Regaining focus: Promoting attentional literacy in digital higher education

Agnieszka (Aga) Palalas
Athabasca University

Mark Pegrum
The University of Western Australia

Debra Dell
Athabasca University

The attentional demands placed on digital learners have grown, with online and blended education increasingly impacted by hyperconnectivity and digital disarray. In this context, it is essential for educators to help learners develop attentional literacy (AL). Building on past research on AL which fused insights from the fields of digital literacies and contemplative pedagogy (CP), this Delphi study examined the concept of AL and associated practices in higher education. Starting with a working definition of AL, expert feedback was invited from a global panel of experienced CP practitioners across academic disciplines. Through three Delphi rounds, the AL definition was validated and refined, before an abbreviated version was produced to facilitate operationalisation by digital educators who may not have a CP background. The study further explored how AL can be integrated into online higher education curricula, identifying strategies for educators and students to develop AL practices and address barriers to these practices. Despite systemic and structural constraints, cultivating AL allows educators and students to exercise a greater degree of individual and collective agency over their own attention in a digital world.

Implications for practice or policy:

- Students can be guided in developing AL through a series of stages involving awareness and noticing, focus and intentional choice, openness and curiosity, and consideration of the wider attentional ecosystem.
- Educators should develop their own AL first, approaching it holistically by integrating personal, pedagogical and professional development-related practices, along with complementary offline activities.
- Institutions can maximise scope for AL development by increasing technological support and, especially, reducing curricular time pressure on educators and students.

Keywords: attentional literacy (AL), digital literacies, contemplative pedagogy (CP), mindfulness, digital learning, higher education, Delphi study

Introduction

The attentional demands placed on students have grown as higher education has shifted online, with learning increasingly taking place against a backdrop of hyperconnectivity and digital disarray. It is therefore vital for students to develop the attentional literacy (AL) needed to support effective approaches to online and blended learning and online communication in general (Pegrum & Palalas, 2021). Bridging digital learning with contemplative pedagogy (CP) perspectives and practices, this Delphi study invited panellists to refine and elaborate on the concept of AL and to explore its application in digital higher education.

Contextual background

Around 2 decades ago the term *hyperconnected* was repurposed by sociologists to refer to "social systems in which people are always on: available for communication anywhere and anytime" (Quan-Haase &

Wellman, 2006, p. 331). Although there are advantages in having multiple information and communication channels at our fingertips, there has been increasing recognition of the disadvantages. The notion of being "always on", subsequently taken up by numerous researchers, in many ways presaged the looming attentional crisis of our own time. As highlighted in a swathe of recent studies, we find ourselves in an attention economy (Palalas, 2018; Wallace, 2006) where has been a diminishment of our individual and collective attention spans, dissipated by hyperconnectivity and the social media algorithms designed expressly to capture and hold our attention for their own commercial purposes (e.g., Burkeman, 2021; Hari, 2023; Mark, 2023).

Trends towards digital learning were accelerated by COVID-19 and, despite a return to physical classrooms, considerations of flexibility and accessibility have ensured a considerable amount of higher education is now conducted partly or fully online. Unavoidably, such learning occurs in a hyperconnected context characterised by *digital disarray* – whose key aspects include distraction, disorder and disconnection – which does not support, and indeed may undermine, effective learning (Pegrum & Palalas, 2021). *Digital distraction* refers to the difficulty of focusing amid information overload (Palalas, 2018; Pegrum, 2019) and the challenge of resisting the distractions of screens and media (Felisoni & Godoi, 2018; Whelan et al., 2020) along with the temptations of ineffective and inefficient multitasking (Palalas, 2018; Wallace, 2006). *Digital disorder*, a term which references the Council of Europe's *information disorder* (Wardle & Derakhshan, 2017), refers to the difficulty of disentangling reliable information from misinformation, disinformation and fake news. *Digital disconnection* refers to the difficulty of engaging constructively and purposefully, amid competing demands on our attention, with oneself, others and the wider environment, which is essential to the solving of global challenges pertinent to all of humanity and indeed all life on earth (Gee, 2017; Shi-xu, 2005).

Conceptual background

One strategy to address digital overwhelm and confusion is the development of AL, as proposed in an evidence-based position paper by Pegrum and Palalas (2021). Building on work on *attention literacy* (e.g., Palalas, 2018, 2019; Rheingold, 2009; Wenger, 2019), we proposed a newer conception of *attentional (rather than attention) literacy* as a fusion of established digital literacies with recent educational discourses on mindfulness and CP (e.g., Ergas, 2019; Goleman & Davidson, 2017; Page, 2019).

For the purpose of this study, taking into account seminal work by Kabat-Zinn (2013) and Langer (1993, 2016), mindfulness can be defined as "the mental capacity to pay attention intentionally and non-judgmentally to an object of choice while remaining aware of changing experiences and contexts" (Pegrum & Palalas, 2021, p. 7). CP can be defined as an approach that "cultivates awareness and presence to life within and around us through contemplative practices" (Jeffrey at al., 2023, p. xv) such as breathing and centring exercises, meditation, free-writing, silent time in nature and contemplative arts. Such practice "quiets one's mind, fosters a grounding centeredness to bring different aspects of oneself into focus, and restores wholeness" (Jeffrey et al., 2023, p. xvi), thus supporting cultivation of a personal capacity for deep concentration, wise discernment and insight (Simmer-Brown, 2009).

In developing the concept of AL, Pegrum and Palalas (2021) synthesised a range of relevant literature to produce a working definition as a tool for teachers to support students in developing awareness of a range of perspectives, focusing their attention intentionally on objects of choice and connecting more effectively with the self, others, and the informational environment. The current research study sought to refine and elaborate on the concept of AL through a Delphi study. We invited expert feedback from experienced CP practitioners across academic disciplines to solidify the definition of AL and explore how it can be promoted by integrating contemplative practices into online curricula.

Methodology

The Delphi method was chosen to fit our aim of refining and elucidating the existing definition of AL by capturing the expertise of experienced tertiary educators. Delphi is a multi-stage survey technique suited

to “new research areas and exploratory studies” (Okoli & Pawlowski, 2004, p. 27), which “can benefit from subjective judgments on a collective basis” (Linstone & Turoff, 2002, p. 4). It is appropriate to research concerned with developing conceptual clarifications or frameworks and can “capture those areas of collective knowledge that are held within professions but not often verbalized” (Stewart, 2001, p. 922). It is compatible with collaborative, constructivist educational ideals because the method itself recruits and ultimately distils and synthesises a variety of subjective ideas and tacit knowledge about the subject under investigation (Bozkurt & Bozkaya, 2015; Linstone & Turoff, 2002; Stewart, 2001). The Delphi method is becoming more popular in open and distance learning and has been used frequently in research into online and hybrid learning (e.g., Bozkurt & Bozkaya, 2015; Dell, 2021; Lock et al., 2021). It has also been applied, for example, to build consensus on topics ranging from primary teachers’ views on technological, pedagogical and content knowledge (TPACK) for early literacy (McKenny & Voogt, 2017) to university educators’ views on their roles in supporting learner-centred pedagogy driven by personal learning environments (PLEs; Shaikh & Khoja, 2014).

