverse learners, educational institutions may unintentionally sustain obstacles to access, engagement, and overall success.

Beyond the administrative and operational issues summarized above, when faced with social and technological complexity, learning institutions often default to a traditional pedagogical

delivery method in favor of efficiency and cost rather than taking a more learner-centered, personalized approach that could better address adult learning needs. In their study entitled "Traditional and Inquiry-Based Learning Pedagogy: A Systematic Critical Review," Bilal and Zin, discuss how traditional learning models are often favored for their perceived efficiency despite the potential benefits of inquiry-based learning (Bihal Khalid Khalaf & Zin, 2018).

Learning institutions often default to more traditional pedagogical delivery methods because the "one-to-many" approach to instruction is more cost-effective and scalable than prioritizing individual students' convenience and engagement (Seo et al., 2021), (Sealana, 2015). This institutional preference for efficiency can foster the perception among adult learners that the institution's operational needs and priorities are valued more highly than its student population's diverse learning preferences and unique requirements.

Educational leaders must carefully examine and address these institutional barriers to foster a culture of learning more responsive to contemporary adult learners' diverse needs and preferences. If left unaddressed, these institutional barriers can contribute significantly to the convenience factor, as learners become disenchanted with the academic experience and seek out more readily accessible, if superficial, alternatives.

Non-Strategic Satisficing

This author posits one of the key psychological mechanisms underlying the convenience factor comes from the concept of "satisficing," which was first introduced by Herbert Simon in the 1950s under rational choice theory. Satisficing describes a decision-making strategy where an individual or entity will select the first option that meets their minimum criteria rather than exhaustively searching for an optimal solution. Given the inherent cognitive constraints of the human brain, as articulated by cognitive load theory, alongside the overwhelming volume of information and options present in contemporary existence, the strategy of satisficing has emerged as a progressively prevalent method and essential component of decision-making processes, particularly within the realms of education and learning.

In general use, satisficing is a decision-making strategy that attempts to meet criteria for adequacy rather than to identify an optimal solution. (Aker et al., 2024), (Cukurova et al., 2023), (Schmidt et al., 2020), (Sánchez-Franco et al., 2014). Satisficing refines rational choice theory, acknowledging that people make individual choices without considering all possible rational options (Simon, 1955).

In light of the intricate nature of contemporary society, which presents individuals with an excessive abundance of information, choices, and decisions, satisficing has emerged as a widespread and potentially essential strategy for decision-making among numerous individuals, including students maneuvering through the educational sphere. Faced with abundant educational content, modalities, and institutions to choose from, it is not surprising that many learners, particularly adult learners with limited time and resources, would opt to satisfice rather than exhaustively search for the "optimal" learning experience.

Speaking in the Journal of Information Science, Baldwin and Robinson address the notion of "information overload." They stated: "Information overload, or the state of having too much information to make a decision or remain informed about a topic, is a significant challenge in the digital era" (Baldwin & Robinson, 2009), (McCarthy et al., 2022). The convenience of easily accessible yet superficial information sources, combined with a tendency toward satisficing, can lead learners to prioritize speed and availability over depth of understanding,

critical analysis, and long-term retention of knowledge - all of which are central to meaningful, transformative learning.

Faced with the demands of work, family, and other life responsibilities, some learners may opt for educational experiences that prioritize convenience and ease of use over more rigorous, potentially transformative learning opportunities. This tendency to satisfice - to seek a satisfactory, rather than optimal, solution can result in adult learners selecting educational pathways that provide the minimum level of effort or commitment required to achieve their goals rather than pursuing more challenging learning experiences that could lead to deeper, more meaningful growth and development (Aker et al., 2024), (Bork, 2001), (Lim & Ho, 2022).

Theoretical Foundations for the Andragogical Delivery Method

The andragogical delivery method, as elucidated in this text, constitutes a pedagogical approach that empowers learners to engage proactively in their educational journey, thereby enabling them to discern their distinct learning requirements, establish individualized objectives, and select methodologies that resonate with their personal inclinations and experiential backgrounds. In the present iteration of this scholarly work, the author utilizes established theories and frameworks to substantiate the proposed model. These frameworks encompass action learning, active learning, andragogy, and the psychological construct of FLOW.

Action Learning

Reg Revans developed the notion of action learning in the 1940s (Revans, 2008). He believed that learning is maximized when individuals are presented with challenges that require them to draw upon their existing knowledge and experience while also necessitating acquiring new knowledge to address the problem (Holton et al., 2009), (Khadka, 2020).

The core premise of action learning is that learners can develop new knowledge and skills by actively solving real-world problems through collaborative inquiry and reflection (Purwati et al., 2022), (Hikmah & Wahyuni, 2020). Through engaging learners in genuine, contextually pertinent assignments, action learning fosters the enhancement of critical analytical skills, problem-resolution capabilities, and autonomous learning proficiencies—attributes that are indispensable for effectively navigating the intricacies of contemporary society. Empirical research suggests that action learning has proven to be an especially efficacious methodology for adult learners, who typically exhibit higher levels of intrinsic motivation, a pronounced focus on objectives, and a capacity to utilize their previous experiences to enrich their educational endeavors (Khadka, 2020), (King, 2005).

Active Learning

The notion of active learning was initially articulated by educational psychologist Benjamin Bloom and his associates during the 1950s. They asserted that the efficacy of learning outcomes can be significantly improved when students engage actively in the educational process, as opposed to merely passively assimilating information (Bloom, 1968). This term encompasses a wide array of instructional models that allocate a greater degree of responsibility for the learning process to the learner, as opposed to the educator or the educational institution. Active learning is thought to stimulate higher-order cognitive processes such as critical thinking and analysis (Bevis, 1989 as cited in Sealana, 2014). Adults involved in active learning are self-directed, motivated to learn, and prefer active learning strategies (Knowles, 1990 as cited in Sealana, 2014). Constructivism theory guides

learning that can occur electronically by maintaining a scaffolding effect as learners actively build on learner-centered principles (Bonk & King, 1998 as cited in Sealana, 2014).

Empirical research has repeatedly shown that methodologies characterized by active learning, which enhance student engagement in the educational process via interactive activities, discussions, and problem-solving tasks, result in more favorable learning outcomes in contrast to conventional passive lecture-based pedagogies (Gleason et al., 2011), (Hikmah & Wahyuni, 2020). Active learning engages students cognitively, behaviorally, and emotionally, fostering deeper processing of information, enhanced retention, and greater knowledge transfer to new situations.

Andragogy

Andragogy is often seen as a model of assumptions about learners, to be used alongside the pedagogical model, thereby providing two alternative models to test assumptions as to alignment with particular situations (Holton et al., 2008). It is also seen as a theory developed by Malcolm Knowles that provides a foundational framework for understanding adult learners' unique characteristics and needs. Knowles delineated four fundamental tenets of adult education that distinguish it from the conventional, instructor-centered paradigm of pedagogy: adults exhibit self-directedness and assume accountability for their own educational endeavors, they possess an extensive array of life experiences that shape and enrich their learning processes, they demonstrate a propensity to engage with subject matter that holds immediate significance and implications for their personal and professional lives, and they exhibit intrinsic motivation and a focus on goal attainment (Knowles et al., 2015).

Andragogy posits that educators can optimize learning outcomes for adult participants by aligning learning experiences with the learners' prior knowledge, emphasizing practical relevance, and nurturing self-directed inquiry. The widespread adoption and demonstrated success of the andragogical model across diverse adult education programs serve as a testament to its ability to cultivate heightened learner engagement, intrinsic motivation, and overall learning outcomes (Bakare, 2020), (Carlson et al., 2018), (Holton et al., 2009). Although addressing adults' needs and preferences, andragogy is equally applicable to learners of all ages (Purwati et al., 2022). In this current work, the principles of andragogy are broadly applied to all learners.

The Psychological State of FLOW

As a pedagogical model, the andragogical delivery method requires rigor and concentrated effort on the part of the student/participant (Sealana, 2015). In order to attain an essential equilibrium of intensity and focused engagement, the psychological phenomenon of FLOW, as elucidated in the seminal research conducted by Mihaly Csíkszentmihályi, may function as an instructive paradigm (Csíkszentmihályi, 1997). This mental state is an optimal state of consciousness where an individual becomes deeply immersed in an activity, experiencing a perfect balance between the challenges presented and their own skills, accompanied by a profound sense of energized focus, effortless concentration, and intrinsic enjoyment. Csíkszentmihályi postulated that individuals who achieve this psychological state exhibit a propensity to persist in the activity due to the intrinsic gratification and fulfillment it affords rather than being compelled by extrinsic rewards or external pressures.

Research has demonstrated the critical role of FLOW in promoting educational engagement, as learners who experience this state tend to exhibit greater persistence, better information processing, and higher levels of satisfaction with the learning experience. (Martinez & Scott, 2016), (Csíkszentmihályi, 1990), (Csíkszentmihályi, 2014a), (Zhao et al., 2022).

