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Anatomy of Blended Learning Integration in Higher Education: Reflections of Academics in a Comprehensive University

Billey Addam*
Faculty of Education
Walter Sisulu University, South Africa

Abstract. The transition from the traditional face-to-face mode to the innovative blended learning (BL) mode has not only transformed the academic landscape of higher education but also inspired a rethinking of curriculum pedagogical approaches and perspectives. Accepting and implementing new-generation technologies to complement the learning environment is critical to this transformative agenda. This study delves into the experiences of academics integrating BL and pedagogical implications for quality education and improved academic output. Using a qualitative research approach in the interpretive paradigm, this case study selected ten academics, eight from four faculties and two instructional designers at the university. The data generation tools included open-ended qualitative questionnaires and semi-structured interviews. The community of inquiry and innovative pedagogy lenses informed the thematic analytical process. The findings revealed that academics possess the expertise, best practices, and innovation that could shape the BL environment. However, many may lack a clear understanding of BL, modes, models, and pedagogies that best promote learning and teaching in the classroom. Additionally, the institution has not adopted definite BL modes and models with a framework to guide the academics in the implementation process. It is, however, imperative that demand exists for continuous staff development as contemporary technology remains dynamic. Also, the institution must provide the necessary infrastructure and systems that enable academics to facilitate innovative curricula in BL mode with a comprehensive comprehension of concepts, theoretical frameworks and realigned pedagogies.

Keywords: anatomy; blended learning; community of inquiry; face-to-face; pedagogical realignment

* Corresponding author: *Billey Addam, baddam@wsu.ac.za*

1. Introduction

Integrating blended learning (BL) in higher education represents a significant shift in academics' approach to their scholarly responsibilities. This shift extends beyond improved productivity, quality education, increased throughput, research output, and collaborative engagement into a complete realignment of paradigms and perspectives. It involves harnessing the potential of digital technology, particularly 'new-generation technology' such as digital platforms and tools, learning management systems, and search engines. Also, Generative Artificial Intelligence-powered platforms (PowerDrill, Litmaps, Elicit, Jenni, etc.), facilitation strategies and pedagogies to deliver new-generation learning and knowledge production in a contemporary era.

The potential for a deeper understanding of its relevance to transform the academic environment is becoming increasingly apparent as BL processes evolve. Many advocates (Addam & Omodan, 2022; Anthony, 2024; Hill & Smith, 2023; Olaitan et al., 2024) express excitement about BL's transformative capability in the academic environment. This exciting trend includes the potential of frontiers necessary for knowledge construction despite the challenges that may arise.

Combining digital and face-to-face (f-2-f), instruction has gained high attrition and is accepted as the new normal in higher education. Researchers focused on pedagogical competencies, content delivery, communication, and assessment (Alamri et al., 2021; Beckman et al., 2021; Rasheed et al., 2020). The rapid emergence of new digital technologies, such as Generative Artificial Intelligence, requires recasting that responds to opportunities and limitations of new blended formats that meet contemporary educational demands. Scoping literature revealed a dearth of scholarship on the experiences of academics (institutional context – lecturers, researchers, support staff) as BL implementation agents.

Within this knowledge, the study's attention is drawn to contribute insights gathered through reflections of academics, especially on understanding the concept, its implementation, and experiences with it. Furthermore, the study findings inform teaching practices in the BL environment, enhance teaching quality, inform institutional decision-making and contribute to the scholarship of teaching and learning. Additionally, the study's focus provides rich, multifaceted perspectives and diverse manifestations of the mode in educational settings. The subsequent section situates the problem within the research questions.

2. Research Aim and Questions

BL has become a buzz terminology across all spheres of academic facilitation in universities. Its implementation and effective adoption rely mainly on understanding and continual reflections on the concept. This study aims to uncover the experiences of academics as they reflect on their BL trajectory. The questions below stimulated the discussion.

RQ1. What is the academics' understanding of the concept of BL?
RQ2. How do academics implement BL in the classroom environment?
RQ3. How do the academics reflect on their experience with BL?

3. Literature Review

There has been much debate, theoretical development, and perspectives on BL for quite some time. Many discussions centred on universities adopting digital tools in teaching and learning before and during the COVID-19 pandemic, referred to as online and remote online academic engagement. However, these were more of an institutional innovation process than a holistic endeavour. With the rapidly transformative educational trajectory, universities have embraced contemporary digital technology and traditional facilitation strategies (BL) to foster learning and teaching. This requires an in-depth conceptual understanding, pedagogic rethinking, restructuring (physical, mental, etc.), knowledge reconstruction, inclusive learning (collaboration) and information transfer (Padilla Rodriguez & Armellini, 2021; Rosenbusch, 2020). These are stimuli needed by academics, but with very little literature available, the study explored the experiences of academics as they navigate the BL environment in the selected institution.

