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Behaviourist-Constructivist Pedagogical Design Possibilities Within the Community of Inquiry Framework

Possibilités de conception pédagogique behavioriste-constructiviste dans le cadre de la communauté d'enquête

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Abstract

The discourse on blended learning must not take away focus on learning by concentrating explicitly on technologies. When learner-centred discussions are incorporated, these may be confined to constructivist pedagogies, as evident through the well-established community of inquiry (CoI) framework. While a few early advances argue for behaviourist pedagogies to underpin the CoI framework in particular, and a plethora of literature supports behaviourist-constructivist interplay for blended learning in general, this study pioneers the proposal of these interactions within the CoI framework for blended learning. It also challenges the prevailing stand-alone socio-constructivist pedagogical design of the CoI framework to deal with the complexities of higher education by adopting a decolonial positionality. In this light, we explain the impact of missing out on behaviourist designs on the CoI framework through the problem of epistemological untenability and that of assumed learning. Having provided the rationale for including behaviourist designs, we then emphasize the behaviourist-constructivist interactions within the framework. This discussion paper contributes to the ongoing dynamic scholarship of the CoI and encourages the research community to empirically explore the positioning of such a pedagogical design within this framework.

Keywords: behaviourism, blended learning, community of inquiry framework, constructivism, higher education, socio-constructivism

Résumé

Le discours sur l'apprentissage hybride ne doit pas détourner l'attention de l'apprentissage en se concentrant explicitement sur les technologies. Lorsque des discussions centrées sur la personne apprenante sont intégrées, elles peuvent se limiter à des pédagogies constructivistes, comme le montre le

cadre bien établi de la communauté d'enquête (CE). Alors que quelques avancées précoces plaident en faveur des pédagogies behavioristes pour étayer le cadre de la CE en particulier, et qu'une pléthore de littérature soutient l'interaction behavioriste-constructiviste pour l'apprentissage hybride en général, cette étude est la première à proposer ces interactions dans le cadre de la CE pour l'apprentissage hybride. Elle remet également en question la conception pédagogique socioconstructiviste indépendante qui prévaut dans le cadre de la CE pour traiter les complexités de l'enseignement supérieur en adoptant une position décoloniale. Dans cette optique, nous expliquons l'impact de passer à côté des conceptions behavioristes dans le cadre de la CE à travers le problème de l'insoutenabilité épistémologique et celui de l'apprentissage présumé. Après avoir justifié l'inclusion des conceptions behavioristes, nous mettons l'accent sur les interactions behavioristes-constructivistes au sein du cadre. Cet essai contribue à la recherche dynamique en cours sur la CE et encourage la communauté de recherche à explorer empiriquement le positionnement d'une telle conception pédagogique dans ce cadre.

Mots clés : apprentissage hybride, béhaviorisme, communauté d'enquête, constructivisme, enseignement supérieur, socioconstructivisme

Introduction

The burgeoning importance assigned to technologies seems to have displaced the essence of learning from blended learning (BL), thereby seemingly reducing it to a buzzword (Cronje, 2020). This is because the recent discourse on BL seems to favour the for-profit edtech companies, leading to newer and deeper challenges at the intersection of e-privatization, learning, and equity (Kerssens & van Dijck, 2023). As a result, pedagogy is rarely the driving force behind discussions on BL (Littlejohn & Pegler, 2007). However, it is crucial to understand the state of BL through pedagogical assumptions (Vaughan et al., 2023) so that technologies are employed based on robust knowledge rather than on serendipity (Shield, 2000). Having said this, the conceptualisation of BL by the community of inquiry (CoI) framework (Garrison & Vaughan, 2008; Vaughan et al., 2013; Vaughan et al., 2023) is enriched, considering it to be a thoughtful integration of face-to-face learning with online learning in the socio-constructivist realm. While the CoI makes initial attempts to integrate the concept of learning in BL by embedding the conceptual framework in socio-constructivist pedagogies, this theoretical discussion raises the possibility of broadening the underpinning pedagogical design. The overarching question shaping this discussion is: Could the CoI framework be (re)thought beyond socio-constructivism based on the reinvigorated pedagogical assumptions of behaviourist-constructivist interactions?

