

Digital Wellness Framework for Online Learning

Cadre pédagogique pour le bien-être numérique de l'apprentissage en ligne

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Abstract

The ever-changing digital context, digital habits and pressures, demands and practices, often contribute to online learners experiencing burnout, stress, fatigue, sleep deprivation, cognitive overwhelm, and work-life imbalance, just to mention a few issues identified in literature. With the rise of online learning offerings, an increasing number of educators across diverse contexts and disciplines are faced with questions pertaining to the optimal experience and design for online learning. Current research has highlighted both positive and negative impacts of teaching and learning in the digital space. This online learning design debate has identified a need for practices that contribute to the holistic wellbeing of learners rather than merely cognitive outcomes. There is a need for an evidence-based pedagogical framework centred on wellbeing that enables the creation of learning “by design”. This research, applying secondary data analysis and a mindfulness-informed lens, results in such a framework, i.e., the DW-FOLD: Digital Wellness Framework for Online Learning – to guide intentional use of technology and online learning pedagogical principles that ensure active and meaningful learning while using technology for the good of all learners.

Keywords: digital wellbeing; digital wellness; framework; instructional design; online learning design

Résumé

Le fait que le monde numérique en constante évolution crée des habitudes, exerce de la pression et impose des exigences et des pratiques a pour effet de contribuer à ce que les apprenants en ligne souffrent, dans bien des cas, d'épuisement professionnel, de stress, de fatigue, de surcharge cognitive, ou alors que cela perturbe leur équilibre travail-vie personnelle ou leur sommeil, pour ne mentionner que quelques problèmes recensés dans la littérature. Avec l'essor des offres d'apprentissage en ligne, un nombre croissant d'éducateurs issus de différents milieux et disciplines sont confrontés à des questions

relatives à l'expérience de l'apprentissage en ligne et à la façon de la concevoir. Les recherches actuelles ont mis en lumière les effets positifs et négatifs de l'enseignement et de l'apprentissage dans la sphère numérique. Ce débat sur la conception de l'apprentissage en ligne a permis de comprendre que les apprenants avaient besoin de pratiques qui contribueraient davantage à leur bien-être global plutôt que de simples améliorations sur le plan cognitif. Il est nécessaire de mettre en place un cadre pédagogique fondé sur des données probantes et axé sur le bien-être qui permet la création d'un apprentissage « par conception ». Cette étude qui s'appuie sur une analyse de données secondaires et sur une approche de la pleine conscience a abouti à un tel cadre, c'est-à-dire le cadre pédagogique pour le bien-être numérique de l'apprentissage en ligne (DW-FOLD : Digital Wellness Framework for Online Learning), dont la visée est d'orienter l'utilisation de la technologie et le recours à des principes pédagogiques en ligne qui garantissent un apprentissage actif et significatif par le biais de la technologie, et ce pour le bien de tous les apprenants.

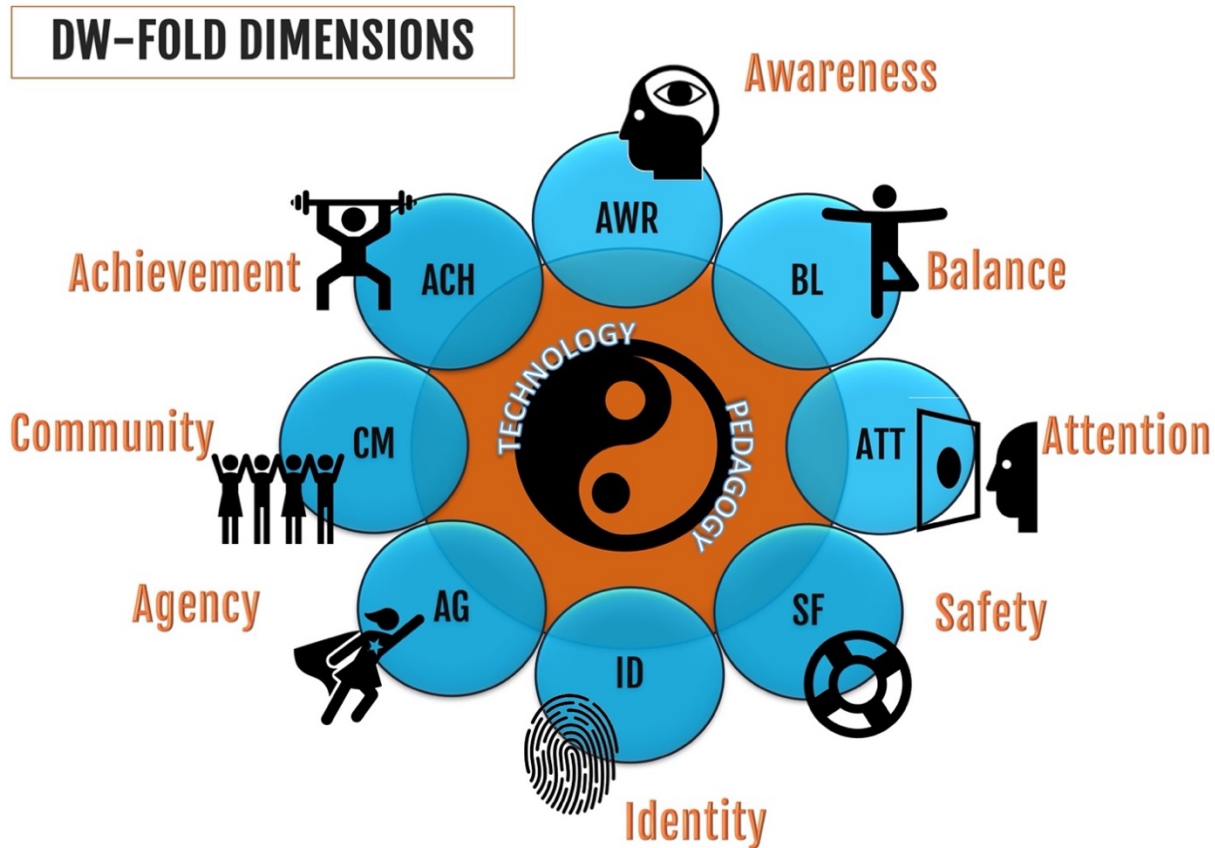
Mots-clés : bien-être numérique; mieux-être numérique; cadre; conception pédagogique; conception de l'apprentissage en ligne