3.1 The Concept of Blended Learning

Several authors (Anthony et al., 2022; Garrison & Kanuka, 2004; Graham, 2013; Hrastinski, 2019) share cumulative traditional and contemporary perspectives and understandings of the concept. For example, Graham (2013) discusses BL as a combination of face-to-face and technology-mediated facilitation. Similarly, Garrison and Kanuka (2004) contend that BL is a planned integration of classroom and online learning experiences. These I consider in simple terms to validate the perspectives of face-to-face and online instruction and learning, which satisfy the cumulative traditional explanation of BL. Anthony et al. (2022), Hrastinski et al. (2019), Subramaniam and Muniandy (2019) and Owston et al. (2019) project BL as a system that blends online and face-to-face delivery in education.

The BL process in this study also includes Hybrid and HyFlex modes. The hybrid learning process combines face-to-face and virtual systems simultaneously, with a time-bound, fixed schedule and instructions divided between the two models. The approach benefits courses with large student numbers (contact universities) where groups are formed to rotate in-person and virtual participation in lessons (synchronous). On the other hand, the HyFlex mode offers a more flexible schedule for students (distant universities) to decide on in-person and virtual attendance, with no time and location restrictions. It encourages self-paced learning (Columbia Centre for Teaching and Learning, 2020). Fundamentally, both modes (Hybrid and HyFlex) offer students autonomy and self-directed learning opportunities.

3.2 Rethinking Pedagogy

A shift from the traditional face-to-face to a blended model has drawbacks such as leaving behind socio-economically disadvantaged students, academics with inadequate knowledge and technology proficiency and pedagogical re-orientation. With these limitations, it is imperative to rethink pedagogy as it is more relevant today with the emerging new possibilities and potential threats of the rapidly evolving digital technologies. Furthermore, at a time when students "learning to learn" and "learning to think" are at the fore of education (Omodan & Marongwe, 2024; Schlebusch & Manyarela, 2024). This contention of students'

"learning to learn" and "learning to think" needs to be operationalised within a context where academics are capacitated, knowledgeable, and provided with support systems and a contextualised environment to integrate evolving digital resources and tools in BL environments. In essence, digital technology integration without adequate reshaping pedagogy could undermine opportunities and the principles of "learning to learn" and "learning to think".

While rethinking pedagogy culminates in transformational sustainability that alters a technology-integrated environment, it requires a corresponding set of reforms in the proficiencies of academics to the diverse use of digital technology in education. Addam and Omodan (2022) argue that technical changes such as academics' technical competence (knowledge and skills to use digital resources) are essential. Likewise, instructional refinement is vital for identifying and using appropriate technology tools to enhance students' understanding of the subject matter. Additionally, a need for an epistemological shift that transcends subject boundaries to facilitate modes of intervention and practical management of teaching-learning activities in a collaborative environment must not be overlooked (Rabbi et al., 2024). Rethinking pedagogy, transformational competencies, proficiency reforms, and changes (technical, instructional and paradigmatic) should be accompanied by infrastructural restructuring to sustain a digitally mediated BL environment.

3.3 Digital Infrastructure Restructuring

The impact of digital technology infrastructure at the macro (institutional) and micro (individual) levels is expected to produce dynamic gains arising from improved learning and teaching. The performance impact of contemporary technological infrastructure that allows for collaborative and inclusive platforms to maximise learning outcomes has been revealed by several researchers. Nchake and Schuaibu (2022) consider the multidimensional nature of BL and suggest that infrastructural quality and quantity could promote digital connectivity and enhance inclusive growth and robust discourses in the university environment. In the same vein, Anthony (2024), Alekhina and Ganelli (2023) and Padilla Rodriguez and Armellini (2021) have analysed the critical role of infrastructural restructuring as a potential mechanism for digital connectivity expansion across many spectrums, thus minimising the disparities in education. This is important because it will provide the environment for global digital homogeneity amongst higher education institutions.

3.4 Knowledge Reconstruction

Not only has technological advancement enabled new ways of interacting with content, but it has also allowed innovative ways of creating and presenting content coupled with knowledge reconstruction and transfer in a rapidly evolving digital educational environment. Castañeda and Selwyn (2018) and Pane (2018) argued the role of digital technology in inclusive education promulgated in the sustainable development agenda. UNESCO (2016) emphasised the importance of strengthening digital technology integration in education to achieve the outlined Sustainable Development Goal through SDG4 on quality education. Thus, it questions basic and cherished assumptions about knowledge and its legitimacy in advancing higher education's academic transformation and reform processes.

This draws attention to knowledge reconstruction and transfer through innovative pedagogical strategies that meet contemporary societal requirements.

The reconstruction of knowledge and transfer are dynamic processes that must co-occur. Though there has been much emphasis on knowledge transfer, the extent to which knowledge can be effectively transferred in the institution is not pronounced (Vick & Robertson, 2018). The institution in this context needs to develop frameworks and systems to enhance the knowledge transfer and acquisition process speedily.