The Teaching and Facilitation Process

Earlier in this text, we defined learning as processes that lead to behavior, knowledge, or skills changes. To facilitate learning, the earliest documented process was described as *pedagogy*, a teacher-centered approach where the instructor bears primary responsibility for determining the content, sequence, and methods of instruction (Sealana, 2014). From the epoch of Socrates to the contemporary period, the domain of education has conventionally been examined through the framework of pedagogy, wherein the educator is regarded as possessing superior expertise, while the learner is perceived as a tabula rasa awaiting to be enriched with knowledge. Formal education emerged from this pedagogical model, emphasizing memorization, recitation, and the mastery of predefined information. In a comprehensive context, the term pedagogy delineates the methodology of disseminating knowledge within an educational setting. In this discourse, we employ the overarching term “pedagogy” to characterize any instructional process that enhances the learning experience. We further distinguish between methods of facilitating the educational process by using the terms “pedagogical delivery method” and “andragogical delivery method,” described below.

The Pedagogical Delivery Method

In historically prevalent educational paradigms, the instructional methodology is typified by a teacher-centric model wherein the educator serves as the principal reservoir of knowledge and orchestrates the learning experience (Richardson & Birge, 1995). This educational framework frequently emphasizes efficiency and expediency to address a pre-established curriculum within a designated period. Despite extensive scholarly investigation revealing the inherent limitations of this model, numerous educational institutions persist in their reliance on pedagogical strategies that are frequently perceived as more pragmatic and effective for both learners and educators (McAuliffe et al., 2009). The pedagogical delivery method is characterized by an instructor-centric approach, with the teacher serving as the primary source of knowledge and controlling the learning environment through direct instruction, lecture-based formats, and predetermined curricular requirements (Sealana, 2014), (Sealana, 2015).

The Andragogical Delivery Method

In contrast to the pedagogical delivery method, the andragogical delivery method is grounded in the principles of adult learning theory, which recognizes the learner as the central figure in the educational process. This methodology facilitates the agency of learners, permitting them to engage actively in their educational journeys, thereby enabling the identification of their distinctive learning requirements, the establishment of tailored objectives, and the selection of methodologies that correspond with their personal inclinations and experiential backgrounds.

The author’s study at the University of San Francisco reinforces prior research indicating the value and benefit of andragogical delivery in instructional settings (Sealana, 2014). That study confirms the value of the andragogical delivery method with government-mandated course content. This text proposes implementing this method to broadly address the convenience factor in human learning. Herein the author expands upon Knowle’s principles of andragogy and applies them to the context of human learning.

Key components of the Andragogical Delivery Method Include:

- 1) Emphasis on self-directed learning: Learners take an active role in determining their learning goals, content, and pace.
- 2) Leveraging prior experience: The instructor draws on the existing knowledge and experiences of adult learners to facilitate the learning process.
- 3) Intrinsic motivation: The learning activities are designed to tap into the learners' internal motivations, such as a desire for personal growth or improved job performance.
- 4) Collaborative learning: Peer-to-peer interactions and group work are encouraged to promote active engagement and the sharing of diverse perspectives.
- 5) Relevance to real-world applications: The learning content and activities are closely tied to the learners' professional and personal contexts, increasing their perceived relevance and value.

The author's observations confirmed Knowles' (1980) assumptions that adult learners desire learning opportunities based on their life experiences and personal situations, that adult learners desire an educational curriculum that allows learners to integrate their experiences into classroom efforts, that adult learners desire the instructor's role to be that of an "engager" of learning rather than a "transmitter" of knowledge; and that teaching strategies should consider learning times, place, styles, and pace. This was accomplished by allowing and facilitating in-depth discussion and exploration of participants' work-related experiences.

The author observed that the andragogical delivery method requires significant preparation, rigor, and presence to achieve the stated goals (Knowles et al., 2015). The following factors are intrinsic to the andragogical delivery method:

1. *Preparing learners*
2. *Modifying the physical and psychological climate*
3. *Involving learners in planning for their learning*
4. *Involving learners in diagnosing their own needs for learning*
5. *Involving learners in formulating their own learning objectives*
6. *Involving learners in designing learning plans*
7. *Helping learners carry out their learning plans*
8. *Involving learners in evaluating their own learning outcomes*

The andragogical delivery method calls for a fundamental shift in the role of the instructor from a transmitter of knowledge to a facilitator of learning. Instead of simply delivering content, the instructor must guide learners through self-discovery, reflection, and application.

Preparing Learners

The initial phase of the andragogical delivery method resembles the conventional inaugural day of an academic course, wherein the educator delineates the syllabus and establishes the anticipated learning outcomes. Nevertheless, within the framework of the andragogical paradigm, a significantly heightened focus exists on equipping learners to engage proactively in their own educational journey. Chychuk, Holton, and their colleagues elucidate the criticality of articulating explicit expectations regarding both the instructor's functions and the learners' obligations (Chychuk, 2015), (Holton et al., 2009). Educators are also tasked with helping learners comprehend the significance and justification of the andragogical

methodology, particularly as this approach may alienate individuals more familiar with traditional, teacher-centric educational models. Moreover, facilitators must furnish a detailed and thorough outline of the learning goals, subject, matter, and activities to be undertaken, all while striving for flexibility and adaptability within the curriculum to cater to the participant's unique needs, interests, and learning styles.

A comprehensive delineation of the course framework, educational aims, and evaluative standards is essential for all pedagogical methodologies. However, Purwati and others discuss the importance of engaging learners in discussions about their prior experiences, learning preferences, and goals for the course as a way to build buy-in and ownership over the learning process (Purwati et al., 2022), (Chychuk, 2015), (Rismiyanto et al., 2018), (Holton et al., 2008). Ultimately, accentuating the significance of the learner's engagement, cooperative efforts, and introspective analysis during the educational journey constitutes a fundamental aspect of the andragogical methodology.

Modifying the Physical and Psychological Climate

The next step in the andragogical delivery method is to modify the physical and psychological climate to be conducive to learning. The learning space environment should be thoughtfully designed to support the andragogical approach. Research has shown that an informal, comfortable, and flexible physical setting is more likely to support the collaborative, self-directed nature of adult learning (Milligan, 1995). Students should be encouraged to discover what learning environment best suits their needs and preferences and be empowered to adjust the space accordingly (Rismiyanto et al., 2018), (Holton et al., 2008).

Academic collaboration between faculty and students is essential in organizing the classroom layout to promote discourse and cooperative learning (e.g., circular or U-shaped seating arrangements) while ensuring that the learning environment is comfortable, adequately illuminated, and devoid of distractions and interruptions. Furthermore, in the contemporary digitally enhanced era, guaranteeing access to requisite technology and resources constitutes a vital aspect of fostering a supportive educational atmosphere.

Beyond the physical space, it is important to cultivate a psychological climate that fosters mutual respect, collaboration, and an atmosphere of trust and support among all learning group members. The instructor plays a vital role in modeling and encouraging this type of collaborative, learner-centered environment (Garvin-Doxas & Barker, 2003). Cultivating an environment characterized by trust, respect, and reciprocal support among learners, as well as between learners and the instructor, is imperative for establishing a psychologically secure environment in which adult students feel at ease undertaking risks, articulating their experiences, and participating in critical self-reflection (Holley & Steiner, 2005). The instructor must emphasize their role as a facilitator rather than an authoritative figure. This may be unfamiliar to some adult learners who are accustomed to a more traditional, teacher-centered model.

Other characteristics of the psychological climate possess equivalent relevance and should be elucidated by emphasizing the necessity of transparent communication and active listening. Fostering a growth-oriented mindset alongside openness to innovative ideas and perspectives through critical examination and Socratic dialogue, facilitating the developmental pathways of learners through timely and constructive assessments, and nurturing an environment wherein mistakes are regarded as opportunities for learning are important (Watkins et al., 2020).

Involving Learners in Planning and Execution

The third step and a key tenet of the andragogical delivery method is actively involving learners in all stages of the learning process, from planning to execution to evaluation. Learners should be motivated to critically assess their educational requirements, establish individualized learning objectives, and formulate personalized learning plans (Gunderman & Wood, 2004). This objective can be achieved by fostering collaborative environments wherein learners can articulate their educational needs, establish learning objectives, and jointly design educational activities and assessments congruent with their personal and professional aspirations. Within this framework, the instructor assumes the role of a guide and facilitator, offering necessary support, resources, and feedback; however, the learners ultimately take the initiative in steering the educational process. They collaborate with learners to set learning objectives and priorities, select learning activities and resources, and devise formative and summative assessments that measure desired learning outcomes. The instructor should also work collaboratively to design learning activities and assessments that align with learners' needs and interests and provide opportunities for learners to offer feedback and make adjustments throughout the course (Brazeal & Couch, 2017).

Involving Learners in Diagnosing Their Own Needs for Learning

A central tenet of the andragogical approach is actively empowering adult learners to identify their learning needs and knowledge gaps. This procedure necessitates that learners critically examine their existing knowledge base, skill set, and competencies in conjunction with their individual and professional aspirations, thereby utilizing that introspective evaluation to ascertain the requisite areas of learning needed to fulfill those aspirations (Chianese, 2012).