This discussion paper acknowledges the early advances favouring the behaviourist stance in the CoI framework (Annand, 2019; Gregory, 1999), supported by the literature questioning the success of teaching-learning underpinned by constructivist designs only (Brandstedt, 2023), though not necessarily sourced from the CoI framework. Evidence regarding learning in resource-crunched context suggests behaviourist-constructivist pedagogies are more effective than the popular constructivist designs (Cronjé, 2000, 2006; Cronje, 2020). Building on the above-mentioned literature, this discussion paper aims to question the prospects of behaviourist-constructivist interactions for BL within the CoI and presents theoretical arguments asserting the possibilities of rethinking the framework.

Learning in practice is complex, especially in blended spaces, demanding pedagogical designs be responsive to the socio-cultural context requirements in which the learners are located. Therefore, this discussion paper raises the possibility of an *interactionist CoI (i-CoI)* framework rooted in behaviourist-constructivist interactions instead of in a socio-constructivist design. Though “behaviourist” is often used interchangeably with "instructivist," "objectivist," or “traditional approach,” for the sake of coherence, this discussion paper uses the term “behaviourist” to denote the perceived opposite of the constructivist approach. Likewise, the term “socio-constructivism” over “collaborative constructivism” is used to draw coherence with literature beyond the CoI framework (Kanuka & Anderson, 1999; Milad, 2019; UC Berkeley, 2021).

Five aspects of comparison between these two positions are noteworthy (Willis, 1995): 1) the learning process for behaviourists is linear and sequential, while the process for constructivists is recursive, non-linear, and chaotic; 2) behaviourists employ top-down planning, while constructivists believe in organic, collaborative, reflective, and developmental planning; 3) learning objectives for behaviourists are decided in advance and are employed to guide development, while those for constructivists are emergent and evolve during design and development; 4) learning for behaviourists entails preselected knowledge transmission, while constructivists emphasize knowledge construction within meaningful contexts; and 5) behaviourists give more weight to summative evaluation and objective data, while constructivists suggest formative evaluation and subjective data are crucial. Similarly, Tam (2000) summarises the different epistemological positions adopted by behaviourists and constructivists. Behaviourists believe that knowledge exists in the physical world, outside the mind of the individual, and is objective. Whereas constructivists believe that knowledge is personal and created by people rather than existing outside of the human mind.

Although we provide theoretical assertion for the i-CoI framework, its empirical verification or construction is beyond the scope of this discussion paper. However, discussion may further encourage researchers to empirically consider, if present, how the behaviourist-constructivist interactions could influence the CoI framework in practice, and possibly nudge them to think about developing the evidence-based i-CoI framework. Further, this discussion paper has potential implications for redesigning context-specific and theoretically informed BL courses for traditional and distance education practitioners and researchers with a mix of behaviourist and constructivist designs.

Context

Popular worldview on conducting technology-enabled learning research for development is informed by countries in the Global North. Although this research aims to enhance the quality of and access to higher education, the challenge begins when applying these theories or methodologies, unaltered, in the Global South, as the socio-cultural context is not the same (Brown et al., 2024). Researchers have called for the decolonization of such research (Brown et al., 2024; Masiero, 2022) by including Southern voices. This discussion paper attempts to propose possibilities to decolonize the well-known CoI framework, particularly for BL research. Two important questions are addressed: a) How can it be ascertained if the CoI framework does not encompass the Southern voices? and b) if so, what can be done to decolonize the CoI framework?

There is significant evidence that the CoI framework is reliable and internally valid (Garrison et al., 2006). Garrison et al. (2004) and Arbaugh (2007) used factor analysis to confirm the structure of the seminal CoI process model. Moreover, it has been found that the three CoI presences are positively related to learning outcomes, including actual and perceived learning, as well as learner satisfaction (Akyol & Garrison, 2008; Martin et al., 2022). However, Garrison et al. (2006) highlight concern regarding the framework's external validity. Guba (1981) explains that in both rationalist and naturalistic stances, the external validity could be assured through context-relevant findings. In other words, a lack of external validity in the CoI possibly points towards diminished context-specific variations. To further ascertain this, the following two supporting pieces of evidence are highlighted. First, the review by Castellanos-Reyes (2020) underscores that the majority of CoI applications are found in American and Canadian contexts. Second, a search on the Web of Science database[1] shows that 4 out of 10 studies related to the CoI framework emerge from the Global South, with only 1 out of 10 studies emerging from countries other than China. The analysis shows that the lack of external validity could be due to its limited application in the Global South, and therefore, we propose that the CoI encompass other voices.