3.5 Inclusive Learning

In a rapidly changing and highly interconnected learning space, students require diverse skills and must continue to acquire them throughout their lives. The basic skills essential for lifelong learning and social cohesion are the groundwork provided through inclusive learning in the school environment (Addam & Omodan, 2022). Regardless of identity, learning preferences, race or learning challenges, an inclusive learning environment through BL platforms makes students feel supported intellectually and academically.

Addam and Omodan (2022) also observed that BL platforms facilitate diverse interactions (peer-to-peer, learning programmes, sources of information) that create opportunities to improve learning quality, relevance and inclusiveness. The community of inquiry (COI) presence (teaching, cognitive, social) is vital in BL strategies that promote collaboration and shared responsibility, thus encouraging inclusivity in the learning environment (Garrison, 2017). In addition, BL supports relationships between the different elements, including augmented and visual realities, reinforcing understanding in different settings (Mendoza & Venables, 2023).

3.6 Theoretical Framework

A BL theoretical framework of the revised COI (social, cognitive, teaching and learning presences) and innovative pedagogies (heutagogy, peeragogy and cybergogy) informs the study. Advocates of the COI (Batchelor, (2020) suggest that effective BL initiates students into a connectivism learning experience and requires academics to understand the framework clearly. In the context of this study, the co-construction of knowledge and adequate application of diverse technological resources underscore the learning process. Hence, the adoption of the revised COI (social, teaching, cognitive and learning presences) proposed by Wang et al. (2023). The BL environment is beyond COI and thus influenced by innovative pedagogy (IP) proposed by Anuar et al. (2024). The diagram below illustrates the correlation between COI and IP.

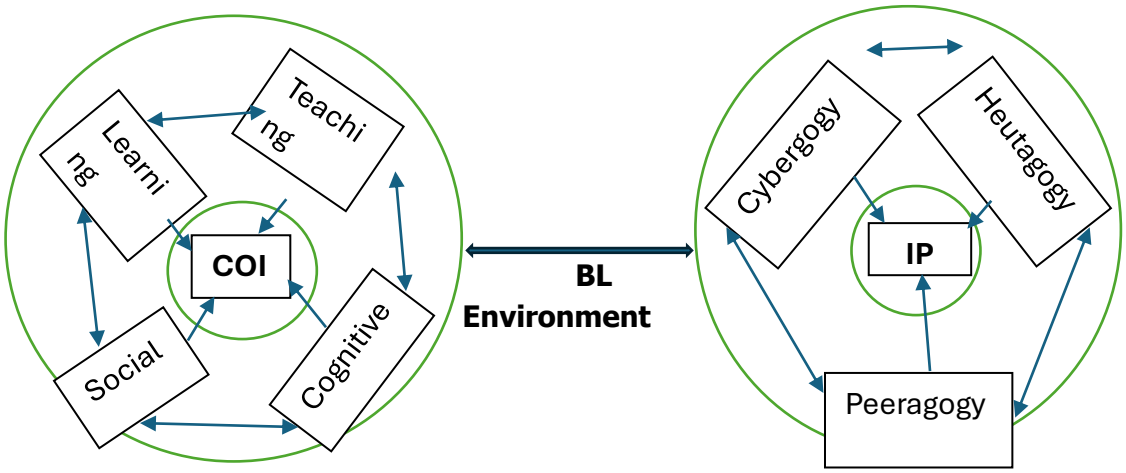

Figure 1: Integrated IP and COI framework
(Adapted from Wang et al., 2023, & Anuar et al., 2024)

According to Wang et al. (2023) and Zhang (2020), teaching presence outlines the role of the academic as the instructor and provides structure. The social presence emphasises the relevance of constructing a socially coherent atmosphere that enhances communication. Cognitive presence considers practical inequity to trigger events for curiosity and critical thinking towards problem-solving. All these presences will be operationalised in a learning presence that stimulates reflective agency, control, and self-directed learning.

Regarding innovative pedagogies, Anuar et al. (2024) focus on approaches that can provide academic structural learning, co-creating learning with peers and digital learning environments to develop students' cognitive, emotional, and social skills. The table below espouses the pedagogy, associated principles, and aspects of academic development in BL space.

Table 1: Principles and Aspects of Education 4.0

Pedagogy	Principles/criteria/factors	Aspect
Heutagogy	Individuals as agents	Autonomy and personal character
	Ability	Self-involvement with curriculum activities and digital skills
	Self-reflection & double loop learning	A reflective learning environment and thinking process
	Non-linear	Dynamic process
Peeragogy	Context as the centre of teaching	Personal contribution of ideas
	Meta-learning as a source	Syllabus selection and analysis aspects of knowledge
	Peers provide feedback	Feedback from members and expert engagement

	Learning is distributed and non-linear	Information at your fingertips, flexibility aspect and asynchronous learning
	Mutual motivational support	Knowledge sharing in various communities, races and social
Cybergogy	Cognitive	Critical thinking, satisfaction and formative assessment
	Emotive	Autonomy, satisfaction and culture.
	Social	Collaborative, engagement, personal choice and social environment

(Bizami et al., 2023, cited in Anuar et al., 2024)

Developing a nuanced understanding of human interaction and digital technologies and integrating IP with the COI framework creates a platform that fosters deep learning, critical thinking and collaboration. Furthermore, it informs a profound conception of the role of community and the presences that are socially constructed. Therefore, the experiences the participants shared promote collective knowledge construction, the benefits of timely feedback and support, and the relevance of collaboration through the connectedness of COI and IP.