To engage students effectively, it is imperative that they are motivated to contemplate their existing comprehension, competencies, and experiences pertinent to the course material. Educators can enhance this process by offering avenues for self-evaluation, including preliminary diagnostic assessments, individualized learning inventories, or organized reflections on previous educational experiences and knowledge acquired. Instructors should also work collaboratively with learners to review and interpret the results of these self-assessment activities (Justice & Marienau, 1988). From there, the instructor can guide learners in translating their self-assessed needs into specific, measurable learning objectives.

As previously articulated, educators ought to persistently cultivate dialogues pertaining to the professional and personal development objectives of learners, subsequently collaborating intimately with each individual learner to collaboratively formulate a tailored learning plan that integrates bespoke content, educational activities, resources, and evaluation methodologies to cater to their distinct requirements and facilitate the attainment of their particular goals and aspirations. Purwati and colleagues underscore the significance of assisting learners in executing needs assessments and gap analyses (Purwati et al., 2022).

Encouraging Self-Directed Learning

The andragogical framework extends beyond the mere involvement of learners in the planning process; it also prioritizes cultivating an environment that fosters and supports self-directed learning. In accordance with Knowles' theory of andragogy, as individuals progress into adulthood, their self-concept transitions from reliance on external sources for guidance to an increasingly autonomous orientation towards self-direction (McAuliffe et al., 2009).

The foundational assumption is that adult learners typically exhibit a high degree of autonomy and possess intrinsic motivation to assume control over their educational trajectories. Consequently, the educator ought to strive to enable learners to engage proactively in the orchestration of their own educational processes, encompassing the

identification of learning needs, the selection of appropriate learning resources and methodologies, as well as the assessment of their progress and the modification of their strategies as required (Chychuk, 2015).

Involving Learners in Formulating Their Own Learning Objectives

The andragogical delivery method calls for learners to actively participate in defining their own learning objectives. Towards this end, instructors may provide students with frameworks and templates for crafting SMART learning objectives that are specific, measurable, achievable, relevant, and time-bound (Hughes , 2017). The educator may subsequently engage in individualized or small group interactions with students, facilitating their ability to convert self-evaluated educational requirements into clearly articulated educational goals. In the objective-setting process, once again, instructors should facilitate collaborative discussions around desired learning outcomes without imposing their own preconceived notions or goals onto the learners (Rutherford, 2004). Educators should facilitate the process by which students assume responsibility for their educational objectives and harmonize these aspirations with their individual and vocational ambitions.

Involving Learners in Designing Learning Plans

The andragogical delivery method includes learners taking an active role in planning their learning journeys by co-creating detailed learning plans with clear milestones and deadlines, discussing and incorporating learners' preferred learning styles and modalities, encouraging learners to identify and allocate resources to support their goals, and guiding learners in anticipating and addressing potential barriers or challenges (Medicine et al., 2018). In the course of this process, learners should engage in introspection regarding their favored methodologies for acquiring knowledge, pinpoint particular subjects, concepts, or competencies upon which they wish to concentrate, choose pertinent educational activities and pedagogical strategies that correspond with their individual requirements and inclinations, and establish mechanisms for monitoring and evaluating their advancement towards their educational goals.

Helping Learners Carry Out Their Learning Plans

Upon establishing learning plans, the educator's function within the andragogical framework is to facilitate and assist learners as they implement their self-directed learning strategies. This is achieved through the provision of continuous feedback, individualized coaching, and mentorship to learners, the promotion of peer-to-peer learning and collaborative opportunities, the assurance that learners are equipped with pertinent resources and tools to achieve their educational objectives, and the maintenance of a flexible and responsive methodology that enables the educator to modify the support and guidance offered to learners in accordance with their dynamic needs, progress, and situational contexts throughout the educational journey.

Involving Learners in Evaluating Their Learning Outcomes

The final step in the andragogical delivery method is to engage learners in evaluating their own learning outcomes and progress. Toward that end, the instructor should facilitate guided self-reflection and peer-to-peer feedback sessions by incorporating learner-driven assessments and capstone projects where learners can demonstrate mastery of the course content and achieve their personalized learning objectives. Finally, the instructor should empower learners to identify areas for continued growth and development and help them update their personal and professional goals and objectives to build upon the knowledge,

skills, and insights they have gained through their learning journey (“Defining Student Learning for Assessment,” 1999).

The andragogical delivery method represents a fundamental shift in the instructor's role from a knowledge transmitter to a learning facilitator. The andragogical approach seeks to cultivate self-directed, transformative learning experiences that bear direct relevance to adult learners' personal and professional objectives by actively engaging them in every phase of the learning process (Bondareva et al., 2017), (Holton et al., 2008).

As presented herein, the andragogical delivery method requires rigor on the part of the learner, instructor, and the learning institution, as it demands a high level of engagement, collaboration, and shared responsibility for the learning outcomes. However, when implemented effectively, the andragogical approach can lead to remarkable outcomes regarding learner satisfaction, knowledge retention, and applying acquired skills to real-world challenges.

The Importance of Rigor

Ensuring the rigor of the learning experience is critical to counteracting the tendency towards the convenience factor. Instructors must design challenging, thought-provoking activities that push learners to grapple with complex concepts and apply their knowledge in novel contexts while stimulating their interest and curiosity (Purwati et al., 2022).

Academic rigor is characterized by the intricacy, depth, and challenges inherent in educational material and the associated learning experiences, necessitating that learners exhibit advanced cognitive skills, including analysis, synthesis, and evaluation, in order to attain a comprehensive understanding of the subject matter (Purwati et al., 2022), (Holton et al., 2008). Rigorous learning opportunities should also encourage deeper levels of engagement, such as critical analysis, creative problem-solving, and collaborative discourse, to move beyond mere information transfer (Henschke, 2011), (Holton et al., 2008).

Striking the right balance between rigor and relevance is key to overcoming the convenience factor and ensuring that learning experiences are truly transformative. Adult learners desire learning activities that are relevant to their personal and professional goals. Still, they also expect academic challenge and intellectual stimulation that pushes them to grow and develop as individuals (Akintolu & Letseka, 2021), (Purwati et al., 2022). To achieve this, instructors must design learning experiences that are both immediately applicable and academically rigorous. Common examples of rigorous, relevant learning activities include (1) case studies that require analysis of complex, real-world business problems (Pembbridge & Paretti, 2013), (Akintolu & Letseka, 2021); (2) capstone projects or action learning initiatives where learners collaborate to tackle pressing organizational or community challenges, blending theoretical concepts with practical problem-solving to develop innovative, evidence-based solutions that they then present and defend through formal assessments that require them to critically analyze their work, synthesize their learning, and evaluate the effectiveness of their solutions, and structured debates; (3) or Socratic seminars that challenge learners to thoroughly research an issue from multiple perspectives, construct persuasive arguments, and engage in substantive discourse to deepen their understanding of diverse viewpoints and develop their critical thinking skills.

By designing learning experiences that skillfully balance relevance with rigorous academic content and learning activities, instructors can create transformative learning journeys that empower adult learners to achieve their personal and professional goals (Efgivia et al., 2021), (Longenecker & Abernathy, 2013), (Ye & Xu, 2023).

Rigor is often perceived as “hard” or “demanding” by learners, so instructors must strike a delicate balance. They should provide sufficient support and scaffolding to help learners succeed while maintaining high expectations and standards. Support and scaffolding might manifest as meticulously organized reflection and debriefing sessions, during which learners are facilitated in conducting self-assessments and engaging in peer-to-peer evaluations to discern areas of competency and prospects for development.

In their text *Reframing Rigor: A Modern Look at Challenge and Support in Higher Education*, Campbell and others argue that traditional notions of academic rigor, which often focus on workload and curriculum difficulty, can be limiting. Instead, the authors propose a reframing of rigor that emphasizes challenge and support tailored to individual student needs and experiences. This approach recognizes that what constitutes “hard” or “challenging” in academia can vary greatly depending on a student's background, cultural values, and personal experiences (Campbell et al., 2018).

By designing learning experiences that are rigorous yet supportive, instructors can foster deeper engagement, critical thinking, and meaningful learning outcomes - ultimately countering the convenience factor. Teachers need the expertise to develop a class structure that stimulates social interaction and affirms rigorous academic standards while fostering independent learning skills (Gray & DiLoreto, 2016). Specifically, this may involve intentionally structuring learning activities that encourage learners to collaboratively engage with complex, real-world problems or issues related to the course content, drawing on their diverse perspectives and experiences to generate innovative solutions.

Changing the Paradigm About Rigor

Empirical studies have indicated that the belief regarding the challenging nature of academic rigor is frequently influenced by systemic factors, including insufficient academic assistance, restricted availability of resources, or the absence of culturally relevant pedagogical approaches (Morocco & Aguilar, 2002). By addressing these underlying factors and reframing rigor to center on challenge, growth, and student empowerment, instructors can create learning environments that nurture a sense of academic confidence and self-efficacy in learners, ultimately positioning them for meaningful, long-term success.