Garrison eloquently remarks,

> I think one of the main problems with CoI research is the tendency to consider every online/ blended learning environment is a true community of inquiry design when, in fact, there is little teaching, cognitive, or social presence (students are reliant on independent activities and texts). (2012, p. 250)

Do these assumptions restrict applying the CoI framework in Global South? We argue that the enriched scholarship provided by the CoI framework could provide direction to enhance different presences, even if compromised in some contexts. However, for that, we need to deeply dissect how the CoI framework can be used more broadly in the Global South context.

For this, we move to the second question. This limitation of not sufficiently attributing southern voices could potentially be linked to the framework's underlying intellectual roots of socio-constructivism in the light of the behaviourist-constructivist divide. It is important to underline that this debate erupted in the Global North context, and in the discourse, the voices from other regions are relegated to the periphery (Cronje, 2006). In support of including the diverse contexts, Spector raises a pertinent question, "Where are the African, Asian, European, Pacific Islander, and South American voices in this dialogue?" (2004, p. 48). Spector expands on positioning the arguments to decolonize the CoI framework, specifically in BL contexts.

[1] The search query comprised of the following keywords: TS=[("Community of inquiry") AND (framework OR model OR survey OR Scale)]. A total of 450 studies between 2004-2024 were analysed by classifying countries as Global North or South following the criteria set by the United Nations (2022), as used in earlier studies (Sareen & Mandal, 2024).

The Community of Inquiry Framework: Paradigmatic Assumptions

The CoI framework, which is widely researched and implemented (Yu & Li, 2022) helps understand the shaping of higher-order learning within different forms of education, including blended higher education (Garrison & Vaughan, 2008; Vaughan et al., 2013; Vaughan et al., 2023). In the CoI, BL is defined as "the organic integration of thoughtfully selected and complementary face-to-face and online approaches and technologies" (Garrison & Vaughan, 2008, p. 148). The CoI is derived from Garrison et al. (2000) seminal work for understanding the educational experience in online spaces and is shaped by the concurrence of three presences: cognitive, social, and teaching. Cognitive presence, an established and undisputed element, is "the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry" (Garrison et al., 2001, p. 11). It is a four-phased process comprising triggering events, exploration, integration, and resolution (Garrison et al., 2001). Beyond the cognitive presence, social presence (Lipman, 1991; Garrison, 2015) creates a constructive environment for expression of emotion, open communication, and group cohesion. Teaching presence is the cohesive element that ushers in the advancement of a managerial role through its three categories, namely, designing, facilitating discourse, and direct instruction.

The CoI is grounded in the socio-constructivist stance of John Dewey where education is viewed as having dual sides, that is, psychological and sociological, wherein neither could be neglected or treated as subordinate to the other (Swan et al., 2009). Anderson (2017) explains that the motivation for developing the seminal CoI model rooted in socio-constructivist design was to include cooperative and collaborative learning, which did not gain much prominence in the earlier behaviourist designs. This growing focus towards the collaborative dimensions of learning was because the potential of social learning activities like peer-to-peer interaction and study groups had been validated by that time through extensive research in classroom-based learning. With more research, the CoI expanded from online (Garrison et al., 2000) to blended learning (Garrison & Vaughan, 2008; Vaughan et al., 2013; Vaughan et al., 2023), although with unchanged underpinning assumptions of socio-constructivist designs which remain largely uncontested (Annand, 2019).