4. Methodology

4.1 Paradigm, Approach and Design

The study's philosophical assumptions and the researcher's objective to gain a deeper insight into BL practices position the research within an interpretivist paradigm. Adopting a qualitative case study design allowed the participants to reflect on their BL journey openly.

4.2 Population, Sample Size and Sampling Technique

The population includes all the institution's academics (researchers, lecturers, educational technologists and instructional designers). The sample comprises eight teaching staff (professors/lecturers) from four faculties (two per faculty) and two instructional designers from the directorate of learning and teaching who support the teaching staff in their technology pursuits. The participants were purposively selected based on the following eligibility criteria.

- adequate knowledge of BL in higher education
- familiarity with digital technology tools and resources used in education
- having substantial experience and presently working in a BL environment
- willingness to share experiences (voluntary participation).

The participants adhered to confidentiality and non-disclosure agreements in the memorandum of understanding signed by the participants. The codes PS1 – PS10 represented the participants, as presented in the biographical information (Table 2) below.

Table 2: Bibliographic information of participants

Classification	Race	Gender	Faculty	Title	Age interval	Job status
PS1	Black	Male	ED	Snr. Lect.	35 - 45	Permanent
PS2	Black	Female	LH	Lecturer	35 - 45	Permanent
PS3	Black	Female	EF	Ass. Prof.	35 - 45	Permanent
PS4	Black	Male	EB	Snr. Lect.	45 - 55	Permanent
PS5	Black	Female	ED	Ass. Prof.	35 - 45	Permanent
PS6	Black	Male	EF	Lecturer	25 - 35	Permanent
PS7	Black	Male	LH	Snr. Lect.	35 - 45	Permanent
PS8	Black	Female	EB	Ass. Prof.	35 - 45	Permanent
PS9	Black	Male	DL	ID	30 - 40	Permanent
PS10	Black	Female	DL	ID	25 - 30	Permanent

Notes: PS = Participant Staff; ED = Education; EB = Engineering & Built Environment; LH = Law, Humanities & Social Sciences; EF = Economic & Financial Sciences; DL = Directorate of Learning & Teaching

4.3 Data Collection Methods

The study employed interviews (verbatim) and interrogated the institutional policy on BL adoption and implementation. The verbatim interviews comprising semi-structured questions were twofold. First was a group online conversation that allowed the participants to interact with each other, stimulate thinking, and become familiar with the processes involved in BL environments. Second was the researcher-participant individual session.

4.4 Data Analysis

The researcher used content analytical approaches to decipher pertinent information from the data collected from the two categories of verbatim interview sessions (one group and nine individual interviews). The transcribed 45 minutes of interview data were subjected to member-checking for authenticity and underwent content analysis (Kuckartz & Rädiker, 2023) and a thematic analytical process (Naeem et al., 2023) to develop themes. The document was examined for the thriving BL environment. These sources of data enhanced data triangulation (Lichtman, 2023).

5. Findings and Analysis

The findings and data analysis from the study are structured along the research questions: an understanding of the concept of BL, implementation of BL in the classroom setting and reflection on experiences.

5.1 Academics Understanding of the Concept

RQ1. What is the academics' understanding of the concept of BL?

A critical aspect of efforts is to help academics develop a renewed understanding of the educational environment, including the seamless integration of BL into learning and teaching. BL has become an umbrella term synonymous with higher education. As such, there is a need to cultivate a nuanced understanding of the concept, its profound potential, and the integration process and associated implications. The study analyses the participants' definitions, models, and diverse conceptual understanding, as shown below.

5.1.1 *BL as a mixture of two or more pedagogical strategies*

One school of thought considers BL as a term that requires two or more different kinds of things, including mixed pedagogical strategies, to facilitate learning.

> *"BL is a broad term cutting across many disciplines and learning and teaching cultures (traditional and contemporary). Accordingly, mixing different learning theories, traditional and technology) serves as a BL."* (PS2)

This definition is misguided and confusing, lacking scope with uncontrolled parameters filled with ambiguities and interpretations. This understanding concurs with Oliver and Trigwell (2005, cited and refuted in Hrastinski, 2019), that BL is a technology-infused learning environment.

> *"I understand BL as a learning and teaching strategy that revolves around the mixture of traditional face-to-face learning pedagogies and connectivism theories emphasising the role of new technologies in education."* (PS6)

This conception illustrates the untapped potential of BL, which limits understanding of the concept and translates into inadequate conceptualisation, interpretations, integration, and an understanding of implications. Mendoza and Venables (2023) contend that BL involves diverse formal education and training approaches. It allows academics to use professional pedagogical discretion and appropriate tools and platforms to support broad competency development for intended learning outcomes.