Facilitating a State of FLOW to Overcome the Convenience Factor

Research within the domain of positive psychology has indicated that when learners encounter a sense of challenge accompanied by sufficient support, they are significantly more inclined to cultivate a growth mindset, enabling them to persevere through adversities and perceive setbacks as valuable opportunities for learning and personal development. The contributions of psychologist M. Csíkszentmihályi regarding the concept of FLOW further underscore the necessity of achieving this equilibrium, as learners exhibit heightened engagement and motivation when they are confronted with tasks that are appropriately challenging, rather than being excessively easy or unduly difficult, commensurate with their existing skill level (Csíkszentmihályi, 1990), (Csíkszentmihályi, 1997), (Csíkszentmihályi, 2014b). This author proposes that fostering the state of FLOW might serve as an effective methodology to mitigate prevalent notions that rigor is inherently “hard” or unenjoyable.

Csíkszentmihályi describes FLOW as a highly focused, energized mental state where the individual is completely absorbed in the activity, experiencing a sense of effortless control, deep enjoyment, and intrinsic motivation to persist in the task. It is posited that in order to attain the psychological condition known as FLOW, individuals must immerse themselves in endeavors that offer challenges that are marginally more demanding than their existing

competencies, yet which they perceive they can surmount through the application of suitable skills, strategies, and resources available to them (Graesser & D'Mello, 2012). This author posits that by designing learning experiences that optimize the challenge-skill balance and facilitating the state of FLOW, instructors can transform learners' perceptions of academic rigor from something "hard" to deeply engaging, meaningful, and enjoyable.

The psychological state of FLOW and the model of Andragogy share some common characteristics, particularly in the context of learning and personal development. Both underscore the significance of harmonizing educational activities with the individual objectives, interests, and intrinsic motivations of learners, along with the pivotal function of the educator in delivering the appropriate degree of challenge and support to promote optimal learning and development (Csíkszentmihályi, 2014a), (Ben-Eliyahu et al., 2014), (Schüler, 2007), (Shernof et al., 2017).

The Importance of Intentionality to Address the Convenience Factor

The concept of intentionality comes from phenomenological philosophy and refers to the directedness or "aboutness" of consciousness - the idea that our mental states and experiences are always about or directed towards something. In his groundbreaking publication titled *Psychology from an Empirical Standpoint*, composed in the year 1874, Frans Brentano was the inaugural scholar to elucidate the notion of intentionality, positing that all cognitive phenomena are inherently characterized by their intentional aspects, which implies that they are inherently directed towards an object. He and other intellectuals posited that intentionality constitutes a fundamental attribute of the human psyche and that the essence of our intentional consciousness significantly influences our perception, comprehension, and interaction with the external environment (Brentano, 2014).

In the realm of educational theory and practice, the concept of intentionality pertains to the idea that learners exhibit a purposeful, mindful, and deliberate approach in their interactions with educational materials and experiences, as opposed to simply pursuing the most convenient or expedient alternatives. This author posits that intentionality is a key counter to the convenience factor, as it encourages learners to thoughtfully reflect on their motivations, goals, and the value they seek to derive from their educational pursuits.

In light of the diverse array of learning modalities, resources, and support services that are accessible to students, there exists a potential risk that certain individuals may adopt an excessively passive or reactive stance in their educational decision-making processes, favoring convenience and accessibility over more profound engagement and self-directed inquiry. To mitigate this potential risk, fostering a sense of intentionality can empower learners to adopt a more proactive, critical, and self-reflective approach to their educational endeavors, ultimately resulting in enhanced fulfillment, mastery, and transformation. Therefore, as technology continues its rapid evolution, we must be mindful of maintaining intentionality in our educational choices and not allow the convenience factor to undermine the deeper purpose and value of learning itself (Mohammed & Watson, 2019), (Peacock & Cowan, 2016), (Manz & Manz, 1991), (Wong et al., 2020). In order to realize this objective, educators assume a pivotal function in orchestrating pedagogical experiences that cultivate their students' intentionality, self-reflective practices, and a mindset oriented towards growth.

Summary of the Convenience Factor and the Andragogical Delivery Method

In this text, the author has defined the convenience factor in education and learning through the lens of learning barriers. It has been defined as a combination of traditional barriers to learning and contemporary factors and is characterized as the inclination of learners to

emphasize efficiency, rapidity, and accessibility in their learning endeavors to the detriment of deeper learning. Its origins are derived from situational, institutional, and dispositional barriers to learning, combined with the contemporary factors of technological complexity, institutionalism, and non-strategic satisficing.

The author advances the notion of the andragogical delivery method as a series of steps that involve learners in a comprehensive educational process, beginning with preparing them and modifying the physical and psychological climate to be conducive to learning. This is followed by engaging learners in planning their learning journey, diagnosing their individual needs, and formulating personal learning objectives. Next, learners are involved in designing their own learning plans and are supported in carrying them out. Finally, the process includes involving learners in evaluating their own learning outcomes, ensuring a holistic and self-directed educational experience. Further, he posits that facilitating the psychological state of FLOW is a complementary strategy to overcome learner resistance to rigor and to make the learning process more meaningful, fulfilling, and transformative.

Autobiographical Illustration – Leveraging Artificial Intelligence to Enhance Scholarly Writing While Avoiding the Convenience Factor

During the preparation of this text, artificial intelligence (AI) 's growth and proliferation has been exponential. Its application has been pervasive across numerous industries and disciplines, including academic writing (Carobene et al., 2023). While composing this manuscript, the author actively utilized the functionalities of extensive language models and various AI-driven instruments to facilitate the research, conceptualization, and formulation stages. This included using AI to: help identify relevant source materials based on the provided prompt and citation guidelines, analyze and synthesize key ideas from those sources, generate outlines and initial text passages, and provide feedback on grammar, style, and overall coherence.

The incorporation of artificial intelligence in scholarly research and composition has engendered significant ethical, practical, and epistemological inquiries regarding the function of technology in the generation of knowledge, the capacity of AI to enhance or supplant human authors, and the intricate matters concerning intellectual property rights, authorship, and the maintenance of academic integrity. Current research by Dong and others has explored both the opportunities and challenges of integrating AI into academic writing practices, highlighting the need for thoughtful implementation and a firm grounding in the core principles of scholarly inquiry and original composition (Dong, 2023), (Lin, 2024), (Mohammadkarimi, 2023).

Since the introduction of computers, the internet, and other digital technologies into the academic setting, there have been ongoing concerns about their potential to undermine genuine learning and the development of essential cognitive skills (Mohammadkarimi, 2023). The recent and rapid emergence of powerful AI language models, exemplified by ChatGPT, has further heightened these concerns. Current research into the use of these technologies reveals both potential benefits and risks in their application to academic writing tasks. At the time this text was prepared, scholars Phillip Olla, Lauren Elliott, Mustafa Abumeeiz, Karen Mihelich, and Joshua Olson (2024) were exploring how to improve interactions between humans and AI language models. Their work, published in the Journal of Information, proposes frameworks for ensuring that the use of AI in academic writing augments and complements, rather than replaces, the core cognitive processes of research, analysis, and composition (Olla et al., 2024). They introduce the concept of *Promptology* as an interdisciplinary field that focuses on designing strategic and secure prompts for generative

AI systems. It integrates technical skills, cognitive science, and frameworks to optimize human–AI interactions, ensuring ethical, efficient, and accurate responses across various industries. Their framework SPARRO (strategy, prompt design, adopting, reviewing, refining, and optimization) describes a process that “attempts to guide the accurate ethical, and reliable use of language processing systems such as ChatGPT in an educational setting” (p. 6). Principles from their model, such as *strategic prompting, verification, and reflection*, have been applied in the creation of this text and are complimentary with the andragogical delivery method discussed earlier, which emphasizes learner intentionality, self-awareness, and critical analysis.

As a scholar and educator, the advent of AI has compelled the author to carefully consider how to harness the transformative potential of these technologies while simultaneously mitigating the risks they pose to academic integrity, critical thinking, and the inherent value of the learning process. The author recognized that the use of AI in the writing process could potentially lead to a superficial over-reliance on technological shortcuts, rather than deeper engagement, analysis, and self-directed exploration. Within the framework or the convenience factor, these concerns would fall under the categories of “technological complexity” and have the potential of adding yet another “dispositional barrier” to learning (Sealana, 2015).

In preparing this text, the author intentionally did not allow AI to entirely replace or automate the writing process's core intellectual and creative aspects. Instead, the artificial intelligence tools were employed with discernment to bolster the author's analytical reasoning, problem-solving capabilities, and writing proficiency rather than replacing these skills. Throughout the composition process, the author sustained a profound level of engagement, meticulously scrutinizing the content generated by the AI, rigorously interrogating its foundational premises, and making intentional decisions regarding the seamless integration of the insights derived from the source material into a novel, cohesive, and well-structured argument. In this way, the author maintained a sense of intentionality, using AI as a strategic complement to their own learning and creative faculties rather than succumbing to the convenience factor by simply outsourcing the bulk of the work.