The present study used a three-round Delphi process, with surveys administered asynchronously, to investigate our central research questions, namely:

(1) What is AL?
(2) How can teachers develop and maintain AL?
(3) How can students develop and maintain AL?

Due to the possibility of each stage involving both qualitative and quantitative data analysis and subsequent panellist assessment, Delphi studies are mixed method and iterative (Hasson et al., 2000; Okoli & Pawlowski, 2004). There are no universal guidelines for using Delphi, and several versions exist in the literature including modified, hybrid and qualitative-dominant versions (Hasson et al., 2000; Hecht, 1979; Landeta et al., 2011). The present study used a qualitative-dominant Delphi process (Brady, 2015; Sekayi & Kennedy, 2017; Stewart, 2001).

As is typically the case in a Delphi study, our panellists’ responses to each survey round were analysed and presented back to them in an aggregated, condensed form for revision and/or further elaboration of their views as we moved gradually towards consensus in the final round (Okoli & Pawlowski, 2004). All individual responses were deidentified, with panellists only seeing others’ aggregated responses. For an overview of the process, see Figure 1.

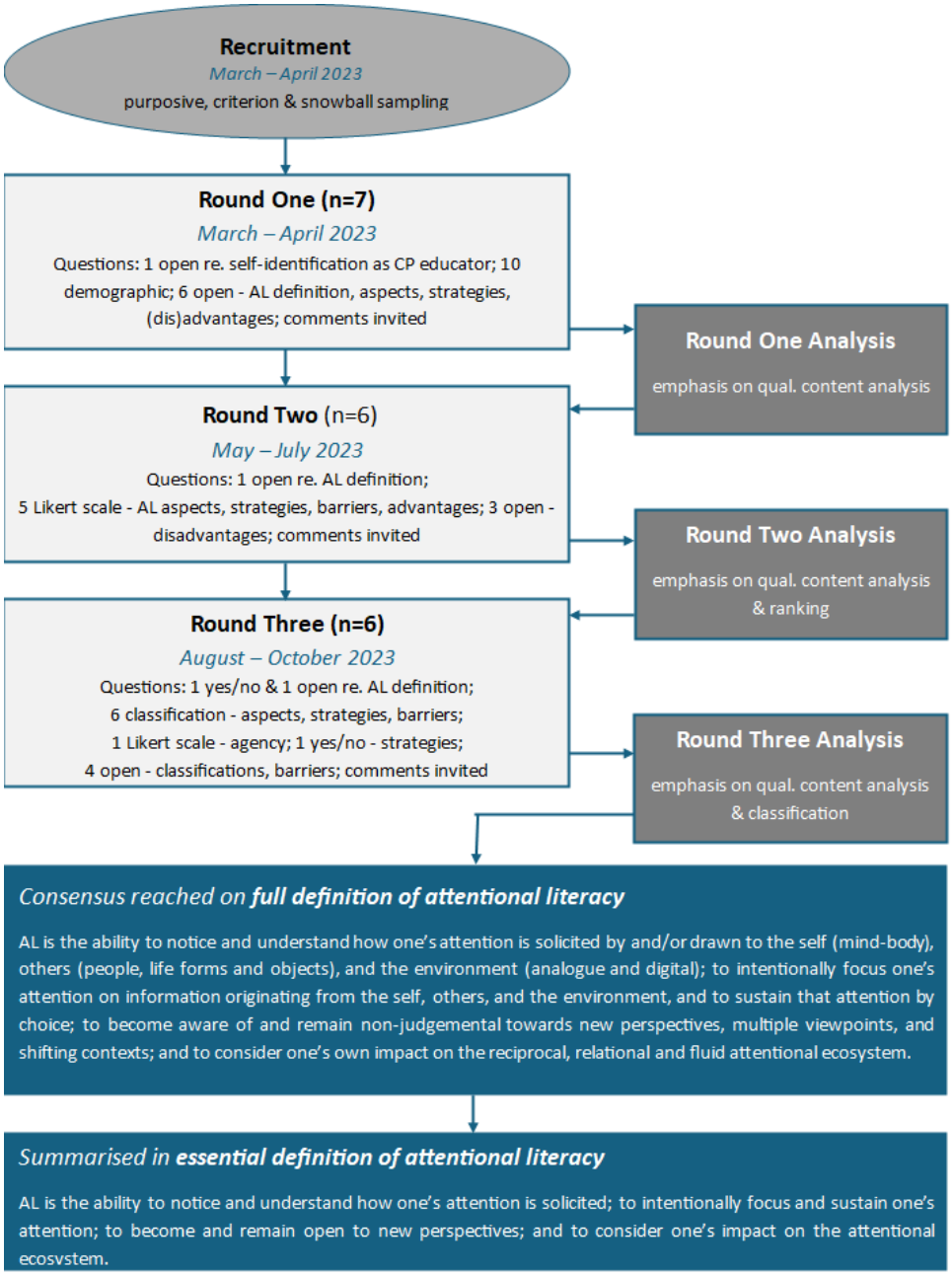

Figure 1. AL Delphi process

Procedure

In Round One, panellists were invited to explain their self-identification as CP educators and provide demographic data, before responding to open-ended questions on defining AL, developing AL as an educator, aspects of AL to promote among learners, advantages and disadvantages of helping learners develop and maintain AL, and teaching strategies that might assist in this. A final open question invited any further comments for consideration. In Rounds Two and Three, following content analysis and abridgement, the group's aggregated responses from the previous round(s) were presented back to panellists as a combination of quantitative importance ranking, categorisation and open questions seeking revisions or elaborations, as we moved towards consensus on the AL definition, competencies, strategies and barriers. For further details, see Figure 1 and the specific details of question sets presented round by round in the Results section below.

The three rounds were administered through the research.net online survey software. Using digital technologies to facilitate a Delphi process has been found to increase accessibility, reduce the time demands on participants, facilitate anonymity and support clear analysis of participant contributions (Green, 2014; Hsu & Sandford, 2007; Shelton & Creghan, 2015).

Participants

Our goal was to assemble a diverse panel of people who were not in regular conversation with each other (Green, 2014; Linstone & Turoff, 2002), in this case, experienced educators: inclusion criteria were past or present experience in higher education in any country and any discipline, a minimum of 2 years' experience in online teaching and learning, the ability to participate in English and, crucially, self-identification as a contemplative educator. Recruitment took place using direct email invitations to members of CP networks and passive recruitment posters on social media (Gelinas et al., 2017) (purposive and criterion sampling). Volunteers were further invited to recommend colleagues or contacts (snowball sampling).

There is no consensus on the minimum (or maximum) size of a Delphi panel in the literature (Hsu & Sandford, 2007; Shelton & Creghan, 2015), with lower estimates starting at around five to 10 (Belton et al., 2019) or seven (Shelton & Creghan, 2015). We aimed for eight to 10, considering the small size of the population with appropriate expertise and the exploratory character of our study. Our initial recruitment efforts led to 12 interested educators, eight who read through the informed consent and Round One survey, and ultimately seven who completed all the questions to commence the study, including the demographic data. The iterative nature of the Delphi method often leads to panellist attrition, and research confirms the validity of the method even if some attrition occurs (Bozkurt & Bozkaya, 2015; Hasson & Keeney, 2011; Jeste et al., 2010). One panellist dropped out after the first round, leaving six who completed the remaining rounds. Due to the aggregated data set, it was not possible to remove this one person from the demographic data, which were only collected at the start. The three rounds took place over approximately 7 months in 2023, a longer period than originally intended, necessitated by the time required to collect and analyse all responses before proceeding to later rounds.