5.1.2 *BL as a hybrid of traditional face-to-face classroom and e-learning experiences*

This understanding focuses on adaptable learning that creates opportunities to be in or out of class (synchronous) and participate in all activities according to schedule. PS5 and PS3 emphasise this. The extracts below highlight their comments:

> *"I have a large class and find it difficult to attend to individual needs. Therefore, dividing the class into two groups and having both simultaneously rotationally helps…"* (PS5)

> *"The resources at our disposal to teach have been inadequate and challenging to cater to all the students. With the hybrid approach, all students have an equal share of the limited tools and participate efficiently in the learning and teaching process."* (PS3)

Additionally, PS1 and PS4 positioned the institution within the frame of a historically disadvantaged, rurally situated university with feeder students from poorly equipped secondary schools who lack fundamental knowledge of technology use in academia. Following is a snippet of their conceptions:

> *"I teach level 1 students fond of face-to-face and chalk-and-board teaching systems. Pulling them out of this syndrome is a hassle, and creating a platform or technology resources for use in and out of class seems to be a dream…."* (PS1)

> *"Comparing students' results, pre-COVID (only face-to-face), COVID (remote online) and post-COVID (BL) shows that academic output pre-COVID was better than the other two systems because of inadequate technological support to satisfy the demands."* (PS4)

This conceptual understanding may influence the fluency and conceptual integration of BL. However, an issue that came up and was pivotal in the conversation was the role of pedagogical realignment moving into the BL environment of academics.

5.2 Implementing BL in the Classroom

RQ2. How do academics implement BL in the classroom environment?

A BL framework or policy contributes immensely to integrating uniform online and face-to-face learning. Similarly, an e-learning framework plays an important role in determining suitable tools and resources and guides the usage of digital technology platforms. Thereby determining the most appropriate blending schemes for online and in-person mechanisms.

5.2.1 *BL in a continuum*

The academics implementing BL adopt what they consider best suitable for the students' inclusivity in the classroom setting. Figure 2 below presents the model segments on a BL continuum with traditional face-to-face on one end and online on the other through the participants' lenses.

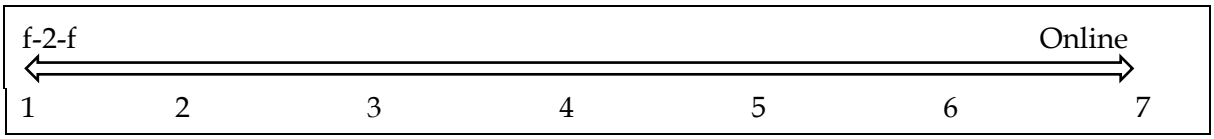

Figure 2: BL models continuum

1 = f-2-f setting with minimal online interactions
2 = f-2-f interactions with online/digital resources integration.
3 = f-2-f instruction with significant digital online integration within and beyond the classroom environment.
4 = f-2-f facilitation with a significantly high level of online interactions to facilitate learning
5 = mostly online facilitation with few selected days for f-2-f engagements
6 = mainly an online facilitation with inconsistent f-2-f interactions (optional)
7 = Purely an online approach as practised in distance learning systems

Despite the COVID-19 pandemic, which compelled many academics to migrate into the remote online mode of facilitation, a few remain uncomfortable with BL and have thus relapsed into f-2-f mode post-pandemic.

> *"I employ a blended learning strategy because it combines interactive lectures and discussions, blending traditional delivery with student-centred interactions. This approach allows Multimedia tools like videos and PowerPoint to enhance understanding, accessibility, and engagement in learning key concepts."* (PS7)

Integrating video clips and PowerPoint into teaching and learning positions the participant in category 1 of the continuum. Moreover, the training offered during the migration to the remote-only space has not transformed some academics' attitudes, perceptions and understanding of BL. Underlying the epistemic challenge could be described as a lack of agency.

Interactions with online/digital resources and tools could be a step towards BL. However, the type and degree to which it is practised matters. For example, providing links and websites for students to visit and share conceptualisation in class, using digital platforms to facilitate a range of f-2-f environments purposed for interacting and understanding concepts. Academics engaging in diverse online forms of instruction combined or embedded in a range of f-2-f forms in a cyclical orientation (rotational) demonstrate an understanding and application of BL. It should be noted that appropriate pedagogies must inform these approaches. PS10 and PS2 operate in category 3, considering the statement

> *"I support lecturers in including visual realities (simulation), images, and videos, which help summarise material and focus on critical concepts."* (PS10)

> *"I engage my students in collaborative group work to design business plans and events, which helps my students develop corporative and cooperative skills, communication, and project management skills."* (PS2)

The participants seem to operationalise f-2-f instructions with significant digital online interactions within and beyond the classroom environment, consistent with Rao (2019).