The author found the process of validating AI-generated text against authoritative sources and one's own analytical reasoning to be a cognitively demanding, yet ultimately rewarding, exercise. By thoughtfully engaging with the AI tools and critically evaluating their outputs, the author enhanced his writing proficiency and confidence rather than merely optimizing for speed and ease of completion. This mindful process serves as an important lesson as educational institutions and learners grapple with the growing influence of AI in academic contexts. The key is to leverage these technologies strategically and intentionally, not to succumb to the convenience they may offer at the expense of deeper learning and skill development.

Tools and Technologies Used in the Preparation of this Text

The author strategically integrated traditional writing tools and AI-powered technologies to enhance the research, analysis, and composition processes in creating this research paper. These included the following:

- *Web of Science, WorldCat* for academic research
- *Zotero* for reference management
- *Chat GPT-3* for ideation and initial drafting

- *Jenni AI* for restructuring and refining narratives
- *Grammarly* for proofreading and editing
- *Microsoft CoPilot* for formatting and citation management
- *Google Scholar* and other academic search engines for sourcing and validating information
- *SciSpace* for streamlining literature search, simplifying complex concepts, managing citations, and ensuring authenticity

The author employed these tools deliberately and thoughtfully, carefully evaluating the outputs, cross-checking against authoritative sources, and maintaining a sense of intentionality throughout the writing process. By strategically incorporating AI-powered technologies while preserving their own critical thinking and analysis, the author enhanced the overall quality, coherence, and intellectual rigor of the final research paper while also gaining valuable insights into the opportunities and challenges associated with the growing role of AI in academic contexts.

Conclusion – The Convenience Factor in Education and Learning

In this theoretical concept paper, the author has combined ideas from various academic disciplines, including cognitive psychology, educational theory, and organizational behavior, to introduce the convenience factor in human learning and education. With a review of the goals of learning, the author draws upon other learning models and theories to explain how the convenience factor prevents the realization of the full transformative potential of the learning experience by undermining the depth, rigor, and self-directed nature of the learning process.

The author examines the traditional barriers to learning and offers contemporary factors, including technological complexity, learning institutionalism, and non-strategic satisficing, that define the convenience factor in today's educational landscape. He then introduces the andragogical delivery method as a pedagogical framework that can help mitigate the convenience factor by emphasizing learner intentionality, self-awareness, and critical analysis. Ultimately, the author has examined the ramifications of artificial intelligence on scholarly composition and the educational process, stressing the necessity to utilize these technologies carefully and strategically rather than yielding to their ease of use to the detriment of profound learning and the cultivation of skills.

References

- Aker, J. C., Sawyer, M. I., & Berry, J. (2024). Making sense of the shapes: What do we know about literacy learning in adulthood? *Elsevier BV*, 100, 102537–102537. <https://doi.org/10.1016/j.econedurev.2024.102537>
- Akintolu, M., & Letseka, M. (2021). The andragogical value of content knowledge method: The case of an adult education programme in Kwa-Zulu Natal Province of South Africa. *Elsevier BV*, 7(9), e07929–e07929. <https://doi.org/10.1016/j.heliyon.2021.e07929>
- Allbeck, S. (1972). *Renovation of Educational Systems by the New Media*. 9(4), 5–14. <https://doi.org/10.1080/09523987208548680>
- Ananga, P. (2020). *Pedagogical Considerations of E-Learning in Education for Development in the Face of COVID-19*. 4(4), 310–321. <https://doi.org/10.46328/ijtes.v4i4.123>
- Baddeley, A. (1998). Working memory. *Comptes Rendus de l'Académie Des Sciences - Series III - Sciences de La Vie*, 321(2), 167–173. [https://doi.org/10.1016/S0764-4469\(97\)89817-4](https://doi.org/10.1016/S0764-4469(97)89817-4)
- Bakare, T. V. (2020). *Factors Affecting the Use of Andragogical Principles in Adult Education Programs in Lagos State, Nigeria*. 4(1), 23–34. <https://doi.org/10.47127/ijtmr.v4i1.73>
- Balaji, R. D., Lakshminarayanan, R., & Balaji, M. (2015, January). Revolutionary Hybrid E-Books for Enhanced Higher Learning. In *Cornell University*. <https://doi.org/10.48550/arxiv.1504.02092>
- Baldwin, N., & Robinson, L. (2009). Information overload: The treatment of concepts in information science. *Journal of Information Science*, 35(2), 180–191.
- Bannert, M. (2002). Managing Cognitive Load—Recent Trends in Cognitive Load Theory. Commentary. *Elsevier BV*, 12(1). <https://eric.ed.gov/?id=EJ646446>
- Bembenuatty, H. (2009). Teaching Effectiveness, Course Evaluation, and Academic Performance: The Role of Academic Delay of Gratification. *SAGE Publishing*, 20(2), 326–355. <https://doi.org/10.1177/1932202x0902000206>
- Ben-Eliyahu, A., Rhodes, J. E., & Scales, P. C. (2014). The Interest-Driven Pursuits of 15 Year Olds: “Sparks” and Their Association With Caring Relationships and Developmental Outcomes. *Taylor & Francis*, 18(2), 76–89. <https://doi.org/10.1080/10888691.2014.894414>
- Bettman, J. R., Luce, M. F., & Payne, J. W. (1998). Constructive Consumer Choice Processes. *Oxford University Press*, 25(3), 187–217. <https://doi.org/10.1086/209535>
- Bihal Khalid Khalaf, & Zin, Z. (2018). Traditional and Inquiry-Based Learning Pedagogy: A Systematic Critical Review. *International Journal of Instruction*, 11(4), 545–564. <https://doi.org/10.12973/iji.2018.11434a>
- Bloom, B. S. (1968, May). *Learning for Mastery. Instruction and Curriculum*.
- Bondareva, E., Chistyakova, G. V., Kleshevskiy, Y., Sergeev, S., & Stepanov, A. (2017). Andragogical Model in Language Training of Mining Specialists. *EDP Sciences*, 21, 04019–04019. <https://doi.org/10.1051/e3sconf/20172104019>
- Bork, A. (2001). *Adult education, lifelong learning, and the future*. 18(5), 195–203. <https://doi.org/10.1108/eum00000000006266>
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (1999, January). *How people learn: Brain, mind, experience, and school*. <https://ci.nii.ac.jp/ncid/BA41844721>
- Brazeal, K. R., & Couch, B. A. (2017). Student Buy-In Toward Formative Assessments: The Influence of Student Factors and Importance for Course Success. *American Society for Microbiology*, 18(1). <https://doi.org/10.1128/jmbe.v18i1.1235>
- Brentano, F. (2014). *Psychology from An Empirical Standpoint*. Routledge. <https://doi.org/10.4324/9781315747446>
- Brown, L. G. (1989). The Strategic and Tactical Implications of Convenience in Consumer Product Marketing. *Emerald Publishing Limited*, 6(3), 13–19. <https://doi.org/10.1108/eum00000000002550>

Campbell, C. M., Dortch, D., & Burt, B. A. (2018). Reframing Rigor: A Modern Look at Challenge and Support in Higher Education. *Wiley*, 2018(181), 11–23. <https://doi.org/10.1002/he.20267>

Cano, J. S. (2022). *Comparative Analysis of Senior High School Learners' Academic Performance in Traditional Face-to-Face and Online Distance Learning Modalities*. 4(4), 541–561. <https://doi.org/10.46328/ijonses.369>

Carlson, R., Padron, K., & Andrews, C. (2018, January). Evidence-Based Instructional Strategies for Adult Learners: A Review of the Literature. In *University of North Carolina at Chapel Hill*. <https://doi.org/10.17615/nb3h-sn15>

Carobene, A., Padoan, A., Cabitza, F., Banfi, G., & Plebani, M. (2023). Rising adoption of artificial intelligence in scientific publishing: Evaluating the role, risks, and ethical implications in paper drafting and review process. *De Gruyter*, 62(5), 835–843. <https://doi.org/10.1515/cclm-2023-1136>

Chakraborty, M., & Nafukho, F. M. (2014). Strengthening student engagement: What do students want in online courses? *Emerald Publishing Limited*, 38(9), 782–802. <https://doi.org/10.1108/ejtd-11-2013-0123>

Chen, Y. (2021). *The Effect of Remote Learning on College Students*. <https://doi.org/10.2991/assehr.k.211220.248>

Chianese, G. (2012). Assessment for Learning: A Way to Improve Continuously. *Elsevier BV*, 46, 2927–2931. <https://doi.org/10.1016/j.sbspro.2012.05.591>

Chychuk, V. (2015). Approaches to Training Teachers of Adults in the UK. *De Gruyter Open*, 5(1), 74–79. <https://doi.org/10.1515/rpp-2015-0024>

Cloete, E. (2001). Electronic education system model. *Elsevier BV*, 36(2), 171–182. [https://doi.org/10.1016/s0360-1315\(00\)00058-0](https://doi.org/10.1016/s0360-1315(00)00058-0)

Costley, J., Fanguy, M., Lange, C., & Baldwin, M. (2020). The effects of video lecture viewing strategies on cognitive load. *Springer Science+Business Media*, 33(1), 19–38. <https://doi.org/10.1007/s12528-020-09254-y>

Cross, K. P. (1981). *Adults and Learners*. Jossey-Bass.