Changing Pedagogical Trends in Blended Learning Discourse

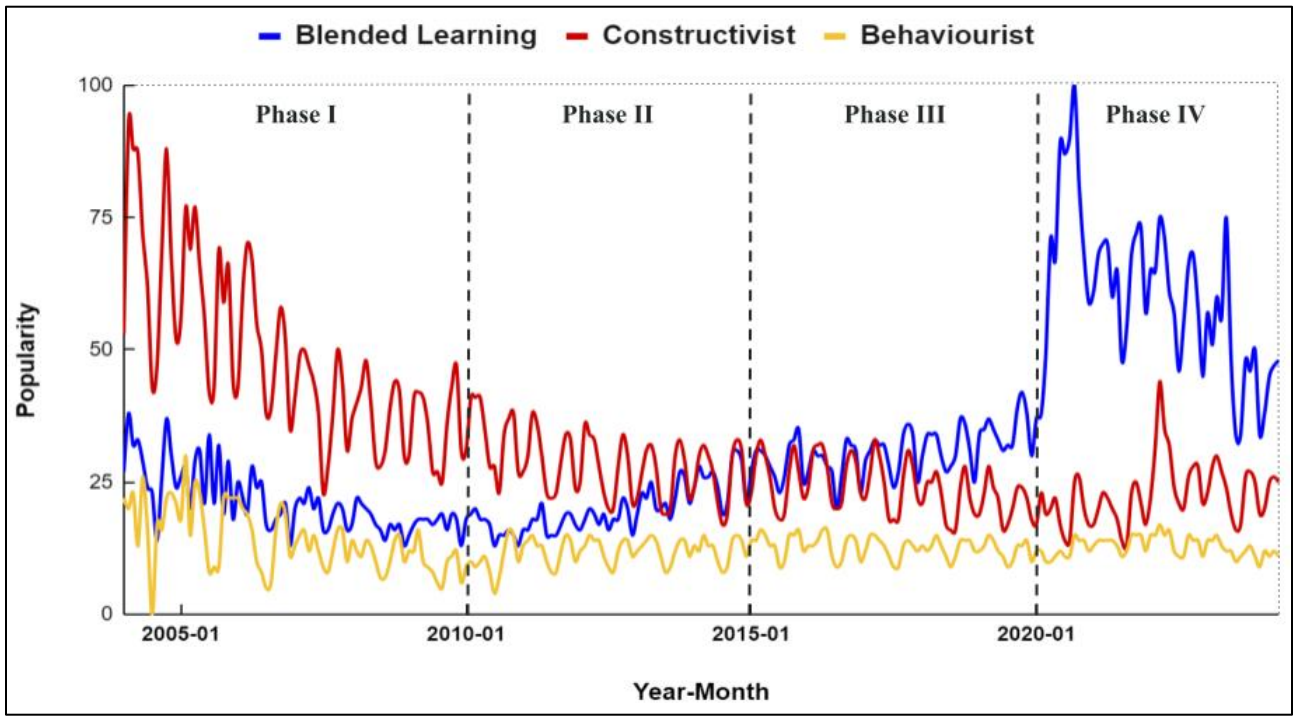
Locating BL discourse within socio-constructivist pedagogy is not unique to the CoI framework. Through trend analysis from 2004–2024, constructivist designs show gained prominence in the BL discussions over behaviourist designs. The unfolding of BL literature regarding pedagogies is outlined in Figure 1, elaborated below through the four evolutionary phases. The classification into behaviourist, constructivist, and BL emerged from the search interest through the data obtained via Google Trends.

In the first phase, prior to 2010, behaviourist designs dominated BL discourse, as shown by the overlapping of their lines in Figure 1. The constructivist designs which had become popular were still being researched (Adams, 2006; Terhart, 2003), without much intersection with BL discourse. During this time, there was noticeable ambiguity in understanding BL, including a lack of agreement on its key terms (Driscoll, 2002; Graham, 2006; Sharpe et al., 2006; Valiathan, 2002; Whitelock & Jelfs, 2003).

Nevertheless, what remained unchallenged was the genesis of educational technology, a crucial part of BL, which was rooted in behaviourist pedagogies. The behaviourist tendencies in educational technology can be exemplified through the design of modern-day online education software programs resembling Skinner's teaching machine of 1958, shaped by programmed learning and meant to reinforce students' behaviours (Shield, 2000).

Figure 1

Relative Popularity Trends of Blended Learning, Constructivist, and Behaviourist Designs



Note. The graph is plotted based on search interest through the 2004-2024 data obtained via Google Trends. This graph is the authors' own image.

The second phase (2010-2015) saw a gradual increase in the interest in BL. This was a transitory phase when the discussion regarding the behaviourist roots in BL discourse was declining, replaced by discussions regarding constructivist designs (Weegar & Pacis, 2012). This shift is evidenced by the increasing gap between the BL and behaviourist design popularity followed by BL approaching and overlapping with that of constructivist designs (Figure 1). After this phase, the behaviourist designs lost popularity in BL discourse (Ojeaga & Agbi, 2015).

The third phase (2015-2020) showed a predominance of constructivism in BL discourse, observed through overlapping between the lines representing BL and constructivist designs (Figure 1). This is also the time when the first volume concerning CoI and BL, titled *Blended learning in higher education: Framework, principles, and guidelines* (Garrison & Vaughan, 2008), was gaining popularity, and the second volume in the series, titled *Teaching in blended learning environments: Creating and sustaining communities of inquiry* (Vaughan et al., 2013), was released. Both volumes locate BL in

socio-constructivist designs, thus reiterating the increased popularity of constructivist designs in BL discussions.