Ethics approvals were granted by Athabasca University and The University of Western Australia. Protocols were followed throughout, with all data being deidentified and aggregated before analysis. Anonymised quotes are reproduced verbatim, with minor edits for clarity indicated within square brackets.

Demographics

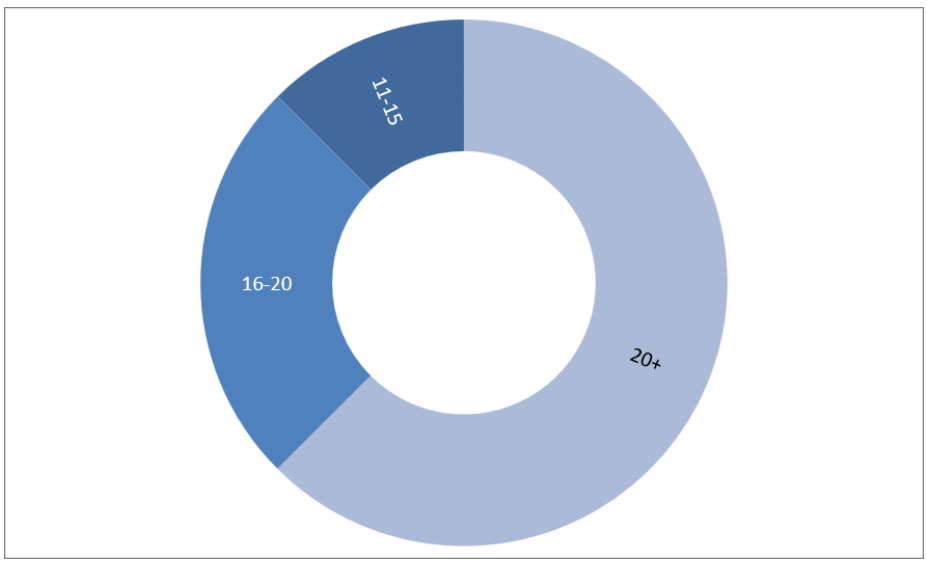

Figure 2. Years of experience as an educator

The Round One panel comprised three panellists who identified as male, three as female and one as non-binary. Most were in the 50–59 age range, reflecting their lengthy experience as educators (see Figure 2). They were concentrated in North America but with wide global connections and experience: three identified as Canadian, two American, one Danish and one Hong Kong Chinese, with two indicating they saw themselves simultaneously as citizens of the world; four were currently teaching in Canada, two in the United States of America, one in Europe (Denmark) and one in Asia (Hong Kong). In the past, they had variously taught across North America, Europe, South America, Africa, the Middle East and Asia, suggesting the possible relevance of CP globally. Ethnically, four identified as White or European, one as Asian, one as Black and one did not respond.

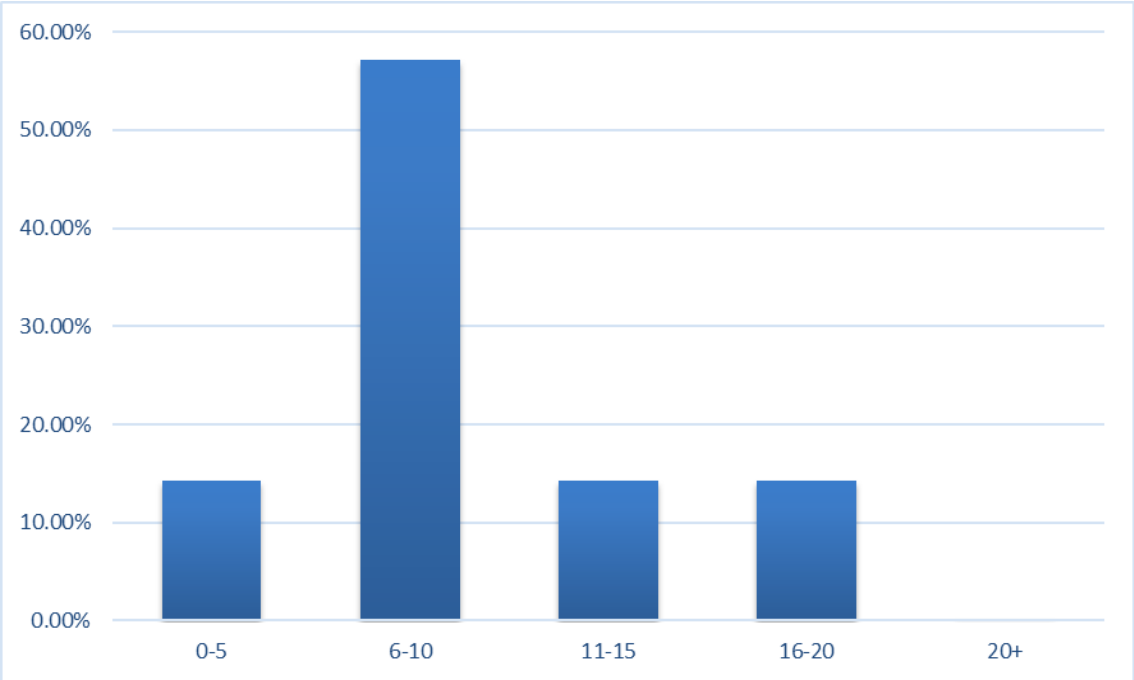

Figure 3. Years of experience as a contemplative educator

All panellists described themselves as contemplative practitioners, with many having lengthy experience as such (see Figure 3). A strong theme was the need to "continually interweave practice with our efforts in developing theory around contemplative approaches in higher education" (participant comment). Panellists referred to teaching "skills [that] range from the practical (e.g. organization and time management) to the contemplative (self-regulation, focus, reflection as part of learning)", engaging students in contemplative inquiry and practices, reflective narrative, community engagement and *currere* (Pinar, 2022), and encouraging student empowerment.

A range of disciplines and levels was represented, suggesting wide applicability of CP. Past and present fields of experience included language and pedagogy, literature, education, non-profit leadership, mathematics, philosophy, Africana studies and political science. All seven panellists taught undergraduate courses, with five also teaching graduate courses.

Results

Defining AL

To address the first research question, we invited panellists to edit our evolving definition of AL through comments in Rounds One and Two. In Round Three, we asked whether they agreed with the updated definition and invited comments regarding their level of agreement. The original literature review-based definition of AL, drawn directly from Pegrum and Palalas (2021, p. 8) and presented to panellists, was:

> The ability to intentionally direct one's attention, in the present moment, toward information originating from the self, others, and the environment (whether analogue, digital or blended), and to sustain that attention by choice, while becoming aware of and remaining non-judgmental towards new perspectives, multiple viewpoints, and shifting contexts.