Cross, K. P. (1992). *Adults as Learners: Increasing Participation and Facilitating Learning*. John Wiley & Sons.

Csikszentmihályi, M. (1990). Flow: The psychology of optimal experience. *Association of College and Research Libraries*, 28(01), 28–0597. <https://doi.org/10.5860/choice.28-0597>

Csikszentmihályi, M. (1997, November). *Finding flow: The psychology of engagement with everyday life (masterminds series): Mihaly csikszentmihalyi: 9780465024117: Amazon.com: Books* (Vol. 35, Issue 03, pp. 35–1828). https://www.amazon.com/Finding-Flow-Psychology-Engagement-Masterminds/dp/0465024114/ref=sr_1_1?s=books&ie=UTF8&qid=1518887840&sr=1-1&keywords=finding+flow

Csikszentmihályi, M. (2014a, January). Applications of Flow in Human Development and Education. In *Springer Nature*. <https://doi.org/10.1007/978-94-017-9094-9>

Csikszentmihályi, M. (2014b, January). Flow and the Foundations of Positive Psychology. In *Springer Nature*. <https://doi.org/10.1007/978-94-017-9088-8>

Cukurova, M., Miao, X., & Brooker, R. A. (2023, January). Adoption of Artificial Intelligence in Schools: Unveiling Factors Influencing Teachers Engagement. In *Cornell University*. <https://doi.org/10.48550/arxiv.2304.00903>

Dart, B. C., Burnett, P. C., Purdie, N., Boulton-Lewis, G. M., Campbell, J., & Smith, D. (2000). Students' Conceptions of Learning, the Classroom Environment, and Approaches to Learning. *Taylor & Francis*, 93(4), 262–270. <https://doi.org/10.1080/00220670009598715>

Defining student learning for assessment. (1999). *Wiley*, 27(1), 9–22. <https://doi.org/10.1002/aehe.3640270104>

Dong, Y. (2023). *Revolutionizing Academic English Writing through AI-Powered Pedagogy: Practical Exploration of Teaching Process and Assessment*. 4(2), 52–52. <https://doi.org/10.32629/jher.v4i2.1188>

- Dunlosky, J., Rawson, K. A., Marsh, E. J., Marsh, M. J., & Willingham, D. T. (2013). *Improving Students' Learning With Effective Learning Techniques: Promising Directions From Cognitive and Educational Psychology*. <https://journals.sagepub.com/doi/abs/10.1177/1529100612453266>
- Efgivia, M. G., Erminawati, Fitriani, E., & Herni. (2021). *Analysis of Andragogy Theory and Practice*. <https://doi.org/10.2991/assehr.k.211020.027>
- Garvin-Doxas, K., & Barker, L. (2003). Creating learning environments that support interaction. *Association for Computing Machinery*, 35(3), 276–276. <https://doi.org/10.1145/961290.961641>
- GEM Report*. (2020, May). <https://gem-report-2020.unesco.org/finance-2/>
- Gleason, B. L., Peeters, M. J., Resman-Targoff, B. H., Karr, S., McBane, S., Kelley, K. W., Thomas, T., & Denetclaw, T. H. (2011, November). An Active-Learning Strategies Primer for Achieving Ability-Based Educational Outcomes. In *Elsevier BV* (Vol. 75, Issue 9, pp. 186–186). <https://doi.org/10.5688/ajpe759186>
- Gowda, R. S., & Suma, V. (2017). *A comparative analysis of traditional education system vs. E-Learning*. <https://doi.org/10.1109/icimia.2017.7975524>
- Graesser, A. C., & D'Mello, S. K. (2012, January). Emotions During the Learning of Difficult Material. In *Elsevier BV* (pp. 183–225). <https://doi.org/10.1016/b978-0-12-394293-7.00005-4>
- Grandstaff, M. (1976). Nonformal Education: Some Indications for Use. *University of Chicago Press*, 20(3), 294–304. <https://doi.org/10.1086/445903>
- Gray, J. A., & DiLoreto, M. (2016). *The Effects of Student Engagement, Student Satisfaction, and Perceived Learning in Online Learning Environments*. 11(1), 98–119.
- Gunderman, R. B., & Wood, B. P. (2004). Trusting the student: Learner-centered education. *Elsevier BV*, 1(12), 897–900. <https://doi.org/10.1016/j.jacr.2004.05.028>
- Halpern, D. F., & Hakel, M. D. (n.d.). *Learning that Lasts a Lifetime: Teaching for Long-Term Retention and Transfer*. <https://onlinelibrary.wiley.com/doi/10.1002/tl.42>
- Han, P., Yang, L., & Xu, L. (2020). *Analysis and Optimization of Cognitive Load in the Design of Online Teaching on the Internet*. <https://doi.org/10.2991/assehr.k.200826.148>
- Hart, C. M. D., Berger, D., Jacob, B., Loeb, S., & Hill, M. (2019). Online Learning, Offline Outcomes: Online Course Taking and High School Student Performance. *SAGE Publishing*, 5(1), 233285841983285–233285841983285. <https://doi.org/10.1177/2332858419832852>
- Hattie, J., & Donoghue, G. M. (2016, August). Learning strategies: A synthesis and conceptual model. In *Nature Portfolio* (Vol. 1, Issue 1). <https://doi.org/10.1038/npjscilearn.2016.13>
- Henschke, J. A. (2011). Considerations Regarding the Future of Andragogy. *SAGE Publishing*, 22(1), 34–37. <https://doi.org/10.1177/104515951102200109>
- Hikmah, R. K. A., & Wahyuni, S. (2020). *Implementation of Andragogy Approaches in Training Tourism to Develop Tourist Village*. <https://doi.org/10.2991/assehr.k.201204.059>
- Ho, Y. Y., & Lim, W. Y. (2020, January). Educating Adult Learners: Bridging Learners' Characteristics and the Learning Sciences. In *Springer Nature* (pp. 97–115). https://doi.org/10.1007/978-981-15-1628-3_4
- Holley, L. C., & Steiner, S. (2005). SAFE SPACE: STUDENT PERSPECTIVES ON CLASSROOM ENVIRONMENT. *Taylor & Francis*, 41(1), 49–64. <https://doi.org/10.5175/jswe.2005.200300343>
- Holton, E. F., Swanson, R. A., & Naquin, S. S. (2008). Andragogy in Practice: Clarifying the Andragogical Model of Adult Learning. *Wiley*, 14(1), 118–143. <https://doi.org/10.1111/j.1937-8327.2001.tb00204.x>
- Holton, E. F., Wilson, L. S., & Bates, R. (2009). Toward development of a generalized instrument to measure andragogy. *Wiley*, 20(2), 169–193. <https://doi.org/10.1002/hrdq.20014>
- Hughes, Y. (2017). SMART tips for setting teaching objectives. *SAGE Publishing*, 10(10), 614–617. <https://doi.org/10.1177/1755738017720229>
- Jakubik, M. (2020). Quo Vadis Educatio? Emergence of a New Educational Paradigm. *International Institute of Informatics and Cybernetics*, 18(5), 7–15.

Justice, D. O., & Marienau, C. (1988). Self-assessment: Essential skills for adult learners. *Wiley*, 1988(35), 49–62. <https://doi.org/10.1002/tl.37219883506>

Kahn, P., Everington, L., Kelm, K. M., Reid, I., & Watkins, F. (2016). Understanding student engagement in online learning environments: The role of reflexivity. *Springer Science+Business Media*, 65(1), 203–218. <https://doi.org/10.1007/s11423-016-9484-z>

Katuk, N. (2013). Progressive assessment of student engagement with web-based guided learning. *Emerald Publishing Limited*, 10(2), 116–129. <https://doi.org/10.1108/itse-11-2012-0023>

Katz, E., Blumler, J. G., & Gurevitch, M. (1973). Uses and Gratifications Research. *Public Opinion Quarterly*, 37(4), 509–523.

Kearney, S., & Maakrun, J. (2020). Let's Get Engaged: The Nexus between Digital Technologies, Engagement and Learning. *Multidisciplinary Digital Publishing Institute*, 10(12), 357–357. <https://doi.org/10.3390/educsci10120357>

Kee, C. L., & Emmanuel, J. S. (2020). *Digital Immigrants in a Blended Learning Environment: A Case Study in Malaysia*. 2(3), p28–p28. <https://doi.org/10.22158/wjeh.v2n3p28>

Keller, J. M. (2016). *Motivation, Learning, and Technology: Applying the ARCS-V Motivation Model*. 3(2), 1–15. <https://doi.org/10.17275/per.16.06.3.2>

Khadka, J. (2020). Andragogy: Process and Context Based (PCB) Model for Adult Learners. *IISTE*. <https://doi.org/10.7176/jaas/63-04>

King, W. R. (2005). An androgogy model for IS and management education. *Inderscience Publishers*, 1(3), 186–186. <https://doi.org/10.1504/ijkl.2005.007756>

Knowles, M. S., Holton III, E. F., & Swanson, R. A. (2015). *The adult learner: The definitive classic in adult education and human resource development*. Routledge.