Introduction

This article presents the Digital Wellness Framework for Online Learning Design (DW-FOLD). As an evidence-based practice-oriented framework, DW-FOLD aims to guide instructional designers in reframing online learning curriculum, both in content and delivery to promote the holistic wellbeing of higher education (HE) digital learners which in turn promotes successful learning outcomes. The DW-FOLD has evolved out of three consecutive qualitative studies completed between 2018 and 2020 in graduate courses at a Canadian online university (Palalas, 2019; Palalas & Wark, 2020; Palalas et al., 2020) supported by a systematic literature review by the authors in 2021- 2023. Drawing on HE graduate students' feedback from the three studies, DW-FOLD has identified eight dimensions with accompanying strategies: awareness, balance, attention, safety, identity, agency, community, and achievement (Figure 1).

Figure 1

Dimensions of DW-FOLD: Digital Wellness Framework for Online Learning Design



Note. Awareness icon (Self-Awareness – Icon by [Adioma](#), 2024).

Methodology

Through secondary data analysis and a systematic literature review, the following steps were completed: identify and define the various aspects of and what constitutes digital wellness in online higher education learners; determine what beliefs, attitudes, and digital habits contribute to or deter digital wellness among online HE learners (excluding those aspects that have been proven non-essential to learner success and wellbeing); identify how the various dimensions interact/interrelate; review related existing frameworks and how they integrate the constituent parts into a whole-person pedagogical approach, if at all; discuss the eight dimensions in the DW-FOLD accompanied by online learning strategies and activities for HE courses that seek to promote successful learning while ensuring digital wellness.

Research Questions

The overarching research question is as follows:

What are the constituent dimensions of the Digital Wellness Framework for Online Learning Design (DW-FOLD) for higher education?

The sub-questions are:

- (1) What are the characteristics and relations of the essential constituents of digital wellness?
- (2) What factors, strategies, and habits (including digital habits and digital contexts) contribute to or deter digital wellness among online higher education learners?
- (3) What online learning practices/strategies can promote the essential dimensions of digital wellness to be included in the framework?

Method

Context

The study is situated in graduate level courses in a Canadian online university and focuses on the course-level curriculum/learning design, i.e., the content, delivery, and technology choices that are in control of the instructor. We appreciate the ubiquitous importance of the larger organizational environment and its impacts, including the university technological infrastructure, digital policies and practices, the level of digital security at the university level, IT support, and so on; however, their inclusion would require a dedicated study.

Secondary Data Analysis

As stated earlier, the foundational investigation was sourced from a secondary data analysis of a qualitative anonymized dataset obtained through interviews with nine online learners in the Master of Education program in three previous studies (Palalas, 2019; Palalas & Wark, 2020; Palalas et al., 2020) including the unpublished systematic literature review conducted by the authors as part of this study (2021-2023). The participants of the three studies were mature students working as teachers and/or online learning designers in K-12, higher education, and workplaces representing three diverse cultural backgrounds. Two participants were long-term mindfulness practitioners, the other seven were introduced to mindfulness-informed practices and contemplative pedagogy during their graduate course taught by the first author. The anonymized interview transcripts were aggregated into an NVivo project and thematic analysis was conducted to identify the key dimensions of what respondents considered to constitute the experience of learners' digital wellness. Multiple iterations of individual as well as shared exploration and analysis were completed to refine the codes and the resulting main themes (Table 1); this ensured rigour and accuracy in the coding process.

Guided by the research questions and the mindfulness-based conceptual lens, the eight key themes were further redefined based on the informed exploration (literature review) and the relationships between the eight framework dimensions as described by the respondents. Aiming to create

an applied guide for online learning design, the dataset was also coded for factors that contribute to or deter digital wellness with practical strategies.

Literature Review

This qualitative study includes a comprehensive literature review seeking to identify relevant studies and theoretical frameworks reported in the last decade (2013-2023) in electronically published peer-reviewed English language journals and conference papers. The following databases include: Science Direct, Springer, ACM, Taylor and Francis, Web of Science Core Collection, and Google Scholar search engine. Additional search involves doctoral dissertations and books found in the Proquest Dissertations and Web of Science Core Collection databases. Combinations of keywords related to the research questions were used for finding relevant studies.

Findings

Table 1 summarizes the codes assigned to the feedback collected from students in response to the interview questions that pertained to their online learning experience characterized as beneficial to their holistic wellness. Subsequently, the codes are grouped thematically and (re-)labelled to reflect their common focus. Table 1 shows the eight themes which reveal the various interrelated dimensions of the proposed DW-FOLD.