Although the definition was broadly endorsed, specific suggestions led to an increased focus on noticing and understanding how one's attention is solicited; to an elaboration of the self as mind-body and others as people, life forms and objects; to an emphasis on focusing attention; to the dropping but then the reinstatement of the idea of sustaining attention by choice; and to the inclusion of the need to consider one's own impact on the reciprocal, relational and fluid attentional ecosystem. All panellists (n = 6) agreed with the composite definition presented in Round Three:

> The ability to notice and understand how one's attention is solicited by and/or drawn to the self (mind-body), others (people, life forms and objects), and the environment (analogue and digital); to intentionally focus one's attention on information originating from the self, others, and the environment, and to sustain that attention by choice; to become aware of and remain non-judgemental towards new perspectives, multiple viewpoints, and shifting contexts; and to consider one's own impact on the reciprocal, relational and fluid attentional ecosystem.

This rather complex definition encapsulates, as far as possible, the shared feedback. Individual panellists further elaborated that attention to information should be accompanied by "the ability to synthesize this information in a cohesive, coherent fashion", and that AL involves not only the understanding of self, others and the environment but also "the ability to convey those understandings effectively and meaningfully to others". The relational aspect was further highlighted to stress how cultivating an individual's capacity for intentional attention impacts "the collective attentional ecosystem (vs. echosystem)" where individuals support each other to "shift their perspectives/values" and "build relationships with others to grow together". Thus, AL is more "than just becoming aware of and open to perspectives, etc. but developing/integrating existing and new perspectives" as well. Significantly, one panellist stressed that students struggle to be "present" and find the "stillness of body, mind, and heart required to do this", especially since "our hyper culture does not reward focusing and sustaining attention!" Two participants also mentioned the link between attention and curiosity and kindness.

As noted, this definition is complex and multifaceted; as one panellist commented: "This is the kind of definition I could spend hours with students on, teasing apart its various points. It would help students appreciate that … defining a concept like this is no simple task". Naturally, such a definition needs to be unpacked and its various aspects explored in future studies. In our Discussion below, we offer a more concise version that would lend itself to operationalisation in the classroom.

Developing AL as a teacher

AL development strategies for teachers

To address the second research question, we began by asking panellists about strategies for developing and maintaining AL as teachers. After abridging and summarising responses (n = 7) from Round One, we invited participants to rate the importance of the resulting nine strategies on a 5-point Likert scale in Round Two. We used their responses (n = 5) to generate a ranked list (see Table 1), and in Round Three we invited them to categorise the strategies as primarily personal, pedagogical or related to professional development (PD). We solicited open comments throughout.

Table 1
Ranked list of teacher AL development strategies

Teacher AL development strategy	Ranking
Attending to student-teacher-content interactions	1
Supporting students' attentional needs/focus	2
Balancing contemplative practices with digital work (e.g., walking before work)	3–4
Practising/implementing AL during teaching	
Developing/using relevant and motivating materials	5–6
Sustained contemplative practices (e.g., meditation, yoga)	
Discussing AL with colleagues	7
Researching impact of AL on students/student teachers	8
Collective reading and writing practice	9

Although some panellists thought all strategies were equally important – as one indicated, "It wasn't hard to rank all of these items a '5'" as part of a holistic approach – the group (n = 5) nevertheless produced the ranking above. Interestingly, most respondents (n = 4) thought all items belonged to two, if not all three categories (personal, pedagogical and PD-related), agreeing they must merge in one consistent practice: "I simply cannot divorce the personal, professional, and pedagogical from one another: they're all intimately connected/interwoven".

Panellists further commented that it is beneficial to "practise [AL] in teaching sessions" and beyond, across all life settings, with colleagues, students and alone (e.g., through daily meditation, morning routines, walking and both individual and collective reading). Some panellists highlighted the significance of connecting with students and helping them engage in learning, which requires teachers to have "knowledge, language about and skills in attentional literacy". As another wrote, referencing Mary Oliver, an American poet, "a devotion to something increases attention … I love teaching and love working and being with students ... That's what keeps me focused on them and the learning situation in the here-and-now".

AL development barriers for teachers

We continued by asking about barriers to developing and maintaining AL as teachers. After once again abridging and summarising responses (*n* = 7) from Round One, we invited participants to rate the importance of the resulting 12 barriers on a Likert scale in Round Two, with their responses (*n* = 5) generating a ranked list (see Table 2). In Round Three, we invited panellists to categorise the barriers as primarily personal or professional, and to indicate on a Likert scale the degree of agency they considered they had to overcome each. We continued to solicit open comments throughout.

Table 2
Ranked list of teacher AL development barriers

Teacher AL development barrier	Ranking
Feeling overwhelmed	1–2
Time required to understand students' needs	
Digital educational platforms and tools	3–4
Lack of time for slow research	
Difficulty paying attention/focusing	5–7
Distraction	
Multitasking	
Feeling overworked	8
Procrastination	9
Emotional resources to build relationships with students	10–11
Judgement	
Lack of motivation	12

The majority of respondents (n = 4) thought most barriers were both personal and professional, embracing a holistic perspective. One commented that "some categories (like procrastination) feel personal at first glance, but … all of these issues are ultimately the result of working within a system of scarcity" with insufficient "time and resources, and therefore not enough personal energy, motivation, etc", while another remarked that some barriers seem "to be in a work context yet so much of our work blends into our personal time" that all ultimately play out as work-life pressures.

According to the Round Three responses (*n* = 5), panellists felt the least agency in the following areas (in order):

- inherent design of digital educational platforms and tools
- lack of time for slow research
- multitasking
- feeling overworked.

There was wide agreement on the technological challenges, with "too many demands and unrealistic expectations placed on faculty and staff" and "little-to-no support for students who don't know how to use the technology", resulting in teachers being "preoccupied with the basic functionality of the course, with little time and attention for ... [students'] attentional needs!" Two panellists noted that these issues are exacerbated in asynchronous courses that do not allow for direct teacher-student interaction. "Slow research" was mentioned as a vital approach to addressing AL barriers and fostering teachers' agency, but ironically "colleagues and admin don't appreciate the time necessary for slow research".

It is notable that the four areas listed above – educational technology design followed by three items related to job demands – all seem at first to be institutional factors requiring institutional solutions, but two respondents pointed out that some agency still lies with individuals in terms of choosing to make the best out of current circumstances; this entails remaining "100% focused on the student ... which really means that dynamic relationship between 'student,' 'teacher,' and 'text' (the learning material)" while still advocating for institutional change.

Developing AL as a student

AL aspects for students to develop

To address the third research question about how students can develop and maintain AL, we began by asking panellists which specific attentional aspects teachers should help students develop. All panellists (*n* = 7) listed and elaborated on up to five aspects in Round One, after which we abridged and summarised responses to produce a 28-item list. In Round Two, respondents (*n* = 5) ranked the importance of these aspects on a 5-point Likert scale, resulting in an updated list of 20 items with weightings of 4 or above (see Table 3). Given that these aspects generated by respondents can be viewed as competencies (Wong, 2020), in Round Three we asked respondents (*n* = 5) to categorise them according to their primary competency area(s) – knowledge, skills or attitudes – as commonly identified in competencies frameworks (Baartman & De Bruijn, 2011; Hämäläinen et al., 2021). As in previous questions, we encouraged additional comments.