Effectuating f-2-f facilitation with significantly high online interactions with diverse models such as rotational, flex, self-blended and enriched-virtual (Norm Friesen, 2012) to accomplish deep learning regardless of challenges. Instruction at this level requires academics to be proficient in BL pedagogies, match online resources and tools appropriate to content and instruction, and consider students' backgrounds, abilities, potential and vulnerability. Only very few can engage in instructions in category 4 when proficiency in BL is unquestionable. The institution is making all the efforts to improve staff proficiency and competency in the category 4 BL environment.

> *"I strive to create space for f-2-f instruction that embeds diverse BL pedagogies and resources with students' needs as a pivotal element in curriculum delivery."* (PS1)

> *"My facilitation strategy with lecturers provides simultaneous independent and collaborative experience, combining digital instruction and 1-on-1 face time to understand concepts."* (PS9)

> *"The evidence of this blended instruction and methods manifests in students' high level of achievement as compared to the purely f-2-f or remote online engagements."* (PS6)

PS1, PS9 and PS6 narratives reveal the importance of upskilling courses and prioritising effective integration of BL environments that promote equitable, quality, inclusive and lifelong learning opportunities. This will foster proficiency in BL pedagogies and enhance f-2-f instruction with a high level of online interactions in education.

The wave of BL has caught up with many academics, with some having migrated to purely online teaching via the incorporation of transformative technologies, which has penetrated deep into the educational environment. These technologies have truly impacted teaching pedagogies and learning environments (Adel & Dayan, 2021; Mendoza & Venables, 2023). While many academics navigate the opportunities and challenges the BL poses, few remain operating in the COVID-19 pandemic remote online teaching mode (categorise 6 & 7 on the continuum).

> *"Working with students remotely has been a learning experience. Engaging interactive digital resources, tools, and digital platforms such as Microsoft Teams and Zoom is eye-opening. I am very comfortable working remotely and find difficulty integrating f-2-f mode in facilitation."* (PS5)

> *"My students have fallen in love with remote online teaching and learning to the extent of boycotting f-2-f lectures. This compelled me to limit the number of f-2-f interactions."* (PS4)

Regardless of the institutional post-pandemic response, academics must transition into the BL mode with an in-depth understanding and a review of the environment's benefits, challenges, and opportunities. Inclusive learning and the sense of belonging created by the BL environments must be adequately established within and outside the classroom through collaborative and cooperative activities.

5.2.2 *Conceptualising the Blended Learning Continuum*

The ongoing discourse on diverse definitions, models, and conceptualisations set above is indicative that all the categories, as illustrated in the continuum, demonstrate that all types of academic interactions that engage aspects of f-2-f learning and online learning are classified as BL. However, the author views BL in a conspicuous dimension. Though f-2-f and online interactions are vital, the emphasis must be on the degree of interactions, pedagogical approaches, instructional methods, and appropriate use of technologies to facilitate inclusive learning.

> *"… any teaching approach that involves a combination of f-2-f instruction and online learning directed at student construction of*

> *knowledge and conceptual development is BL no matter how the combination is affected."* (PS8)

A similar sentiment is echoed by PS3, who state that:

> *"Though there are a series of dimensions to the BL structure, I believe the implementation process should be determined by a defined pedagogy and resources that promote learning and the co-construction of knowledge."*

It is crucial that academics are made aware of and educated on what the institution considers BL to be in a descriptive framework and implementation plan. This will promote equal understanding of the concept and implementation instead of the blanket phrase "Teaching and Learning with Technology" without well-defined parameters. Despite this awareness, the institution must facilitate open dialogue amongst academics and stakeholders within the higher education ecosystem.

5.3 Reflecting on Experiences

RQ3. How do the academics reflect on their experience with BL?

5.3.1 *Pedagogical orientation*

With the tremendous development and application of technology (digital) mediated learning and teaching, our perceptions and understanding of the contemporary education environment have changed significantly. Adopting and implementing traditional pedagogies no longer meet students' learning needs. Technology (digital) integration combined with innovation and critical thinking provides new dimensions for achieving constructive learning opportunities. Accomplishing and sustaining this noble agenda requires pedagogical rethinking driven by competency, proficiency and accountability (ethical use) amidst enormous opportunities and overwhelming challenges.

> *"Despite challenges, I endeavour to achieve excellence in the BL environment with reoriented pedagogy (BL pedagogy). The results are visible in the performance and innovative outputs of the students."* (PS10)

PS1 claimed that the result and output of the students justify the fact that there is a realignment of pedagogy to meet the needs of a BL environment.

> *"… as far as the students are passing and producing good results is an attestation of pedagogical realignment."*

Many academics' fascination with the BL education environment is primarily oriented on perceptions rather than evidence of its efficacy (Addam & Omodan, 2022), while they continually operate within traditional pedagogies. It is vital to rethink pedagogy and align strategies, technological tools and resources, methods and practices and vehicles of instruction with a clear-cut understanding of the concept of BL in a digitally mediated learning space.

5.3.2 *Recalibrating the role of academics*

The rapid adoption of BL in higher education catalyses a new era of learning and teaching, emphasising effective collaboration between academics and students.