Table 1

Themes and Codes

Themes	Codes With Cross-Referenced Mutuality in the Themes (included in brackets)
Awareness (AWR)	noticing, observing, accepting, reflecting, insight, awareness of our experiences via feelings, attention, habits
Balance (BL)	purposeful choices (AG), guided options/choices (AG), priorities (ACH, AG), intentionality (AG), essentialism, time balance, use of resources, learning path resiliency, quality over quantity
Attention (ATT)	focus, concentration, task switching, presence, depth versus breadth, engagement in the task at hand, contemplation, deep listening
Safety (SF)	trust, being cared for, respect, being seen for who you are, respect for individual differences/diversity (ACH, CM, ID), digital citizenship (ID), vulnerability (CM, ID)

Themes	Codes With Cross-Referenced Mutuality in the Themes (included in brackets)
Identity (ID)	authenticity, individual differences/diversity (ACH, CM, SF) digital persona, digital citizenship (SF), personal and professional life, whole person identity, socio-emotional needs, self-compassion, showing up (AG), projected/seen/preferred view of the self/self-image, vulnerability (CM, SF)
Agency (AG)	showing up (ID), purposeful choices (BL), (guided) options/choices (BL), setting goals/priorities (ACH, BL), intentionality (BL), clear purpose, self-regulation (ACH), self-regulated learning, meaningful learning, awareness-based humble curiosity, empowered engagement
Community (CM)	reciprocity, cooperation, respect, cohort model, competition versus collaboration, empathy and compassion, interaction, individual differences/diversity (ACH, ID, SF), vulnerability (ID, SF)
Achievement (ACH)	accomplishment, progress, productivity, satisfaction, self-regulation (AG), qualitative versus quantitative approach, setting goals/priorities (AG, BL), individual diversity (CM, ID, SF), different prior knowledge, growth/evolution

Existing Frameworks

While there are a number of related frameworks and models, none of them address curriculum/instructional design in the online learning context and how it impacts learners' holistic health. For the sake of brevity, only three of the examined frameworks are mentioned: The Mental Health Continuum by (Keyes, 2002, pp. 207–222) has been considered. The Mental Health Continuum refers to emotional, psychological, and social wellbeing (Keyes, 2002) and has been commonly used in measuring student wellbeing in post-secondary contexts (Canadian Association of College & University Student Services, 2013). Also studied was the Digital Flourishing® model designed by Digital Wellness Collective (2020), which speaks to digital practices the Collective identifies as essential: productivity, environment, communication, relationships, mental health, physical health, the quantified self, and digital citizenship. The Contemplative Technopedagogy Framework was considered, which encourages “scholars and practitioners to thoughtfully engage in technopedagogical decisions at all scales or any site within contemporary higher education” (Shanks, 2020, "Conclusion"). Online learning necessitates higher levels of digital space engagements invoking pressures that require a unique set of digital habits and practices to maintain a well-balanced use of technology. As represented in the pedagogy-technology yin-yang symbol within the DW-FOLD sphere (Figure 1), this research seeks to develop a framework attentive to complementary and interdependent technological and pedagogical principles within the sphere of integrated mindfulness-based practices.

Mindfulness

The reported research was built on studies which employed mindfulness-informed learning approaches. Mindfulness has been universally accepted as a positive and useful attitude and practice for supporting more successful learning. Stemming from two historical streams now widely acclaimed, one that is 2500 years old from traditional Buddhist science, and one that is 25 years old from Jon Kabat-Zinn's Mindfulness-Based Stress Reduction course (1996). These origins go beyond isolating psychological or physiological aspects of wellness but rather purport wholeness of being at the root of health.

The broadly accepted definition of mindfulness by Kabat-Zinn (1996) has been applied in our study: "The awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment to moment" (Kabat-Zinn, 2003, pp. 144–156). This definition suggests that mindfulness is about the achievement of clearer experience in the present moment through the purposeful utilization of awareness and attention. Informed by the mindfulness perspective, DW-FOLD aspires to support learner presence in their learning journey (both online and offline); where a balanced attitude emerges from empowerment, right optimism, and realism based on aware and intentional choice (Langer, 1993). Such approach is underpinned by the thoughtful selection of the pedagogical curriculum.

Pedagogy

In terms of its pedagogical underpinnings, the explored online learning design drew on the intersection of pedagogy of care (Burke et al., 2022; Burke & Larmar, 2021; Noddings, 2008; Zygmunt et al., 2018), contemplative pedagogy (Barbezat & Bush, 2013; Palmer, 2017; Zajonc, 2013), and constructivist approaches (Mayer, 2008; Piaget, 1972; Vygotsky, 1980). The key goal of these studied pedagogical approaches was to guide and motivate learners towards "being present" (Jeffrey et al., 2023) while constructing individual and collective learning experiences. It follows then that they would be able to interact fully at every point of their journey, out of choice, knowing that while it is their responsibility to engage, they can rely on their community of learners and their facilitator for support. Learning involves change and emergence that requires the right environment of support, trust, and belonging.

Definition of Digital Wellness

The notion of digital wellness has gained relevance as learners and teachers have been engaging with an increasing number of digital spaces, content, and tools, including artificial intelligence assistants. The definition and understanding of digital wellness, also referred to as digital wellbeing, varies among researchers and experts. In general, it pertains to an individual's overall health and quality of experience in the context of their digital and online activities. It involves achieving a balanced and mindful approach to using digital technologies to enhance one's physical, mental, cognitive, spiritual, and emotional health (e.g., Al-Mansoori et al., 2023; Roffarello & De Russis, 2023). In the context of online higher education, based on previous research and publications (Palalas, 2019; Palalas & Wark,

2020) and guided by the Digital Wellness Collective (2020) definition, the following definition was developed:

Digital wellness in online learning refers to the optimum state of holistic health, individual achievements, and social fulfilment that each learner using technology is capable of attaining while engaged in online learning.