Table 3
Ranked list of student AL competencies

Student AL competency	Ranking
Ability to engage in focused reading	1
Ability to be comfortable being alone with one's own thoughts	2–9
Ability to be non-judgemental	
Ability to be open and curious about one's own attention	
Ability to discern positive and negative digital engagements	
Ability to intentionally focus/direct and sustain attention (e.g., on tasks)	
Ability to observe and reflect on one's own attention	

Ability to pause/ground oneself	
Ability to still/calm the mind	
Ability to resist distractions	10–11
Ability to recognise and work through anxiety	
Ability to build positive relationships with others	12–15
Ability to engage in reflection/reflective time	
Ability to resist irrelevant enticements	
Ability to resist multitasking	
Ability to create emotionally appropriate messages and artefacts	16–20
Ability to distinguish attentional ecosystems from echosystems	
Awareness/assessment of others' behaviours, feelings and values	
Understanding of nature of educational attention/focus	
Understanding/discussing the concept of attention	

As one panellist commented: "Sitting at a computer seems to demand/normalize a level of busyness". As such, many panellists (*n* = 4) emphasised the importance of students slowing down to reflect and "bring attention to the here and now" so that they can engage "in the present moment". The panel recommended "breath work and meditative approaches" to cultivate awareness of "how one's attention works … and how it is directed by systems of which one is a part but which one doesn't control"; yet creating "the curricular time to focus on elements of attention" is not unproblematic: "especially at the undergraduate level, having sufficient time to do so becomes more challenging". Moreover, "[m]uch of what we are discussing here is very counter-cultural, and increasingly so. Multitasking is heralded as a great and even essential skill, for example, and we need to persuade students to embrace different values".

Two respondents commented that it was difficult to rank the competencies as "all of these are valuable and important" and should be worked into the curriculum. The majority felt that most competencies involved a combination of two or even all three areas of knowledge, skills and attitudes, with one comment reading: "We are teaching skills but also trying to create new attitudes (and values) and knowledge". Another focused on a "KAP gap" – meaning "the significance of knowledge, attitudes, and practices (skills) in effecting change" – and suggested that "a gap, where any of these three are omitted, can be problematic. All three are related to each other". It is notable, nevertheless, that the competencies identified predominantly emphasise skills and attitudes.

Teaching strategies to help students develop AL

Having identified the key AL competencies required by students, the next set of questions investigated teaching strategies to help students develop those competencies. In Round One, panellists (*n* = 7) listed up to five strategies each, after which we abridged and summarised responses, some elaborated through relevant comments, to produce a 20-item list. In Round Two, respondents (*n* = 5) ranked the importance of these strategies on a 5-point Likert scale, resulting in an updated list of 14 items with weightings of 4 or above (see Table 4). In Round Three, panellists (*n* = 5) were invited to:

- classify the strategies as primarily contemplative or pedagogical
- comment on the fact that many of the proposed strategies seemed to exemplify experiential learning
- comment on the lack of specifically digital strategies.

Table 4
Ranked list of AL teaching strategies

AL development teaching strategy	Ranking
Relating attentional literacy to students' own lives, communities and societies	1
Teaching choice and intentional attention	2
Presenting and discussing contemplative/mindfulness concepts, science, and resources	3
Allowing sufficient time for engagement in learning tasks	4–9
Avoiding extended lecturing	
Guiding students through contemplative practices (incl mindfulness and/or somatic exercises)	
Introducing activities to build awareness of attention (e.g., journaling)	
Making subject matter relevant to increase students' attention	
Promoting understanding of attention and its cultural expression online	
Implementing focus-strengthening digital activities (incl digital monotasking)	10–12
Implementing fun activities about focus	
Introducing breathwork and other arrival/centring practices	
Experiencing attention in different contexts	13–14
Providing specific and positive feedback (incl emotional feedback)	

Panellists' comments on AL teaching strategies overwhelmingly emphasised the importance of the overall pedagogical environment, such as building a learning community through "(social) constructivist approaches where the students (collectively) develop the knowledge and where boundaries between 'teacher' and 'student' blur"; making "the curriculum/subject matter interesting … and meaningful to [students], both individually and collectively", while allowing students freedom to explore with "you as teacher mentoring, suggesting, guiding"; and helping "students express their learning in a variety of ways", including by employing "the PBLs: Project-based learning, portfolio-based learning, problem-based learning, passion-based learning, place-based learning, play-based learning".

In line with the notion of CP, panellists generally agreed that it was not possible to classify the identified strategies as either pedagogical or contemplative: "They're all pedagogical since all involve teaching practice". Panellists indicated no surprise that the strategies were experiential, with one noting that "all good learning is and should be experiential" so as to "actively engage and empower students in *their* learning". Nor did panellists indicate surprise at the absence of dedicated digital learning strategies, with one commenting: "Digital or not: good learning is good learning. In digital and non-digital learning environments, good curriculum development, pedagogy, and assessment remain largely the same".

Advantages of helping students develop AL

Our investigation subsequently moved on to pinpointing the advantages of students developing AL. In Round One, panellists (n = 7) listed up to five advantages each, following which we abridged and summarised responses, some once again elaborated through relevant comments, to produce a 20-item list. In Round Two, respondents (n = 5) ranked the importance of these aspects on a 5-point Likert scale, resulting in an updated list of 16 items with weightings of 4 or above (see Table 5). As with the aspects of AL students should develop (see Table 3), panellists (n = 5) were invited to categorise the advantages according to their primary competency area(s), namely knowledge, skills or attitudes.

Table 5
Ranked list of advantages of developing AL in students

AL development advantage	Ranking
Improved focus/concentration	1
Ability to direct cognitive attention towards desired learning	2–6
Deeper engagement in learning (with others and content)	
Development of reflective, integrated, coherent understandings	
Improved listening skills	
Increased critical thinking skills	
Increased empathy	7–10
Meaningful interaction and communication	
Openness to shifting perspectives and values	
Preparation for life and work	
Ability to communicate emerging understandings meaningfully	10–14
Ability to work through anxiety	
Better learning and academic success	
Increased resilience	
Awareness of pressing local and global civic issues and potential responses	15–16
Creativity in learning	

According to panellists, improving AL allows students to engage more deeply in educational processes, resulting in "[b]etter learning!" Less distracted students "can better attend", hence "they are more likely to integrate/synthesize their learning in meaningful ways [and] retain the learning". AL has benefits for individuals, fostering "[i]ncreased joy and calm [and] greater capacities for being responsive rather than reactive" in the classroom and beyond, especially when embedded in a contemplative approach that helps students develop "a greater sense of meaning and direction in their lives, which naturally coincides with a deeper sense of peace and well-being". But AL may equally benefit society at large:

> Distracted people are not good citizens. They are not as capable of paying close attention to pressing civic issues, whether local or global. Without that ability, they cannot formulate well-considered, systemic responses to the increasingly complex issues that dominate life today.