Kross, S., Hargittai, E., & Redmiles, E. M. (2021). Characterizing the Online Learning Landscape. *Association for Computing Machinery*, 5(CSCW1), 1–19. <https://doi.org/10.1145/3449220>

Laird, T. F. N., Shoup, R., Kuh, G. D., & Schwarz, M. (2008). The Effects of Discipline on Deep Approaches to Student Learning and College Outcomes. *Springer Science+Business Media*, 49(6), 469–494. <https://doi.org/10.1007/s11162-008-9088-5>

Lim, L., & Ho, Y. Y. (2022). Supporting Student Learning Needs in Tertiary Education: Institutional Support Structures Based on the Institutional Support Questionnaire. *Multidisciplinary Digital Publishing Institute*, 12(8), 277–277. <https://doi.org/10.3390/bs12080277>

Lin, Z. (2024). Techniques for supercharging academic writing with generative AI. *Nature Portfolio*. <https://doi.org/10.1038/s41551-024-01185-8>

Liu, T.-C., & Lin, P.-H. (2011). What comes with technological convenience? Exploring the behaviors and performances of learning with computer-mediated dictionaries. *Computers in Human Behavior*, 27(1), 373–383. <https://doi.org/10.1016/j.chb.2010.08.016>

Lockhart, R. S., & Craik, F. I. M. (1990). Levels of processing: A retrospective commentary on a framework for memory research. *Canadian Journal of Psychology / Revue Canadienne de Psychologie*, 44(1), 87–112. <https://doi.org/10.1037/h0084237>

Longenecker, C. O., & Abernathy, R. (2013). The eight imperatives of effective adult learning. *Emerald Publishing Limited*, 21(7), 30–33. <https://doi.org/10.1108/hrmid-10-2013-0090>

Lowry, O., Rosebrough, N., Farr, A., & Randall, R. (1951). PROTEIN MEASUREMENT WITH THE FOLIN PHENOL REAGENT. *Elsevier BV*, 193(1), 265–275. [https://doi.org/10.1016/s0021-9258\(19\)52451-6](https://doi.org/10.1016/s0021-9258(19)52451-6)

Maloney, S., Axelsen, M., Stone, C., Galligan, L., Redmond, P., Brown, A., Turner, J., & Lawrence, J. (2023). Defining and exploring online engagement fatigue in a university context. *Elsevier BV*, 4, 100139–100139. <https://doi.org/10.1016/j.caeo.2023.100139>

Manz, C. C., & Manz, K. P. (1991). Strategies for facilitating self-directed learning: A process for enhancing human resource development. *Wiley*, 2(1), 3–12. <https://doi.org/10.1002/hrdq.3920020103>

- Martin, S. (2014). Measuring cognitive load and cognition: Metrics for technology-enhanced learning. *Routledge*, 20(7–8), 592–621. <https://doi.org/10.1080/13803611.2014.997140>
- Martinez, C. T., & Scott, C. (2016). *Trail and Ultrarunning: The Impact of Distance, Nature, and Personality on Flow and Well-Being*. 21(1), 6–15. <https://doi.org/10.24839/2164-8204.jn21.1.6>
- McAuliffe, M. J., Hargreaves, D. J., Winter, A., & Chadwick, G. (2009). Does Pedagogy Still Rule? *Taylor & Francis*, 15(1), 13–18. <https://doi.org/10.1080/22054952.2009.11464018>
- McCarthy, K. S., Crossley, S. A., Meyers, K., Boser, U., Allen, L. K., Chaudhri, V. K., Collins-Thompson, K., D’Mello, S. K., Choudhury, M. D., Garg, K., Goel, A. K., Gosha, K., Heffernan, N. T., Hooper, M. A., Hyman, E., Jarratt, D. C., Khalil, D., Kizilcec, R. F., Litman, D., ... Zampieri, M. (2022). Toward more effective and equitable learning: Identifying barriers and solutions for the future of online education. *American Psychological Association*, 3(1). <https://doi.org/10.1037/tmb0000063>
- Medicine, N. A. of S., Engineering, and, Education, D. of B. and S. S. and, Education, B. on S., Sciences, B. on B., Cognitive, and Sensory, & Learning, C. on H. P. L. I. T. S. and P. of. (2018). *How People Learn II: Learners, Contexts, and Cultures*. National Academies Press.
- Michelene, T. H., & Wylie, R. (2014). The ICAP Framework: Linking Cognitive Engagement to Active Learning Outcomes. *Routledge*, 49(4), 219–243. <https://doi.org/10.1080/00461520.2014.965823>
- Milligan, F. (1995). In defence of andragogy. *Elsevier BV*, 15(1), 22–27. [https://doi.org/10.1016/s0260-6917\(95\)80074-3](https://doi.org/10.1016/s0260-6917(95)80074-3)
- Millikin, C. C. (2023). *Future-Proof your Instructional Design with Universal Design for Learning and Translanguaging*. 14(1), 3709–3720. <https://doi.org/10.20533/licej.2040.2589.2023.0488>
- Minutillo, S., Cleary, M., & Visentin, D. (2020). The Mental Health of Online Learners within the Educational Sector. *Taylor & Francis*, 41(10), 963–965. <https://doi.org/10.1080/01612840.2020.1776552>
- Mohammadkarimi, E. (2023). Teachers’ reflections on academic dishonesty in EFL students’ writings in the era of artificial intelligence. *Canadian Philosophy of Education Society*, 6(2). <https://doi.org/10.37074/jalt.2023.6.2.10>
- Mohammed, P., & Watson, E. (2019, January). Towards Inclusive Education in the Age of Artificial Intelligence: Perspectives, Challenges, and Opportunities. In *Springer Nature* (pp. 17–37). https://doi.org/10.1007/978-981-13-8161-4_2
- Mollenkopf, D. L., Gaskill, M., Nelson, R. M., & Diaz, C. C. (2020). Navigating a “New Normal” During the COVID-19 Pandemic: College Student Perspectives of the Shift to Remote Learning. *Centre de Recherche Interuniversitaire Sur La Formation et La Profession Enseignante*, 17(2), 67–79. <https://doi.org/10.18162/ritpu-2020-v17n2-08>
- Morocco, C. C., & Aguilar, C. M. (2002). Coteaching for Content Understanding: A Schoolwide Model. *Taylor & Francis*, 13(4), 315–347. https://doi.org/10.1207/s1532768xjepc1304_04
- Morrison, G. R., & Anglin, G. J. (2005). Research on cognitive load theory: Application to e-learning. *Springer Science+Business Media*, 53(3), 94–104. <https://doi.org/10.1007/bf02504801>
- Naddeo, A., Califano, R., & Fiorillo, I. (2021). Identifying factors that influenced wellbeing and learning effectiveness during the sudden transition into eLearning due to the COVID-19 lockdown. *Work*, 68(1), 45–67. <https://doi.org/10.3233/WOR-203358>
- Nedungadi, P., Devenport, K., Sutcliffe, R., & Raman, R. (2020). Towards a digital learning ecology to address the grand challenge in adult literacy. *Taylor & Francis*, 31(1), 383–396. <https://doi.org/10.1080/10494820.2020.1789668>
- Olla, P., Elliott, L., Abumeeiz, M., Mihelich, K., & Olson, J. (2024). Promptology: Enhancing Human–AI Interaction in Large Language Models. *Information*, 15(10), Article 10. <https://doi.org/10.3390/info15100634>
- Onwuegbuchulam, S. P. C. (2021, January). *Chapter Towards a Theory of Education for Social Change: Exploring the Nexus between Transformational Education and the Capability Approach*.