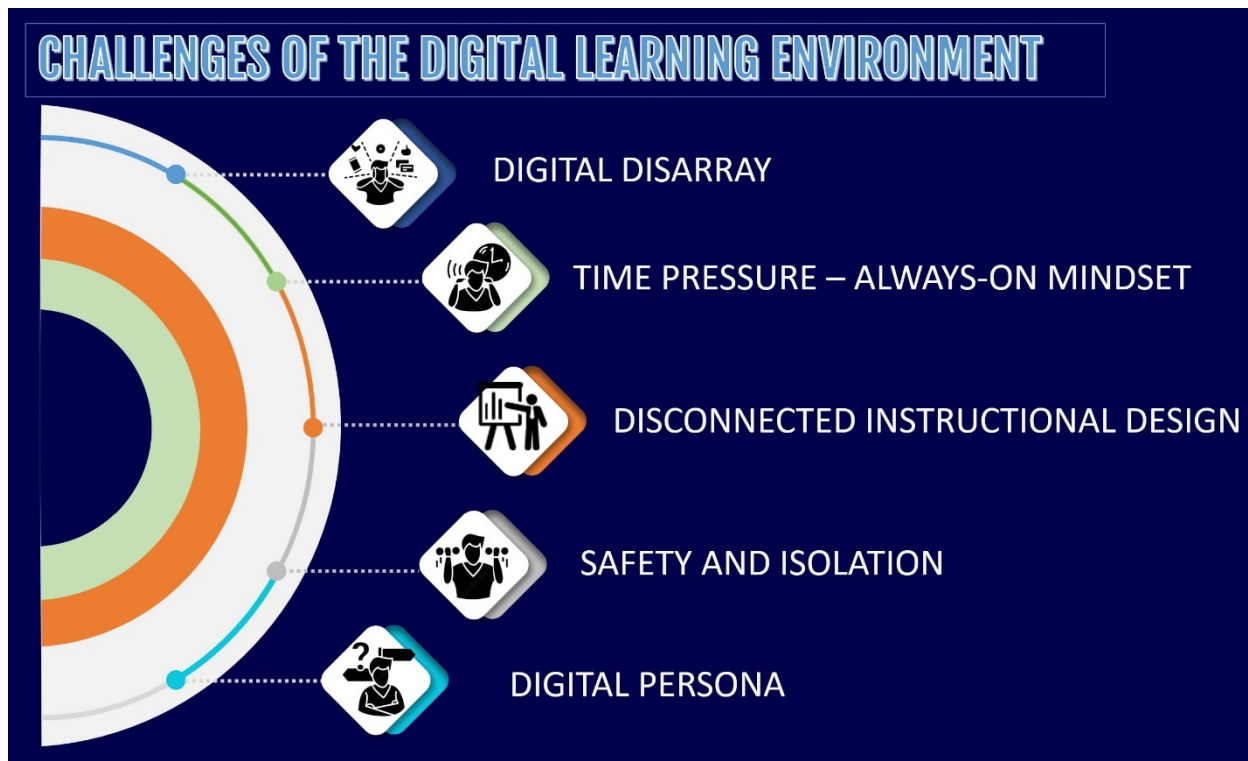
It is a state of holistic wellness (noun) that requires a conscious and intentional management of one's digital technology use that supports thriving as learners (and instructors) in online learning environments. It requires an ongoing practice of digital wellbeing (verb) – developing and sustaining healthy digital habits, maintaining a balanced relationship with technology, as well as minimizing the negative impacts of excessive screen time, digital distractions, and digital overwhelm. As per the Digital Flourishing® perspective, this holistic approach mitigates some of the harms of technology while empowering us to take advantage of its benefits (Digital Wellness Institute, n.d.).

Challenges of the Online Learning Environment

Environmental factors along with personal habits and choices often deter digital wellness among online HE learners. The following sub-sections briefly summarize the issues highlighted by the research participants and the literature (Figure 2).

Figure 2

Challenges of the Online Learning Environment



Digital Disarray

Many live overwhelmingly distracted lives, dealing with multiple roles and responsibilities within a digital forest of choices, tools, fake and real information, hyper-personal and de-personalized content; generative artificial intelligence; technology which inconsistently assists, confuses, even threatens...openly or in disguise. Economic and political agendas prevail surreptitiously via the Internet. As such, digital disarray suggests overwhelm and confusion are often related to digital technology misuse or overuse (Pegrum & Palalas, 2021).

As a result, attention may be challenged by information overload, the abundance of choice, the demands to operate numerous apps and tools simultaneously, a multiplicity of oral and visual stimuli as well as built-in algorithms and seductive design of digital technology. Unfortunately, digital information has led to the creation of these new distractibility habits through overwhelm, overuse, and overload (Mark, 2023) – attenuating the ability to connect with ourselves and others. If we already have a propensity to procrastinate, this cocktail of digital disarray can nullify our learning efforts and leave us discouraged as HE students. For a HE student, who acutely needs to access deep and critical thinking processes while online, digital disarray is a danger to their success and achievement.

Students need to be able to come into a course and leave these worries at the door so that they can engage in the learning process holistically. Moreover, they need to be aware of the benefits as well as challenges of the digital world so that they can make the right choices and develop the right digital literacies and habits. This starts with being able to discern reliable information from misinformation in the era of infodemic (a deluge of information) (Hua & Shaw, 2020; Scheibenzuber et al., 2021).