The fourth phase, after 2020, in which the popularity of BL increased substantially, saw two major trends in pedagogies, that is, a) receding discussions at the intersection of pedagogies and BL, followed by b) constructivist designs finding their way back. This may be because the global pandemic was accompanied by an increased focus on technologies that relegated learning to the periphery, inviting renewed interest from ed-tech corporations (Brown, 2021). This meant that neither behaviourist nor constructivist designs formed a major part of BL scholarship during the initial part of this phase, as it was dominated by political and economic agendas of the platforms (Artopoulos, 2023). In other words, the personal interests of the for-profit ed-tech corporations overshadowed the learning process. This could be observed through a significant increase in the search interest regarding BL, leaving behind the interest in the constructivist and behaviourist designs, as seen in Figure 1. Critical scholarship followed, wherein researchers and educators argued for bringing learning back into BL, as witnessed from the interest in BL approaching that of constructivist designs. In this regard, Cronje (2020) writes

> it seems that few authors notice the irony that the definition of blended learning does not include the concept of learning at all. The problem with these definitions is that they are devoid of theory and thus lead to trial-and-error research. (p. 114)

Having said this, only the constructivist designs, to some extent, could find their place back in the recent BL discourse. This trend is supported by the release of the third volume on CoI and BL advocating for constructivist designs, titled *Principles of blended learning: Shared metacognition and communities of inquiry* (Vaughan et al., 2023).

Therefore, this section poses the central problem of behaviourist designs losing popularity in BL discussions due to the over-emphasis of technologies over pedagogies in general and among the pedagogical designs, the popularity of constructivist design pushing back behaviourist designs.

Why is Missing Out on Behaviourist Design a Problem?

This section highlights two problems that may arise because of the deficit of behaviourist designs underpinning the CoI framework for BL. The first issue focuses on philosophical concerns and the second on practice-related challenges.

Challenge of Epistemological Untenability

The seminal CoI framework (Garrison et al., 2000) was originally developed for online spaces, informed by socio-constructivist pedagogy. It was eventually extended to blended spaces; however, the underlying assumptions of socio-constructivist designs were not altered. In this paper, we call this the problem of epistemological untenability in the CoI framework for BL, as the pedagogical design shaped by one of the contributing epistemological assumptions in BL (i.e., classroom learning) is not accounted for in the CoI. Blended learning can be understood to be a homogenous mixture. For BL, the online and in-person segments are mixed thoughtfully, and while these segments retain their individualism, they also contribute to comprehensive knowledge generation in a complex space. Unlike a compound with a

fixed composition of its constituent elements, BL could be tailored and customized to learner needs and the socio-cultural context. In the same manner, particularly in the context of Global South, how feasible would it be to assert that the CoI is only underpinned by socio-constructivism? It may be worth considering the other theories that contribute to the complex whole that forms learning. It is crucial to question the tenability of leaving behaviourist designs which shape both classroom and online pedagogies in this narrative.

Understanding BL as a thoughtful mixture over a compound is not linear. Two contrasting spaces are integrated (Adams, 2006; Kanuka & Anderson, 1999), each packed with different epistemological assumptions (Ahmad et al., 2020; Bednar et al., 2013). This combination of placing behaviourist and constructivist pedagogies together has been ruled out in the past (Jonassen, 1991; Khan & Nawaz, 2010). In Jonassen's (1991) linear approach, also called the mid-point approach, the two paradigms are at the two ends of a continuum (Vrasidas, 2000). If this continuum model is adopted, the co-existence of these paradigms would not be possible because, at any point in the continuum, if one component increases, the other is bound to decrease. This would imply that the instructor could either follow a behaviourist or a constructivist approach. However, this approach would not be inclusive as some learning activities may simultaneously have low or high behaviourist and constructivist characteristics (Cronjé, 2006). Consider the case of learning abstract mathematics. Lectures and drills and practice at the individual level usually proceed before group discussions to make sense of the critical discourse, with constant swaps between these positions. In such a case, this mid-point approach fails to cater to the complexities of BL. Given such possibilities, we propose placing behaviourist and constructivist designs together.