Therefore, this signalled a profound shift in pedagogy, facilitation, and paradigm. Thus, it prompted critical reflection on the responsibilities and role of academics and students in the educational environment. Traditionally, academics easily de-contextual students based on factors such as status, school achievements, social status, and background, and they are positioned as recipients of knowledge who participate less in the construction process.

> *"I no longer consider my students passive participants but active ones in the classroom. I learned as much as possible from them during facilitation. They are more into the digital technology environment; hence, I sometimes ask for assistance."* (PS5)

Although academics retain the prowess, intellectual ownership and stewardship of learning in the BL space, their role calls for recalibration, especially considering that the students play a role in the collaborative process and contribute to the skill and knowledge construction.

> *"Learning to use digital tools and strategies from students has been an ongoing event. The students are comfortable and operate freely in this environment. Upgrading my digital knowledge is more achievable by working alongside the students."* (PS9)

Academics must cultivate new skills and strategies, continuously refine methodologies and embrace diverse perspectives for optimal output to remain relevant rather than relying on their traditional cognitive offloading mechanisms. PS2 says,

> "*My difficulty is doing away with established teaching and learning strategies forming part of my curriculum facilitation. The new approaches may take a while to sink in."*

Academics must adopt a critical mindset, consistently assess outputs, and seek peer input to validate learning and teaching. Anthony et al. (2022) assert that higher education institutions must prioritise developing contemporary skills and a renewed mindset of academics to enable them to survive academically in the BL dispensation.

6. Discussion

This study explores the experiences of academics through their reflections on integrating BL in practice. The findings are organised into three principal layers guided by the sub-objectives: first, the understanding of the concept of BL; second, the implementation of BL in the classroom; and lastly, reflections on experiences with BL. In alignment with the first layer, the participants advocated for pedagogical realignment to help shape an understanding of the concept of BL and effective implementation. Pedagogical realignment transcends disciplinary boundaries into a multi-inter-transdisciplinary domain with increasing use of technology inside and outside the classroom, not denying the accompanying implications. Underpinning pedagogical realignment is an epistemological refinement that defines the objects of teaching and learning, rethinking the underlying systemic aims of our curriculum, a viewpoint that aligns with Olaitan et al. (2024), considering that the institution is registered as a 'contact university'. Furthermore, operating in BL environments requires academics to acknowledge

the use of digital resources, contemporary approaches to present and interact with content and the adoption of different models of BL. This resonates with the findings of Kumar et al. (2021) on the role of pedagogy and resources in effectively applying BL types in learning and teaching.

The second layer resonates with combining COI and IP theoretical frameworks on implementing BL in the classroom environment. The participants appreciated the BL tool's proliferation (individual and collaborative) nature in learning progression, which is consistent with the findings of Chang-Tik (2018). Additionally, BL tools have redefined the academic landscape, uniquely positioning academics in higher education to facilitate transformational approaches proactively and holistically for equitable and quality education to all students. The participants revealed that students and academics capitalise on their academic skills, self-learning potentials, and improved technology to collaborate, co-construct knowledge to maximise outputs, and sometimes support each other. The tools available to academics are stated below and aligned with the suggestion of Kumar et al. (2021).

Table 3: Tools, resources and platform available to academics

Tool	Application									
	1	2	3	4	5	6	7	8	9	10
Moodle	x	x	x	x	x	x	x	x	x	x
Blackboard	x	x	x	x	x	x	x	x	x	x
Flipgrid	x				x		x			x
Kahoot									x	x
Khan Academy	x	x			x	x	x		x	x
Quizlet	x			x	x		x	x		x
You Tube			x		x					x
Padlet	x	x	x						x	x
Microsoft tools	x	x	x	x	x	x	x	x	x	x
Play Posit	x	x	x	x	x	x	x	x	x	x
Socrative	x	x	x	x	x	x			x	x
Prodigy	x	x	x	x	x	x	x	x	x	x
Prezi		x	x		x		x	x		x

Notes: 1 = Assessment & Feedback; 2 = Evaluation; 3 = Student/Staff Performance; 4 = Lecture Delivery; 5 = material Upload; 6 = Lecture Preparations; 7 = Interactions; 8 = Collaborations; 9 = Course Reports & Analytics; 10 = Communications

Many participants claimed to use more than three of these tools and resources to facilitate, the most popular being the LMS (Moodle) licenced by the institution. In addition, the participants expressed confidence in the BL process, acknowledging that it facilitates social communication across intellectual platforms and engages critical thinking in an outcome-driven learning setting, as Al-Shami et al. (2018)

underscored. Notably, the learning and teaching enhancement role of BL tools is recognised as essential. However, academics remain critical and sceptical regarding ensuring the effective use of technological resources and instructional software while upholding ethics and academic integrity.