Time Pressure

Across the HE demographic, time pressure, fast-paced learning, and time constraints reportedly affect students' learning capacity. The well-known overload of information, tasks, and activities further inhibits our ability to take the time that is needed to find clarity. Neuroscience reports that we cannot multitask – we actually switch between tasks as our brains still need to concentrate on one task at a time (Mark, 2023). That said, it is possible to carry out repetitive tasks we already have physical muscle memory for, such as doing the dishes, while simultaneously talking on the phone. However, this is no comparison to a person performing mundane tasks to a student grappling with complex content they need to assimilate into an original thought paper. Deep thinking and multitasking are contradictory anomalies because meaningful, purposeful thinking requires our focus and presence (Jeffrey et al., 2023).

Considering the differing assignment tasks and deadlines facing the HE online student, typically balancing work and family responsibilities, it is not surprising that HE cohorts reported struggling to find quiet, uninterrupted moments for deeper thinking. Across the literature, throughout the North American corporate world, and in our experience, there is an expectation to be working 24/7 (Rose, 2013). Even if the university faculty work to mitigate this driving force, the students reported they tend to pass on the same expectations of their professors, that is, to be available and provide requisite feedback 24/7.

Related to time pressure, the “always-on” mindset mirrors our net-connected world offering non-stop communication and media channels through our handheld or desktop digital devices able to access global human society at any time, day or night (Turkle, 2023).

Disconnected Instructional Design

Related to the dilemma of confusion which results in a lack of progress in our learning goals, the instructional design of the HE course can make or break our engagement. Sometimes the technology is overused, either in the form of too many multimodal elements designed to catch our attention with graphics and visual appeal, or in the form of content contagion from too many articles or assignments in relation to the timeframe, or because the cognitive stretch for the student is too great.

Whereas faculty may believe the courses are clearly laid out, respondents reported a lack of clarity. Levels of self-efficacy are directly correlated with levels of confusion in proceeding with tasks. If it is unclear how to proceed, time is wasted in grappling with the issue, thus exacerbating the time pressure dilemma as deadlines approach.

Digital Safety and Isolation

If distance education curriculum design is lacking the development of community within a cohort, the academic journey is much lonelier than a face-to-face course. This gap undermines any sense of trust, connectedness, and relatedness that is sine-qua-non for a healthy community of learners. For over a decade, research has highlighted privacy and safety concerns that make the online space insecure (Callan, 2016, Fiege, 2020; Walther, 2007); the feeling of isolation in the world of hyper-connection - with “social systems in which people are always on: available for communication anywhere and anytime” (Quan-Haase & Wellman, 2006, p. 331); mental health and burnout leading to avoidance/withdrawal; an ever-increasing pace limiting engagement (Levy, 2017). The feeling of isolation in the world of hyper-connection can invoke a sense of insecurity. Scamming, website hacking, and identity theft extend the concerns around privacy and cyber-security in the digital environment.

Digital Persona

Online interaction that is demanded by social media norms such as Facebook, TikTok, Instagram, and other social media platforms, can result in a digital persona that is not authentic, a staged entity requiring us to constantly assess and obsess over our online image which is publicly accessible to a global audience of potentially billions of viewers. Paradoxically, online learners who tend to spend excessive screentime on their devices, supposedly connecting with others through social media, frequently feel disconnected from the “real” people. They are plugged in yet tuned out, not present, or engaged. The term “digital persona” was used by respondents to highlight the potential negative aspects of “conceal[ing] aspects of the offline self and embellish the online” (Bullingham & Vasconcelos, 2013, p. 102). De Kerckhove and De Almeida (2013) elaborate that digital persona, as introduced by Clarke in 1994, is “a part of the individual identity that has been extended into the online sphere which corresponds to a digital unconscious structuring, a digitally divided self” (p. 277).

Discussion

The Eight Dimensions of DW-FOLD

As shown in Figure 1, DW-FOLD dimensions with their accompanying instructional strategies seek to reveal opportunities to address the digital challenges identified above through technopedagogical care (Burke et al., 2022). Each dimension is given a definition, linked to the digital challenges it primarily addresses, further described and followed by examples of strategies and resources to support the development of that quality in the student(s) - practices that help maintain the habit to motivate learners' self-regulation. With the right technology - pedagogy present, the eight dimensions complete and reinforce each other, with awareness ubiquitous to all of them, introduced as the first and overarching dimension.

Awareness

The Awareness (AWR) dimension of DW-FOLD encourages online learning design that targets learners' awareness of their online learning behaviours, competencies (knowledge, skills, attitudes, beliefs), and how they affect their cognition, emotions, mind, as well as social, physical, and spiritual wellbeing (with an "internal climate of friendliness" towards experience). Awareness is identified as the key quality to develop and practice in digital interaction and communications; it is the overarching dimension.

Awareness can be defined as the ability to perceive, to feel, or to be conscious of events, objects, thoughts, emotions, or sensory patterns (Brown & Ryan, 2003). It is also explained as the "background radar of consciousness" (p. 822), whose role is to continually monitor the inner and outer environments, while attention represents the process of focusing that awareness. Awareness is fundamental to the DW-FOLD dimensions. Self-awareness combined with awareness of the digital circumstances and actors we interact with promotes informed choices and self-regulation. When we quiet and focus our mind...and observe, we are able to access information that otherwise might not be available to us. This leads to an awareness of our habits not just intellectually but also somatically – how they impact our body and sensations.