For this, we investigate more cases where traditionally refuted concepts are integrated together and take refuge in a similar case of mixed methods research. Herein, the contributing elements– quantitative and qualitative–have different worldviews. While the quantitative domain falls within positivism or post-positivism, asserting objective reality, the qualitative domain embraces a naturalistic stance, endorsing subjective reality. It was only after several decades of debate that researchers showed consensus on retaining both worldviews in mixed methods research, contingent on the study design. Today, mixed methods research is known for high credibility and robust analyses (Creswell & Clark, 2018).

Drawing from this example, it may be appropriate to posit that BL could be a thoughtful experience by retaining the epistemological assumptions of both contributing segments. By using the term “thoughtful” in the BL definition (Garrison & Vaughan, 2008, p. 148), it is implied how the learning experience is approached (Vaughan et al., 2023). In other words, the epistemology of face-to-face and online segments is underscored. The epistemology means “how to perform or “do” in a domain” (Kirschner, 2009, p. 151). These epistemological beliefs of a domain may shape the pedagogies for teaching (Lammassaari et al., 2021; Stoddard, 2010), i.e., “how to learn or be taught in a domain” (Kirschner, 2009, p. 151). This implies that the epistemological assumptions of face-to-face and online learning for BL may shape the pedagogical designs chosen in practice. Next, we explain that the epistemological beliefs about face-to-face learning shapes behaviourist pedagogies, while online learning shapes constructivist and behaviourist pedagogies. For BL, if both the epistemological beliefs

underpinning face-to-face and online learning are to be retained (like in the case of mixed methods research), then both behaviourist and constructivist pedagogies may need to be included.

However, looking closely into the CoI framework for BL, we see a "problem of missing out" on behaviourist pedagogies. As a solution to this philosophical issue, we propose including behaviourist designs in the CoI framework for BL.

Epistemological Assumptions Shaping Pedagogies

Before the second point further explains the practice-related challenge of assumed organic learning, we explain how the epistemological beliefs about the two segments of BL shape pedagogies. Through a chronological analysis, we find that the epistemologies underpinning face-to-face learning majorly shape the behaviourist pedagogies, while those nurturing online learning shape both the constructivist and behaviourist pedagogies.

In earlier days, learning was seen as knowledge transmission, encompassed by the behaviourist paradigm. However, the advent of interactive technologies, including online learning, shifted the focus to knowledge building, as entailed by the constructivist paradigm. Cullen et al. (2002) explains that in the twenty-first century, educational research is experiencing a paradigm shift from traditional didactic approaches to constructivist pedagogy, grounded in four pedagogic methodologies: expository, interactive, conversational, and experiential methods. This shift could be illustrated through the techno-pedagogical matrix developed by Anderson and Dron (2011), which maps traditional technologies like mass media, print, or radio with behaviourist designs and advanced technologies like web conferencing with constructivist designs. Given that most innovative methods embrace technology (White-Clark et al., 2008), the shift from behaviourist to constructivist designs aligns broadly with the shift from traditional face-to-face teaching to technology-enabled learning by virtue of genesis.

This paradigmatic shift is grounded in epistemological differences. Behaviourists recognize how external environments can alter behaviour and lead to learning, thus associating the epistemology of physical space with behaviourist designs. However, in the case of online learning, external space is not a tangible space like brick-and-mortar. Therefore, this innovative space seems to have more affinity to constructivist designs (Blanchette & Kanuka, 1999).

The epistemological assumptions of online learning with constructivist pedagogies are not that discrete, however, as we also see possibilities from the literature on associating behaviourist pedagogies with online learning. This could be explained through the example of Skinner's teaching machine (Shield, 2000) which allows for reinforcement in online learning. This becomes more pronounced with virtual space providing scope for synchronous online communication. It also allows for the integration of rewards and punishment systems in real-time (Weegar & Pacis, 2012), thus leading to the possibility of relating the epistemology of online spaces to behaviourist pedagogies.