- Paas, F., Gog, T. van, & Sweller, J. (2010). Cognitive Load Theory: New Conceptualizations, Specifications, and Integrated Research Perspectives. *Springer Science+Business Media*, 22(2), 115–121. <https://doi.org/10.1007/s10648-010-9133-8>
- Peacock, S., & Cowan, J. (2016). From Presences to Linked Influences Within Communities of Inquiry. *Athabasca University Press*, 17(5). <https://doi.org/10.19173/irrodl.v17i5.2602>
- Pembridge, J., & Paretti, M. (2013). *Student perceptions of andragogical orientation and student learning*. <https://doi.org/10.1109/fie.2013.6684789>
- Peters, V., & Hewitt, J. (2010). An investigation of student practices in asynchronous computer conferencing courses. *Elsevier BV*, 54(4), 951–961. <https://doi.org/10.1016/j.compedu.2009.09.030>
- Phan, H. P., & Ngu, B. H. (2021, January). Perceived ‘optimal efficiency’: Theorization and conceptualization for development and implementation. In *Elsevier BV* (Vol. 7, Issue 1, pp. e06042–e06042). <https://doi.org/10.1016/j.heliyon.2021.e06042>
- Picciano, A. G. (2009). *Blending with Purpose: The Multimodal Model*. 5(1), 4–14.
- Popenici, Ş., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Springer Nature*, 12(1). <https://doi.org/10.1186/s41039-017-0062-8>
- Purwati, D., Purwati, D., Nurhasanah, E., & Ramli, R. (2022, January). *The Six Characteristics of Andragogy and Future Research Directions in EFL: A Literature Review* (Vol. 4, Issue 1). <https://doi.org/10.31849/elsya.v4i1.7473>
- Qadir, J., & Imran, M. A. (2018). Learning 101: The Untaught Basics. *Institute of Electrical and Electronics Engineers*, 37(3), 33–38. <https://doi.org/10.1109/mpot.2017.2749408>
- Rayanto, Y. H., Supriyo, & Sugianti. (2020). *Applying Obejectivist Instructional Design of Addie Model on Learning Reading Comprehension*. <https://doi.org/10.2991/assehr.k.201017.175>
- Revans, R. W. (2008). Sketches in Action Learning. *Wiley*, 11(1), 23–27. <https://doi.org/10.1111/j.1937-8327.1998.tb00075.x>
- Richardson, D. R., & Birge, B. (1995). Teaching physiology by combined passive (pedagogical) and active (andragogical) methods. *American Physical Society*, 268(6), S66–S66. <https://doi.org/10.1152/advances.1995.268.6.s66>
- Rismiyanto, Saleh, M., Mujiyanto, J., & Warsono, W. (2018). The Effectiveness of Andragogically Oriented Teaching Method to Improve the Male Students’ Achievement of Teaching Practice. *Canadian Center of Science and Education*, 11(2), 113–113. <https://doi.org/10.5539/elt.v11n2p113>
- Roddy, C., Amiet, D., Chung, J., Holt, C., Shaw, L., McKenzie, S., Garivaldis, F., Lodge, J. M., & Mundy, M. (2017). Applying Best Practice Online Learning, Teaching, and Support to Intensive Online Environments: An Integrative Review. *Frontiers Media*, 2. <https://doi.org/10.3389/feduc.2017.00059>
- Roediger, H. L., & McDermott, K. B. (2019). Remembering What We Learn. *National Institutes of Health*, 2018. <https://pubmed.ncbi.nlm.nih.gov/30746021>
- Rutherford, R. H. (2004). *Andragogy in the information age educating the IT adult learner*. 282–282. <https://doi.org/10.1145/1029533.1029615>
- Sánchez-Franco, M. J., Peral, B. P., & Ramos, Á. F. V. (2014). Users’ intrinsic and extrinsic drivers to use a web-based educational environment. *Elsevier BV*, 74, 81–97. <https://doi.org/10.1016/j.compedu.2014.02.001>
- Schmidt, M., Earnshaw, Y., Tawfik, A. A., & Jahnke, I. (2020). *Methods of User Centered Design and Evaluation for Learning Designers*. https://edtechbooks.org/ux/ucd_methods_for_lx/pdf_router/print
- Schüler, J. (2007). Arousal of Flow Experience in a Learning Setting and Its Effects on Exam Performance and Affect. *Hogrefe Verlag*, 21(3/4), 217–227. <https://doi.org/10.1024/1010-0652.21.3.217>
- Sealana, R. K. (2014). *Examining the Efficacy of Adult Learning of Government-Mandated Content Using Andragogical Delivery Methods versus Traditional Pedagogical Delivery Methods*.

Sealana, R. K. (2015, May). *The Convenience Factor in Continuing Education and Adult Learning* [Conference presentation]. 2015 California Conference for Adult Education State Conference, Adult Education: Agent for Change, Universal City, CA.

Seo, K., Tang, J., Roll, I., Fels, S., & Yoon, D. (2021). The impact of artificial intelligence on learner–instructor interaction in online learning. *Springer Nature*, 18(1). <https://doi.org/10.1186/s41239-021-00292-9>

Sequeira, A. H. (2012). Introduction to Concepts of Teaching and Learning. *RELX Group (Netherlands)*. <https://doi.org/10.2139/ssrn.2150166>

Shaikh, U. U., & Asif, Z. (2022, May). Persistence and Dropout in Higher Online Education: Review and Categorization of Factors. In *Frontiers Media* (Vol. 13). <https://doi.org/10.3389/fpsyg.2022.902070>

Shernof, D. J., Ruzek, E., Sannella, A. J., Schorr, R. Y., Sanchez-Wall, L., & Bressler, D. M. (2017). Student Engagement as a General Factor of Classroom Experience: Associations with Student Practices and Educational Outcomes in a University Gateway Course. *Frontiers Media*, 8. <https://doi.org/10.3389/fpsyg.2017.00994>

Shuell, T. J. (1992). Learning Theory and Instructional Design: Engaging the Learner in Meaningful Ways. *Brill*, 12(2), 1–10. <https://doi.org/10.1080/02188799208547687>

Silalahi, S. A., Zainal, A., & Sagala, G. H. (2022). The Importance of Deep Learning on Constructivism Approach. *Atlantis Press*. <https://doi.org/10.2991/aebmr.k.220104.036>

Simon, H. A. (1955). A behavioral model of rational choice. *The Quarterly Journal of Economics*, 69(1), 99–118.

Sweller, J. (2011). Cognitive Load Theory. In *Psychology of Learning and Motivation* (Vol. 55, pp. 37–76). Elsevier. <https://doi.org/10.1016/B978-0-12-387691-1.00002-8>

Sweller, J., Merriënboer, J. J. G. van, & Paas, F. (2019). Cognitive Architecture and Instructional Design: 20 Years Later. *Springer Science+Business Media*, 31(2), 261–292. <https://doi.org/10.1007/s10648-019-09465-5>

Taghap, R. S. (2023). Barriers to science learning and science academic performance: A case of online learners residing far from school. *GSC Online Press*, 19(1), 1363–1367. <https://doi.org/10.30574/wjarr.2023.19.1.1480>

Torcasio, S., & Sweller, J. (2009). The use of illustrations when learning to read: A cognitive load theory approach. *Wiley*, 24(5), 659–672. <https://doi.org/10.1002/acp.1577>

Tzafilkou, K., Perifanou, M., & Economides, A. A. (2022). Development and validation of students' digital competence scale (SDiCoS). *Springer Nature*, 19(1). <https://doi.org/10.1186/s41239-022-00330-0>

Urueta, S. H. (2023). Challenges Facing the Adoption of VR for Language Education: Evaluating Dual-Frame System Design as a Possible Solution. *International Journal of Information and Education Technology*, 13(6), 1001–1008. <https://doi.org/10.18178/ijiet.2023.13.6.1898>

Uskov, V. (2004). *Student-centered learning in online and blended education on computer information systems*. <https://doi.org/10.1109/fie.2003.1263391>

Wahyuni, D. (2021). *Increasing Teachers' Capabilities in Distance Learning Using the Google Classroom Application Through Personal Assistance of Teachers in Kempong Kalibawang, Lulon Progo District, 2020/2021*. 105–112. <https://doi.org/10.20885/ijcer.vol5.iss2.art9>

Watkins, C., Treviranus, J., & Roberts, V. (2020). *Inclusive Design for Learning: Creating Flexible and Adaptable Content with Learners*. <http://oasis.col.org/handle/11599/3690>

West, S., Visentin, D., & Cleary, M. (2020). Motivation for a Successful Health Career. *Taylor & Francis*, 41(11), 1051–1053. <https://doi.org/10.1080/01612840.2020.1826872>

Wong, L.-H., Chan, T.-W., Chen, W., Looi, C.-K., Chen, Z.-H., Liao, C. C. Y., King, R. B., & Wong, S. L. (2020). IDC theory: Interest and the interest loop. *Springer Nature*, 15(1). <https://doi.org/10.1186/s41039-020-0123-2>

Xie, H., Chu, H.-C., Hwang, G.-J., & Wang, C.-C. (2019, June). Trends and development in technology-enhanced adaptive/personalized learning: A systematic review of journal publications from 2007 to 2017. In *Elsevier BV* (Vol. 140, pp. 103599–103599). <https://doi.org/10.1016/j.compedu.2019.103599>

Ye, P., & Xu, X. (2023). A case study of interdisciplinary thematic learning curriculum to cultivate “4C skills.” *Frontiers Media, 14*. <https://doi.org/10.3389/fpsyg.2023.1080811>

Zhang, A., Li, Z., & Li, Z. (2018). *The Basic Strategy of Academic Management in Undergraduate Universities*. <https://doi.org/10.2991/mmetss-18.2018.66>

Zhao, L., Ao, Y., Wang, Y., & Wang, T. (2022). Impact of Home-Based Learning Experience During COVID-19 on Future Intentions to Study Online: A Chinese University Perspective. *Frontiers Media, 13*. <https://doi.org/10.3389/fpsyg.2022.862965>