Awareness Strategies

- Monitoring and reflecting on factors such as average screen time spent on the learning platform, multitasking tendencies, procrastination strategies, distraction with unrelated content, and/or mindless scrolling
- Online forums discussing how digital habits may be impacting our holistic health
- Multimedia artifacts which discriminate between helpful and harmful digital tools and their usage that benefit or deter from learning
- Resources, tools, tips, and strategies such as a digital habit journal to promote learner consciousness

- Information on potential ethical and socio-cultural effects of digital content, technology, spaces vis-a-vis online learning and technology-mediated interactions
- Meditation arrival practices, such as a body scan or A.W.E practice (The Power of Awe, 2022)

Balance

The Balance (BL) dimension of DW-FOLD refers to purposeful choice of online learning materials, activities, and tech tools as well as time allocations and requirements to maintain learner engagement and meaningful learning while avoiding overwhelm, distraction, and burnout. Balance directly addresses the burnout challenges described in Digital Disarray, Time Pressure, and Disconnected Instructional Design (Figure 2).

Balance is needed, modelled, and required amongst materials, activities, and tech tools vis-a-vis time allocations and requirements to promote learner engagement and meaningful learning process. Designing for balance requires vigilant selection of all the components of the course to include only those required elements that are essential to all students' learning along with optional elements that address diverse needs and individual preferences. Facilitator availability and guidance in providing this learner agency is modelled throughout the DW-FOLD dimensions. Higher education participants appreciated the “structured flexibility” approach to the course: a clearly communicated structure of essential resources, activities, and timelines; flexibility and choice in the form of optional resources and digital tools; and negotiated schedule and activities. Balance strategies foster flexibility through the interplay of reliance and independence between learner and facilitator.

Balance Strategies

- Both online and offline, synchronous and asynchronous learning activities carefully designed with attainable digital and time accessibility
- Orientation sessions introducing choices to balance workloads
- Regular checkpoints in the course via pathway monitoring tools or synchronous chats with the facilitator to adjust expectations, negotiate schedules and activities
- Visible schedules and progress monitoring apps for observable tracking
- Facilitator coaching to regularly “unplug” online or offline
- Guidance given in creating ergonomically appropriate workspaces
- Digital decluttering activities to demonstrate how to keep computers organized (free of old files, tabs, email)
- Digital detox before learning activities, e.g., silencing notifications as a pre-task ritual
- Choice of digital tools purposefully geared to the curriculum
- Reminder and modelling of mindfulness practices

Attention

The Attention (ATT) dimension of DW-FOLD is summarized by the updated definition of attentional literacy put forth by Pegrum and Palalas (2021):

Learner’s ability to intentionally direct their attention, in the present moment, toward information originating from the self, others, and the environment (analogue and digital), and to sustain that attention by choice, while becoming aware of and remaining non-judgmental towards new perspectives, multiple viewpoints, and shifting contexts. (p. 8)

Attention addresses the challenges described earlier in Time Pressure and Digital Disarray (Figure 2). Mark (2023) observes that, while digital technology might be designed to boost our capabilities and productivity, daily usage of screens and devices can lead to increasing distractibility and exhaustion. She observes that the nature of attention has gradually changed globally as a response to technology. Mark furthers that the factors affecting our focus are different for diverse individuals. Once we understand our own patterns, we can learn to develop “attentional muscle” with repeated new behaviours.

Attention Strategies

- Resources, tools, tips, and strategies to help learners understand the effects of distractions and overwhelm
- Deliberate attentional literacy activities to develop ability to focus/concentrate such as mindful listening (Mind Tools, 2023)
- Encouragement to do one task at a time with an intention and deep engagement, e.g., focus on one thing/task for a stretch of time and observe one’s attentional capability
- Concentration-based practices/meditations, such as breathing (e.g., Berkeley University, n.d.)
- Centering practices within synchronous sessions: time to pause, calm the mind, and practice stillness
- Opportunities to discern when their attention is “wandering” and practice resisting that tendency, e.g., an at-hand reflection journal

Identity

The Identity (ID) dimension of DW-FOLD refers to learners’ ability to present their authentic selves out of conscious choice (as opposed to by default). Identity denotes recognizing, establishing, and maintaining a digital identity aligned with their integrated personal and professional selves. The nature of this digital self would embrace an ethical and respectful attitude in co-constructing an inclusive and safe online environment which essentially embodies digital citizenship. Identity addresses the challenges described in Safety and Isolation and the Digital Persona (Figure 2).

Higher education cohorts in this study affirmed this struggle with potential dissonance and conflicting pulls in presenting their authentic selves and at the same time creating the desirable image of

a successful hardworking student. Learners at any level, especially those who are new to a course or a cohort, are more emotional than cognitive (Illeris, 2002). They aim to establish their identity in a new situation by gauging their digital surroundings; who they are with their colleagues and professor; what they are learning - the purpose of being there (Merriam et al., 2007a); and what is expected of them – their knowledge level and online netiquette behaviours. Often an “alternative persona” (Bullingham & Vasconcelos, 2013, p. 102) is cultivated to promote gains in their professional and academic life.

Considering this initial unspoken unease and the desire to project an “appropriate” self-image, instructors should dedicate space and activities for learners to introduce themselves and socialize to the degree possible. At this point, belonging, confidence, and acceptance play a bigger role than the cognitive goals. A slow ramp-up into the learning content accompanied by conversations around the relationship of online identities and digital citizenship may assist in achieving this confidence (Merriam et al., 2007b).

Facilitators can also help cultivate these digital personas through positive and reassuring responses (Levy, 2017) with activities highlighting the ethical landscape of digital citizenship - the responsible and ethical use of technology, including respecting others' privacy, combating cyberbullying, and contributing positively to all online communities (Zhong et al., 2021).

Identity Strategies

- Individual digital footprint analysis by searching their own name followed by discussions of the implications uncovered
- Modelling and reinforcement of appropriate online etiquette as different from social media interactions (Levy, 2017)
- Invitations to guest speakers (synchronous or video) to share their expertise about online identity
- Mindfulness practices to connect with the authentic self, self-view, and self-compassion (Self-Compassion, 2023)
- Avatars to express their own personas, internal assumptions, arising emotions
- Digital citizenship quiz/game with focus on Identity (e.g., 13 Digital Citizenship Quizzes, Questions, Answers & Trivia, n.d.)