Challenge of Assumed Organic Learning

Grounding in practice (Vaughan et al., 2023), conveyed by the term "organic" in the BL definition (Garrison & Vaughan, 2008, p. 148), could be an assumed idea in the absence of behaviourist pedagogies. Vaughan et al. (2023) espouses that "if we are to deal with the theoretical and practical

complexities of rethinking the educational experience from a blended learning perspective, then the first challenge is to provide conceptual order that goes beyond rigid, non-reflective recipes" (p. 11). We may surmise the mention of *rigid, non-reflective recipes* to behaviourist designs and underscore their narrow understanding. These are not necessarily

> static and unchanging, nor does it imply that the mental representations of it in individual minds will be identical copies. Depending on personal perception, there will be variation in dimensions such as quality and depth of understanding, emotional presence and personal opinion, but they have to share the essential features if they are to be called knowledge of the same thing. (Brandstedt, 2023, p. 1571)

Thus, behaviourist pedagogies may not be as ominous (Gregory, 1999) as portrayed in constructivist literature.

It is unsurprising that constructivist designs remain largely unchallenged in literature. For example, Brandstedt (2023) discussed how astronomy could be taught by reading a book, which would align more with behaviourist stance, or by observing the movement of the sun and shadows, representing the constructivist stance. While adopting the second stance may be appealing, doing it in the absence of the first stance may paint an impractical and "romanticised and unrealistic picture" (p. 1572). It may be equivalent to disregarding the years of systematic observations and analyses to produce the astronomic theories.

Brandstedt (2023) notes, "But even though teachers cannot build their students' knowledge for them, they can provide them with more than just scaffolding; they can provide building materials and blueprint too" (p. 1573). The scholar critiques the idea of simply handing materials to the students in either modality, and leaving them to their own devices with the mirage of learning. Thus, in practice, leaving behaviourist designs under the assumption of stand-alone constructivist designs being sustainable enough may not lead to holistic and effective teaching-learning.

COI Framework and Behaviourist Pedagogies: Three Green Flags

Having explained the reasons for missing out on behaviourist designs in the CoI framework and its impact, three early pieces of evidence from the literature embracing the possibilities of behaviourist pedagogies in the CoI framework for BL are provided. While not exhaustive, this list is sufficient to (re)consider the CoI framework's fundamental assumptions. First, Gregory (1999) hinted towards a behavioural pedagogy for the CoI framework by remarking "we save the community of inquiry for the last, and do a detailed behavioural analysis of its virtues" (p. 35). The central virtues considered are cognitive, affective, democratic, and semantic. Annand (2019) adopted a slightly different approach, not reaching a very different conclusion about the CoI framework emerging from an objectivist paradigm, in which behaviourist theories could arise. Annand's primary argument goes back to the development of the seminal CoI framework drawn from asynchronous text-based computer-conferencing transcript analysis, reasoning that transcript analysis is a common means adopted in the behaviourist paradigms. Further, Anderson (2017) expresses surprise at the applicability of the CoI framework in behaviourist settings (e.g., in the case of xMOOCs).

Behaviourist-Constructivist Interactions in the CoI Framework

This discussion paper proposes that behaviourist-constructivist interactions underpin the CoI framework for BL. In this section, we move forward to suggest how these two pedagogies could be placed together within the CoI framework and offer broader constructivist designs as an alternative to the socio-constructivist designs advocated in the CoI.

Constructivist Designs Versus Socio-Constructivist Designs

Constructivism describes a coherent set of theories connected by active learning (Adams, 2006) and entails different positions with socio-constructivist designs being one (Kanuka & Anderson, 1999). Two typologies of constructivism–cognitive and social–have gained immense popularity. This can be attributed to the substantial change occurring in the foundational understanding of learning from converging on external behaviour (behaviourist) to focusing on mental processes (cognitive constructivism) and, subsequently, an impetus to focus on shared construction of knowledge (socio-constructivism) (Milad, 2019; UC Berkeley, 2021). Socio-constructivism locates an individual within a socio-cultural context and concentrates on shared knowledge by means of conversational language and social negotiation, acknowledging multiple realities through shared meaning (The Cognition and Technology Group at Vanderbilt, 1991).

Vygotsky is critical of disregarding the cognitive role while considering the socio-cultural learning contexts (Fosnot & Perry, 1996; Wolsey & Fisher, 2009). Similarly, Cobb's (1994) theoretical ideas indicate coherence between cognitive and social constructivism, espousing that knowledge construction through social interaction takes place in the learner's mind (cognition). Therefore, defining constructivism has been difficult (Weegar & Pacis, 2012), but there is some agreement, if not complete, between its different branches. These various constructivist positions are upheld by the idea of "construction" (Terhart, 2003, p. 29). Two core presumptions that unite these distinct positions are creating knowledge from prior experiences and active learning (Kanuka & Anderson, 1999). Thus, (re)emphasizing the commonalities between these strands, we proceed with the core understanding of constructivism.