As with the earlier question on aspects of AL students should develop (see Table 3), panellists found it difficult to classify the advantages in terms of knowledge, skills or attitudes. As one respondent indicated, it is important to adopt "a holistic developmental approach in which we employ all aspects of our beings in the engagement: somatics, aesthetics, emotions, intellect, relational abilities, morals, and spirituality".

Disadvantages of helping students develop AL

The last set of questions inquired into the potential disadvantages of helping students develop AL. Although no negative outcomes of AL itself were identified, in Round One panellists (n = 7) mentioned issues related to time, values and student expectations. This led to the formulation of specific questions in Round Two, where panellists (n = 2) gave examples of why helping students develop AL might be valuable and where they (n = 3) gave multiple examples of how they helped students understand this value. Abridged and summarised responses to the last question generated a 13-item list, and in Round 3, panellists (n = 5) categorised these examples as primarily contemplative or pedagogical, before indicating their recommended examples. Finally, panellists (n = 4) offered concluding comments about disadvantages.

Panellists agreed that students might reject AL as not directly related to learning: "It takes time to develop an understanding of what it is, and it is very subjective what it means to the individual", and some students "may expect more cognitive learning". A lack of time was widely seen as an obstacle, including by three of the four who responded to the concluding question, particularly in the face of traditional curricular priorities. One observed that although "developing attentional literacy does take significant amounts of

time", it is time well spent which can lead students into an important consideration of what they want to do with their lives. The results can be profound:

> I have experienced so many students report to me and my colleagues how developing attentional literacy helped them academically and personally (especially emotionally and spiritually). To my mind, this is the epitome of a good university education.

A lack of institutional support was also mentioned, notably in terms of training and resources to support online learning, not to mention teaching what is "outside" the traditional curriculum.

Regarding examples of how to help students understand the learning value of AL, the following were recommended by all respondents (*n* = 5):

- accepting discomfort (i.e., normalising it)
- life-relevant activities
- mind focus activities
- self-directed exploration opportunities
- self-literacy
- small group dialogue.

Most respondents (*n* = 4) recommended these as well:

- body and breath work
- investing time to make the subject matter interesting to students
- journaling time
- practical tools like stillness
- Socratic questioning.

As one panellist put it, all the items listed can offer students "knowledge, attitudes, and skills that will contribute to their well-being and happiness" and are part of "making learning relevant to students and their lives". Another comment indicated that educators should help students understand that "they and their lives are at the heart of academic inquiry"; once "we give them the academic tools that deepen attention", including "plenty of time for small group dialogues … [and] for journaling", students come to appreciate such approaches "because very quickly they see that they work". Often students "naturally progress" well beyond AL itself "to explorations of others and the world – a literacy of self, others, and the world".

Discussion

Research question 1: What is AL?

Our study sought the input of a Delphi panel of contemplative educators to test out our initial definition of AL for digital learning, as derived from the research literature (Pegrum & Palalas, 2021), and to modify and build on it as appropriate. The panel largely validated the existing definition but added detail and, importantly, included a conceptual category absent from the original definition.

The resulting multifaceted definition is reproduced in full below, subdivided into its four constituent clauses (see Table 6). The focus of each clause is elucidated with reference to key concepts drawn from CP (Barbezat & Bush, 2014; Jeffrey et al., 2023): awareness and noticing; focus and concentration, along with intention and choice (a double focus jointly covered in a single clause); openness and curiosity; and consideration of attentional ecosystem. The first three sets of focus points were included in the original, research-based definition, with emphasis on the second (with its double focus) and third, but more detail was added by the panel; while the fourth focus point, regarding the attentional ecosystem, was

contributed by the panel. It is noteworthy that the definition and its key concepts prioritise the development of skills and attitudes (or dispositions) over knowledge building.

Table 6
Definition of AL

Focus point	Full AL definition AL is the ability …	Essential AL definition *AL is the ability …*
• awareness & noticing	to **notice and understand how one's attention is solicited** by and/or drawn to the self (mind-body), others (people, life forms and objects), and the environment (analogue and digital);	to notice and understand how one's attention is solicited;
• focus & concentration • intention & choice	to **intentionally focus** one's attention on information originating from the self, others, and the environment, and to sustain that attention by choice;	to intentionally focus and sustain one's attention;
• openness & curiosity	to **become aware of and remain non-judgemental towards new perspectives**, multiple viewpoints, and shifting contexts;	to become and remain open to new perspectives;
• consideration of attentional ecosystem	and to **consider one's own impact** on the reciprocal, relational and fluid **attentional ecosystem**.	and to consider one's impact on the attentional ecosystem.

There are inevitably challenges in translating conceptual definitions, particularly complex, multifaceted definitions such as this one, into classroom practice. The full definition is therefore accompanied by an essential definition, which summarises the key elements of each clause in a manner designed to facilitate operationalisation by digital educators who may not have a CP background. Although all clauses, and all focus points, are intertwined and mutually supporting, one option for teachers new to this area would be to work through this table in a semi-linear fashion, beginning by raising students' awareness and guiding them to intentionally focus their attention, before widening the perspective to include openness and a recognition of individual and collective contributions to, and their impact on, the attentional ecosystem.

Research question 2. How can teachers develop and maintain AL?

It is essential for educators to engage in "a committed practice of their own" (Barbezat & Bush, 2014, p. 84) and develop AL before they can guide their students in AL activities and practices. Panellists advocated a holistic approach, with personal, pedagogical and PD-related practices being interwoven, and with offline practices (such as walking and meditation) complementing online practices (such as implementing AL during teaching and developing motivating materials). In short, it is by attending to both their own needs and those of their students, offline and online, that teachers can create a learning space conducive to fostering AL. It was suggested that these practices can be helpfully supported by reflection on and discussion of AL within the teaching community.

Similarly, panellists viewed barriers to developing AL as both personal and professional, though it was clear that those which they felt they had the least agency to address were institutional. As two panellists suggested, however, educators are in fact able to exercise a degree of personal and professional agency in their work and their relations with students while still advocating for institutional changes.

Research question 3. How can students develop and maintain AL?

Panellists considered that student AL competencies involve a combination of knowledge, skills and attitudes – notwithstanding a clear emphasis on skills and attitudes over knowledge among the competencies they listed – and that they are not necessarily easy to rank since all are important and interwoven. In the ranking that was nevertheless produced (see Table 3), it is notable that the top nine

items contain a combination of the first three sets of focus points from the updated AL definition: awareness and noticing (e.g., "ability to observe and reflect on one's own attention"); focus and concentration/intention and choice (e.g., "ability to engage in focused reading", which was ranked first); and openness and curiosity (e.g., "ability to be non-judgemental"). The fourth focus point, consideration of attentional ecosystem, appears for the first time within the 12–15 ranking range ("ability to build positive relationships with others"), with several further appearances in the 16–20 ranking range. This suggests the fourth focus point is indeed an important part of the AL definition, but simultaneously serves to endorse the pedagogical strategy proposed above, where teachers introducing AL to their students would address the relational ecosystem last.