Safety

The Safety (SF) dimension of DW-FOLD extends to the notion of learners' digital safety. Safety addresses the challenges described above in Digital Persona and Digital Isolation and Safety (Figure 2).

Participants reminded us that safety comprises four different levels of online interaction, namely, within the self, with others including instructors, with content, with digital technology and its environment. In DW-FOLD, SF is viewed as learners experiencing a sense of confidence and ease in participating in authentic interactions, communications, and creative activities within a secure shared

learning space marked by connection and trust; that includes socio-emotional, cognitive, and physiological safety.

In terms of socio-emotional safety, the National Center on Safe and Supportive Learning Environments (NCSSLE) in the USA concludes that:

The safer students feel emotionally, the more likely they are to learn and thrive. Conversely, students who feel emotionally unsafe or stressed face barriers to learning as they may grapple with embarrassment, boredom, and frustration when faced with difficulties or challenges. (2019, para 1)

Fiege (2020), who explored emotional safety and identity expression within online learning environments in HE, underlined the related notion of "dignity safety" that encapsulates components of what emotional safety mean, "Trust, respect, and equality need to underpin social interactions and cooperative learning initiatives" (p. 37). Callan (2016) warrants that digital dignity values the security people feel when they are treated as equals even when negotiating conflict or experiencing vulnerability.

Indeed, Schepers et al. (2008) confirmed that feeling emotionally safe was positively associated with goal achievement, personal engagement, motivation, and lessened anxiety. Research around social-emotional learning has offered guidance in how to create emotional safety by fostering a supportive and respectful learning environment. For instance, Geesa and colleagues (2022), in their exploration of social-emotional learning in PK-12 online environments, identified six elements required for educators to foster learning communities that are "safe, healthy, and just" (Casel, 2021, para 2). They recommend encouraging participation versus perfection by, for example, promoting experimentation resulting in mistakes. "Students will allow themselves to experience failure only if they can do so within an atmosphere of trust and respect" (Immordino-Yang & Faeth, 2010, p. 79).

Participants spoke to the value of activities and atmosphere that beholds human vulnerability and thus encourages curiosity and experimentation; this translates into cognitive safety pertaining to the intellectual well-being of learners. Online learning environments should inspire reflective and critical thinking (Dede, 2002), open dialogue and flexible thinking (Bush, 2013), advocate for social equitability (Mason & Jones, 2020), and explore diverse perspectives.

Finally, learners' physiological safety involves ensuring that their physical well-being is not compromised by online learning, primarily the sedentary lifestyle and excessive screen exposure. Educators should consider factors like screen time and ergonomic best practices. Providing guidelines on screen usage, encouraging regular breaks, and promoting good posture can mitigate the risks associated with excessive screen exposure and ergonomic best practices.

Safety Strategies

- Active listening and speaking practice for positive reinforcement and appreciation from the get-go; listening to students and their intentions to allow students to let their guard down and relax
- Feedback appreciation via messages of recognition

- Synchronous rounds with screen-shared, graduated questions regarding their experience of safety e.g., 1. share your strengths/talents; 2. write something about yourself that no one would guess; and 3. list challenges you face in the program. Debrief follows all rounds aiming for safety in the gradual unfolding of personal stories
- Student journals on what makes individuals human, how individuals make sense of and experience the world, and how individuals are the same or different
- Guided self-compassion practices to recognize, accept, and process common human feelings and sensations such as discomfort, fear, anger, and unhappiness (Irizarry, 2022)
- “Just like me” compassion practice (Jeffrey et al., 2023, pp. 9–10)

Agency

The Agency (AG) dimension of DW-FOLD is viewed as learners’ individual and collective capacity for intentional action experienced through opportunities to identify, enact, and cultivate learner self-regulation and co-regulation with respect to digital technologies and how they impact the agents, their choices, and their circumstances. Agency addresses the challenges described in Digital Persona and Digital Isolation and Safety (Figure 2).

In the multi-faceted aspects of agency, participants referred mainly to the experience of feeling in control over their own learning and their overall well-being, in particular highlighting two interrelated notions of learner self-regulation and emotional regulation. The term “emotion regulation” was applied in accordance with Gross’s (2014) definition, i.e., “shaping which emotions one has, when one has them, and how one experiences or expresses those emotions” (p. 6). Participants stressed the significance of emotional balance for fruitful self-regulated learning – the “active, self-directed processes involving: goal-planning; monitoring and controlling cognitions, motivations, and behaviours aimed at fulfilling goals; and achieving goals” (Palalas & Wark, 2020, p. 164). By fostering learner agency in a safe environment, as discussed above, instructors can empower students to actively engage in authentic self-regulated learning and humble curiosity. By recognizing individual intentions of each learner and the tension that they might cause in shared digital spaces, instructors would invite students to fully show up when it is accessible to them technologically, emotionally, and cognitively. Students concluded that

With time and practice [they] experienced what was meant by present-moment awareness and insight which allowed [them] to uncover [their] true motives, manage [their] attention, apply more focused purpose to [their] learning, and approach the online learning experience with more agency and less anxiety. (Palalas et al., 2020, p. 259)

Co-regulating their emotions and intentions with those of their cohort enabled a culture of trust and compassion that respects other people’s truth, their time, and their collective understanding of everybody’s unique roles.