Behaviourist-constructivist interactions embrace both pedagogical designs to have strong implications for shaping context-based teaching and learning practices. These interactions come with the fundamental assumption that neither thought is flawed, as the behaviourist-constructivist divide is a problem of a false dichotomy. This paper is guided by Cronjé's (2000, 2006, 2022) and Cronje's (2020) perspective that these two approaches are complementary rather than opposite. Cronjé (2006) points out that the emotionalization of the behaviourist-constructivist divide is caused by the exaggeration of new ideas by distorting and denigrating traditional paradigms. Therefore, we must not only de-emotionalize the behaviourist-constructivist divide but also understand the interactions more deeply and situate them in specific socio-cultural contexts.

Van Merriënboer and Kester, as cited by Elander and Cronje (2016), note that "researchers should always have an open mind for research based on competing theories and paradigms because radically new ideas and perspectives will most likely develop at the interface between paradigms"

(p. 390). This paves the way towards cherishing the behaviourist-constructivist interactions as an alternative to stand-alone constructivist designs (Campbell et al., 2020; Chou, 2020; Cook, 1993; Elen, 2017; Philips, 1995). Similarly, numerous researchers have attempted to explain the bridge between the two paradigms, thereby supporting the idea that learning employs the usage of elements from both sides (Smith & Ragan, 1999). For instance, Rieber suggests "microworlds" (1992, p. 93) to connect the two positions, while Alessi and Trollip (2001) propose a triangle joining behaviourism, cognitivism, and constructivism. Vrasidas (2000) offers a pragmatic view by remarking that, in practice, these paradigms co-exist and are employed depending on the need to change to be more linear or holistic.

Drawing upon Vrasidas's ideas, Cronjé (2000, 2006) proposed the matrix model for integrating behaviourist and constructivist pedagogies in a complementary and harmonious manner by placing them orthogonally to each other. Cronjé's (2000, 2006) quadrant model places the two paradigms at right angles, i.e., behaviourism at the x-axis and constructivism at the y-axis, resulting in four quadrants. Moving anti-clockwise, the first quadrant is high in both paradigms by design and is referred to as the "integration" quadrant; the second quadrant is high in constructivism and is called as "construction" quadrant; the third quadrant is low in both paradigms and is referred to as the "immersion" quadrant; and finally, the fourth quadrant is high in behaviourism and is called the "injection" matrix. Elander and Cronje (2016) note the resonance of this four-quadrant model (Cronjé's, 2000, 2006) with the conceptual framework developed to aid decision-making, called the Cynefin framework (Kurtz & Snowden, 2003).

Cronjé (2000, 2006, 2022) and Cronje's (2020) work aids in explaining the nuanced behaviourist-constructivist interactions. This modified CoI framework rooted in these interactions instead of socio-constructivist designs is called the interactionist-community of inquiry (i-CoI) framework. Thus, the idea of the i-CoI framework could aid in optimizing learning in a given socio-cultural context (Cronje, 2020), possibly making this framework more "thoughtful" and "organic" in the context of BL.

Conclusion

This discussion paper highlights the central challenge of behaviourist designs taking a backseat in BL discourse because these are outweighed by the popular constructivist designs and further impacted by the importance afforded to technologies over learning. However, we argue for the importance of behaviourist designs in BL because of the complex nature of learning. This discussion is systematically developed by taking a decolonial positionality, particularly in the context of the CoI framework for BL and rooted in two theoretical arguments. The first argument underscores the problem of epistemological untenability by leaving behaviourist designs, thus proposing its placement with constructivist designs.

The second argument highlights the problem of assumed learning in the absence of behaviourist pedagogies. It is proposed that behaviourist designs, through behaviourist-constructivist interactions, are included in the i-CoI framework. It is assumed that the i-CoI framework may more comprehensively cater to student learning needs from diverse backgrounds and could possibly be adapted for various contexts.

Notably, limitations of this study exist. First, despite the wider applicability of the CoI framework, this discussion paper is restricted to BL contexts. Second, this study raises questions but does not advance in further analysis. Researchers are urged to continue to study behaviourist-constructivist interaction possibilities in the CoI framework and to understand the role of emerging theories like connectivism, paving the way for the CoI to become a learning theory for BL.

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