The third layer of the findings highlights the navigating experiences of the participants in the institution while the university promotes effective and efficient practices. The academics claimed that as they navigate this transition and transformative environment, they accumulate varied experiences (benefits and challenges). Most of these experiences are positive, resulting in a gradual development of BL environment expertise. Also, there has been growth in understanding the concept (BL), different models and types of tools and resources, their applications and the influence of these tools and environments on quality learning and teaching, as discussed earlier. However, the participants shed light on some implications, as discussed below.

6.1 Infrastructure, Resources and Tools

Internet and technology infrastructure are essential for effectively operating the BL environment, a perspective shared by Kumar et al. (2021). The institution is emerging from a historically disadvantaged past and struggling to provide the necessary resources to meet the needs of the advancing BL space. When institutional infrastructure and resources are inadequate for BL, redesigning initiatives becomes vital in providing services to students for fruitful performance in their academic pursuits, a sentiment expressed by Owston et al. (2021) and Pane (2018).

6.2 Technical Support and Automation

BL strategies and learning material preparations, which address students' learning styles, require substantial academic input. With the rapid trend of technological growth, academics suggest that investing in automated BL platforms to reduce in-depth human labour (academics, technical staff, etc.) is worth exploring. Journeying the automated path could provide equity and quality education to students simultaneously, relieve academics of extreme workload, and save time to contribute towards other BL activities.

6.3 Blended Learning Implementation

The university has been considered reputable and ready for diverse academic disruptions. However, COVID-19 has espoused the weakness and refuted that thought regarding the remote online teaching experience. This was further exasperated when BL was to be adopted and implemented. The institution lacks in-depth experiences among academics that could promote faculty implementation and transfer knowledge to courses and other disciplines. Furthermore, there is a dearth of detailed publications to serve as springboards to facilitate learning experiences. The few published studies are on personalised experiences and courses or are discipline-oriented. The institution must beef up the experiences and capacity of academics through continual professional development programmes, re-skilling (technologically and pedagogically) initiatives, content design, development upgrades and pedagogical realignment workshops. In addition, academics must engage in detailed studies on

implementing BL in courses and disciplines over a while, tackling the nitty-gritty practical details concerning resource availability.

6.4 Management Decision Dynamics

Buy-in and approval from the individual university structures are mandatory for adopting and implementing BL environments. In addition, the integration demands an institutional framework and a faculty implementation plan that cascades to individual operational strategies for BL-inclusive classroom practices. These approvals are essential since funds are required for tools, resources, and infrastructure. Because it takes ages to manifest, faculties must be allowed to adopt open-source platforms and continuously improve from practice experience or streamline the bureaucracy surrounding approvals. The institution must digress from the BL policy notion to a framework that can respond to the evolving nature of new-generation technology.

6.5 Data Security and Privacy

The interest of university staff (students, support staff, and academics) in using BL practices, tools, resources and techniques is rapidly growing against stagnant security and privacy upgrades, increasing users' information and data vulnerability. Recently, students and academics have reported a rise in sensitive data poaching and system hacking and are worried that such activities may compromise the integrity and use of the BL environment. The relevance and value of this environment should be protected through strengthening data security surveys and observations. Additionally, modern security frameworks for using BL tools are essential to promote the integrity of user data and operational activities.

7. Conclusion

Much research has been conducted on BL integration into higher education, especially on how it has revolutionised academic interactions. The current study probes deeper into the experiences of academics through reflection on practices in a BL environment. The focus of the study includes the academics' understanding of the concept, implementation and real-life experiences. Analysing the data through a combined COI and IP frameworks revealed the robust nature of the BL environment to advance students' learning. A shared understanding of the concept includes combining two or more pedagogical strategies and a hybrid (blend) of f-2-f and e-learning experiences. Furthermore, the implementation strategies are lodged in a continuum (Figure 2), calling for pedagogical realignment and recalibration of their roles. The importance of using available digital resources in the institution was acknowledged. However, concerns about limitations such as infrastructure, technical support, management dynamics, and bureaucratic implementation processes to enhance learning and teaching were lamented.

8. Limitations

Participants' responses may be clouded by various factors, including group dynamics and individual biases, resulting in skewing the data. Though efforts

were made to create a rapporteur environment, participants' backgrounds, proficiency, and competence may produce a risk of heterogeneity.

Recruiting two participants per faculty is not representative enough to capture the experiences and generalisation thereof. Students and a more prominent faculty academics inclusion may provide a better understanding, implementation and experiences with BL integration. Future studies should consider quantitative measures alongside qualitative reporting, a more diverse and extensive sample for reliability.

9. Recommendations

BL integration has redefined the academic landscape in higher education, creating a unique opportunity for transformation. Therefore, the institution must take a proactive and holistic approach to re-skill academics. Furthermore, raising awareness within the academic ecosystem should prioritise developing skills and paradigm realignment in pursuit of the institutional vision, mission and pursuits. In addition, academics should renew their understanding of the concept of BL and appreciate its seamless integration into their workflow. Importantly, academics must be enthralled to appreciate the great potential of BL and the ethical, epistemological, societal and environmental consequences of engaging in this environment. Lastly, instructional designers should support academics in promoting best practices using the BL strategy.

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