Agency Strategies

- Arrival/check-in practices at the opening of live or recorded sessions followed by debriefing, and intention-setting
- Discussions (or/and journaling) about intentions and goals and helping learners monitor their evolution
- Guided individual and collective decision-making concerning the process and elements of the learning path (e.g., required versus optional readings or multimedia assignment options)
- Built-in pauses (e.g., in a webinar recording) as a reminder to check in with themselves regarding their present engagement needs and adjust their intentions accordingly
- Value-based exercise to select three values from the core values list (e.g., Clear, n.d.) and reflect in their journals vis-à-vis their digital habits
- Self-regulation skills with respect to digital technologies, (e.g., The Pathway to Success, n.d.)
- Empowerment of self-beliefs, goal setting, and expectations through messages, reminders, feedback

Community

The Community (CM) dimension of DW-FOLD encourages learning design that results in a bonded and caring community of learners who connect, communicate, and reciprocate respectfully through meaningful interactions so that they experience genuine relatedness and co-presence. Community, woven through the other dimensions, directly addresses the challenges described in Digital Isolation and Safety.

It is our genetic impulse to share and cooperate. To leverage these natural tendencies, learners should be encouraged to apply their socio-emotional and ethical intelligence in their communications and interactions with others. Starting with explicit conversation regarding the value of collaboration, learning activities invite collective effort and co-creation of knowledge.

Further to the development of community, synchronous group activities speak to our social brain. However, current trends favour flexibility, anytime learning; that translates to asynchronous learning. There is negotiation to be sought in cohort community, such as time zone considerations. Often we do not want to “waste time” working with others. Cohort-based means our journey is no longer everyone for themselves, thus removing some of the flexibility inherent in the self-paced model (Hoven et al., 2020). For this, the cohort model is often criticized. People have chosen the freedom and flexibility of learning at their own pace and availability. The demographic at open universities is usually older working adults. However, the dropout rate of isolated learning countervails the benefits of completely asynchronous learning.

A cohort-based model supports the social brain and promotes self-regulation through co-regulation. Discussion posts are more courageous, and the interchanges are richer when students feel

accepted in expressing their thoughts. A sympathetic cohort can support each other in completing requisites simply by encouraging each other with a few words in a forum post or group discussion.

Small-cohort learning has been extensively researched as one of the best elements for successful learning (Blumenfeld et al., 1996). It also models the workplace, where small teams solve problems or create product. In a cohort-based class, we can design loops of experimentation and peer/facilitator discussion.

A bond formed in a collective group ideally develops mutual responsibility. This allows the community to share their values, goals, intentions, and vulnerabilities so they can “see” each other for who they are; a community that they can trust and with whom they can share a safe space.

Community Strategies

- Articulation of the benefits and modelling of peer feedback practices and modelling peer feedback practices through discussion
- Collaboration on learning activities via screen-share apps (e.g., Padlet, Stickies, Mentimeter, Zoom Whiteboard) to post their thoughts jointly but anonymously followed by optional debrief, e.g., answering a question: “On a scale from 1 to 10 how engaged do you feel in this session?”
- Negotiation and co-creation of cohort rules of engagement and interaction (Note the importance of participation was evident by its generous percentage in the overall course grading)
- Definition of an escalation process - when issues arise, there is a path of recourse
- Collective gratitude activities in a shared document

Achievement

The Achievement (ACH) dimension of DW-FOLD refers to learners following their individual intentions where they can see their own progress in using digital technology to learn and master a subject/skill; they fully experience their own success and achievement; they feel a sense of accomplishment that is not measured solely by marks but is regularly recognized and celebrated in a meaningful way. Achievement directly addresses the challenges described earlier in Digital Disarray and Time Pressure.

Achievement comes in many different shapes. Instructional design should provide options and choice for students on when and how to measure their learning. For example, the design could provide ways for students to set their own goals per session or per period of time or per unit. Technology affordances can measure their progress on the learning path towards clear milestones such as progress bars, markers, notifications, and other interface components.

The ACH dimension celebrates achievement for recognition of meaningful effort and for enjoyment in the learning process. Technology can add to learner agency through familiarity – the combination of scaffolded pedagogy and technology can lead to successful completion of the task at hand. Academic achievement heightens motivation and motivation supports self-regulation leading to

increased self-efficacy; that in turn empowers learners to enter the next cycle of learning. Respondents recognized that the process of learning involves making mistakes which are moments of growth.

Achievement Strategies

- Progress indicators with self-check mechanisms (seeing good results reinforces students' efforts)
- Continuous achievement recognition with messages, games, quizzes, or instructor comments
- Prompt attention to struggles to mitigate discouragement
- Introduction of the concept of honouring intention versus goals
- Discussing the concept of failure as a step towards mastery, e.g., allowing assignment resubmission to improve quality of achievement
- Creating a rubric following students' values and intentions
- Monitoring student intentions via touchpoints which align with the course objectives
- Celebrating milestones in the course as a group

Significance

The overarching goal of the DW-FOLD framework presented in this article is to promote healthy and pedagogically sound online learning environments and assist online educators/instructional designers (and by extension, the students they serve) in implementing educational design and practices that optimize learner wellbeing and academic success. The framework was born out of several studies and our teaching experience as professors of open, digital, and distance education.

In conclusion, the field of online learning, and education in general, could benefit from this exploration into reducing academic and digital stressors. The eight dimensions of the DW-FOLD framework can be applied in learners' and educators' day-to-day online academic, professional, and personal lives. The study put forth new evidence-based knowledge how this practice-oriented framework could be applied for designing and refining online learning as well as transitioning face-to-face learning into the digital space. It has a potential to positively affect the digital wellbeing of online learners across disciplines.

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