It was widely agreed that the teaching strategies to promote these competencies should be experiential, holistically combining the pedagogical and contemplative, with contemplative practices regarded as "complementary to other forms of teaching and learning" (Barbezat & Bush, 2014, p. 85). Significantly, panellists saw no need for specifically digital strategies, viewing good teaching practices as fundamentally similar across digital and non-digital environments. Among the top 14 recommended strategies (see Table 4), the vast majority target one or both of the first two sets of focus points from the AL definition: awareness and noticing (e.g., "introducing activities to build awareness of attention") and focus and concentration/intention and choice (e.g., "teaching choice and intentional attention"). Only a small number touch on openness and curiosity (e.g., "experiencing attention in different contexts"), and only one touches, somewhat obliquely, on consideration of attentional ecosystem ("providing specific and positive feedback [including emotional feedback]"). This would again seemingly serve to endorse the pedagogical strategy proposed above.

Although panellists believed that the advantages of students developing AL competencies, like the competencies themselves, involve a combination of knowledge, skills, and attitudes, the emphasis in their list was once again on skills and attitudes above knowledge. Among the top 16 advantages (see Table 5), there is a more even spread across the four sets of focus points from the AL definition, though with an overwhelming emphasis on the second set, focus and concentration/intention and choice (e.g., "improved focus/concentration", ranked first); this is perhaps unsurprising, given the relevance of this set to education. Clear examples are also present of openness and curiosity (e.g., "openness to shifting perspectives and values") and consideration of attentional ecosystem (e.g., "increased empathy"). This suggests that even if teachers begin by implementing pedagogical strategies for developing AL at the first two levels of the definition, benefits at the third and fourth levels may emerge organically.

Panellists identified limited time and limited institutional support (including technological support) as key barriers to students developing AL but proffered numerous examples of strategies and activities to help students appreciate the value of AL and its application in the classroom and beyond. Typically beginning with fostering learners' awareness and intentional focus – as in the first two sets of focus points in the AL definition – these strategies were seen to have potential to lead students towards an appreciation of the wider, interconnected world and their place within it.

Conclusion, limitations and further research

This three-round Delphi study explored the concept of AL with the input of a panel of digitally experienced CP practitioners, resulting in a multifaceted full definition and an abbreviated essential definition (see Figure 1 & Table 6), and a clear view that AL predominantly involves skills and attitudes over knowledge. It was concluded that educators should begin by developing their own AL in a holistic manner, before implementing pedagogical strategies to guide their students through the stages of AL development, from awareness and noticing, to focus and intentional choice, to openness and curiosity and, finally, to consideration of the wider attentional ecosystem. Increased institutional support and decreased curricular time pressure could enlarge the scope for AL development for educators and students alike.

The study was limited by its small sample size, given the specialised nature of the panel expertise needed, and the long, multi-step Delphi process, during which one participant dropped out. Future Delphi studies

should be conducted with larger panels of educators who do not necessarily self-identify as contemplative practitioners, in order to ascertain the applicability of the AL definition and associated pedagogical strategies to higher education in general as well as to specific disciplines. Future research should simultaneously seek more diverse panels for its findings to be inclusive of different social, cultural, and linguistic backgrounds. It is also important to explore the operationalisation of the concept of AL in day-to-day digital teaching and learning settings, including the viability of educators introducing AL by proceeding semi-sequentially through the four sets of focus points in the definition.

Human attention has come under increasing pressure in a time of hyperconnectivity and digital distraction, detrimentally impacting the effectiveness of online and blended learning. Although we must recognise systemic and structural constraints, it is still possible for educators and students to cultivate AL – as conceptualised in our definition – as a means of regaining and retaining a greater degree of agency over their own attention, with the aim of facilitating more effective digital learning experiences.

Author contributions

Author 1: Conceptualisation, Investigation, Data Curation, Formal analysis, Writing – original draft, Writing – review and editing, Supervision; **Author 2**: Conceptualisation, Investigation, Data Curation, Formal analysis, Writing – original draft, Writing – review and editing; **Author 3**: Conceptualisation, Investigation, Data Curation, Formal analysis, Writing – original draft, Writing – review and editing.

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References

Baartman, L. K., & De Bruijn, E. (2011). Integrating knowledge, skills and attitudes: Conceptualising learning processes towards vocational competence. *Educational Research Review, 6*(2), 125–134. https://doi.org/10.1016/j.edurev.2011.03.001

Barbezat D. P., & Bush M. (2014). *Contemplative practices in higher education: Powerful methods to transform teaching and learning*. Jossey-Bass.

Belton, I., MacDonald, A., Wright, G., & Hamlin, I. (2019). Improving the practical application of the Delphi method in group-based judgment: A six-step prescription for a well-founded and defensible process. *Technological Forecasting and Social Change*, *147*, 72–82. https://doi.org/10.1016/j.techfore.2019.07.002

Bozkurt, A., & Bozkaya, M. (2015). Evaluation criteria for interactive e-books for open and distance learning. *The International Review of Research in Open and Distributed Learning*, *16*(5), 58–82. http://www.irrodl.org/index.php/irrodl/article/view/2218

Brady, S. R. (2015). Utilizing and adapting the Delphi method for use in qualitative research. *International Journal of Qualitative Methods*, *14*(5), 1–6. https://doi.org/10.1177/1609406915621381

Burkeman, O. (2021). *Four thousand weeks: Time management for mortals.* The Bodley Head.

Dell, D. (2021). *Emotional presence in community of inquiry: A scoping review and Delphi study* [Doctoral dissertation, Athabasca University] DTheses. http://hdl.handle.net/10791/361

Ergas, O. (2019). A contemplative turn in education: Charting a curricular-pedagogical countermovement. *Pedagogy, Culture & Society, 27*(2), 251–270. https://doi.org/10.1080/14681366.2018.1465111

Felisoni, D. D., & Godoi, A. S. (2018). Cell phone usage and academic performance: An experiment. *Computers & Education, 117,* 175–187. https://doi.org/10.1016/j.compedu.2017.10.006

Gee, J. P. (2017). *Teaching, learning, literacy in our high-risk high-tech world: A framework for becoming human.* Teachers College Press.

Gelinas, L., Pierce, R., Winkler, S., Cohen, I. G., Lynch, H. F., & Bierer, B. E. (2017). Using social media as a research recruitment tool: Ethical issues and recommendations. *The American Journal of Bioethics, 17*(3), 3–14. https://doi.org/10.1080/15265161.2016.1276644

Goleman, D., & Davidson, R. J. (2017). *The science of meditation: How to change your brain, mind and body*. Penguin.

Green, R. A. (2014). The Delphi technique in educational research. *Sage Open*, *4*(2). https://doi.org/10.1177/2158244014529773

Hämäläinen, R., Nissinen, K., Mannonen, J., Lämsä, J., Leino, K., & Taajamo, M. (2021). Understanding teaching professionals' digital competence: What do PIAAC and TALIS reveal about technology-related skills, attitudes, and knowledge? *Computers in Human Behavior, 117*, Article 106672. https://doi.org/10.1016/j.chb.2020.106672

Hari, J. (2023). *Stolen focus: Why you can't pay attention – and how to think deeply again*. Crown.

Hasson, F., & Keeney, S. (2011). Enhancing rigour in the Delphi technique research. *Technological Forecasting and Social Change*, *78*(9), 1695–1704. https://doi.org/10.1016/j.techfore.2011.04.005

Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing*, *32*(4), 1008–1015. https://doi.org/10.1046/j.1365-2648.2000.t01-1-01567.x

Hecht, A. R. (1979). A modified Delphi technique for obtaining consensus on institutional research priorities. *Community Junior College Research Quarterly*, *3*(3), 205–214. https://doi.org/10.1080/0361697790030301

Hsu, & Sandford, B. A. (2007). The Delphi technique: Making sense of consensus. *Practical Assessment, Research, and Evaluation, 12*, Article 10. https://doi.org/10.7275/PDZ9-TH90

Jeffrey, L., Palalas, A., Robert, K., & Wong, Y.-L. R. (Eds.). (2023). *Presence in the online world: A contemplative perspective and practice guide for educators*. Rowman & Littlefield.

Jeste, D. V., Ardelt, M., Blazer, D., Kraemer, H. C., Vaillant, G., & Meeks, T. W. (2010). Expert consensus on characteristics of wisdom: A Delphi method study. *The Gerontologist*, *50*(5), 668–680. https://doi.org/10.1093/geront/gnq022

Kabat-Zinn, J. (2013). *Full catastrophe living: How to cope with stress, pain and illness using mindfulness meditation* (Rev. ed.). Piatkus.

Landeta, J., Barrutia, J., & Lertxundi, A. (2011). Hybrid Delphi: A methodology to facilitate contribution from experts in professional contexts. *Technological Forecasting and Social Change*, *78*(9), 1629–1641. https://doi.org/10.1016/j.techfore.2011.03.009

Langer, E. J. (1993). A mindful education. *Educational Psychologist*, *28*(1), 43–50. https://doi.org/10.1207/s15326985ep2801_4

Langer, E. J. (2016). *The power of mindful learning* (2nd ed.). Da Capo Press.

Linstone, H. A., & Turoff, M. (2002). *The Delphi method: Techniques and applications*. Addison-Wesley.

Lock, J., Lakhal, S., Cleveland-Innes, M., Arancibia, P., Dell, D., & De Silva, N. (2021). Creating technology-enabled lifelong learning: A heutagogical approach. *British Journal of Educational Technology, 52*(4), 1646–1662. https://doi.org/10.1111/bjet.13122

Mark, G. (2023). *Attention span: A groundbreaking way to restore balance, happiness and productivity*. Harlequin.

McKenney, S., & Voogt, J. (2017). Expert views on TPACK for early literacy: Priorities for teacher education. *Australasian Journal of Educational Technology*, *33*(5), 1–14. https://doi.org/10.14742/ajet.2502

Okoli, C., & Pawlowski, S. D. (2004). The Delphi method as a research tool: An example, design considerations and applications. *Information & Management*, *42*(1), 15–29. https://doi.org/10.1016/j.im.2003.11.002

Page, K. (2019). *College mindfulness training: Reducing student life stress and improving academic performance*. Routledge.

Palalas, A. (2018). Mindfulness in mobile and ubiquitous learning: Harnessing the power of attention. In S. Yu, M. Ally, & A. Tsinakos (Eds.), *Mobile and ubiquitous learning: An international handbook* (pp. 19–44). Springer. https://doi.org/10.1007/978-981-10-6144-8_2

Palalas, A. (2019). Mindfulness for human-centred digital learning. *Argentinian Journal of Applied Linguistics, 7*(2), 110–125. https://ajal.faapi.org.ar/ojs-3.3.0-5/index.php/AJAL/article/view/240

Pegrum, M. (2019). *Mobile lenses on learning: Languages and literacies on the move.* Springer.
Pegrum, M., & Palalas, A. (2021). Attentional literacy as a new literacy: Helping students deal with digital disarray. *Canadian Journal of Learning and Technology, 47*(2). https://doi.org/10.21432/cjlt28037
Pinar, W. F. (2022). *A praxis of presence in curriculum theory: Advancing currere against cultural crises in education*. Taylor & Francis.
Quan-Haase, A., & Wellman, B. (2006). Hyperconnected net work: Computer-mediated community in a high-tech organization. In C. Heckscher & P. S. Adler (Eds.), *The firm as a collaborative community: Reconstructing trust in the knowledge economy* (pp. 281–333). Oxford University Press. https://doi.org/10.1093/oso/9780199286034.003.0008
Rheingold, H. (2009, April 20). Attention literacy. *SFGate.* Retrieved June 25, 2009, from http://www.sfgate.com/cgi-bin/blogs/rheingold/detail?entry_id= 38828
Sekayi, D., & Kennedy, A. (2017). Qualitative Delphi method: A four round process with a worked example. *The Qualitative Report*, *22*(10), 2755–2763**.** https://doi.org/10.46743/2160-3715/2017.2974
Shaikh, Z. A., & Khoja, S. A. (2014). Personal learning environments and university teacher roles explored using Delphi. *Australasian Journal of Educational Technology*, *30*(2), 202–226. https://doi.org/10.14742/ajet.324
Shelton, K., & Creghan, K. A. (2015). Demystifying the Delphi method. In Information Resources Management Association (Ed.), *Research methods: Concepts, methodologies, tools, and applications* (pp. 84–104). IGI Global. https://doi.org/10.4018/978-1-4666-7456-1.ch005
Shi-xu. (2005). *A cultural approach to discourse*. Palgrave Macmillan.
Simmer-Brown, J. (2009). The question is the answer: Naropa University's contemplative pedagogy. *Religion & Education, 36*(2), 88–101. https://doi.org/10.1080/15507394.2009.10012445
Stewart, J. (2001). Is the Delphi technique a qualitative method? *Medical Education*, *35*(10), 922–923. https://doi.org/10.1111/j.1365-2923.2001.01045.x
Wallace, B. A. (2006). *The attention revolution: Unlocking the power of the focused mind*. Wisdom Publications.
Wardle, C., & Derakhshan, H. (2017). *Information disorder: Toward an interdisciplinary framework for research and policy making.* Council of Europe. https://edoc.coe.int/en/media-freedom/7495-information-disorder-toward-an-interdisciplinary-framework-for-research-and-policy-making.html
Wenger, C. I. (2019). Teaching attention literacy: A case for mindfulness in the composition classroom. *Pedagogy: Critical Approaches to Teaching Literature, Language, Composition, and Culture, 19*(1), 53–78. https://doi.org/10.1215/15314200-7173752
Whelan, E., Najmul Islam, A. K. M., & Brooks, S. (2020). Applying the SOBC paradigm to explain how social media overload affects academic performance. *Computers & Education, 143*, Article 103692. https://doi.org/10.1016/j.compedu.2019.103692
Wong, S.-C. (2020). Competency definitions, development and assessment: A brief review. *International Journal of Academic Research in Progressive Education and Development, 9*(3), 95–114. https://doi.org/10.6007/IJARPED/v9-i3/8223

Corresponding author: Agnieszka (Aga) Palalas, agapalalas@athabascau.ca

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