education policy analysis archives

A peer-reviewed, independent, open access, multilingual journal

Arizona State University

Volume 30 Number 156 October 25, 2022 ISSN 1068-2341

Core Conceptual Features of Successful Blended Learning in Higher Education: Policy Implications

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Citation: Bekele, T. A., Karkouti, I. M., & Amponsah, S. (2022). Core conceptual features of successful blended learning in higher education: Policy implications. *Education Policy Analysis Archives, 30*(156). https://doi.org/10.14507/epaa.30.7444

Abstract: COVID-19 has "taught" universities worldwide that using digital technologies to support purely online or blended learning is a survival strategy. This lesson plus the inclusion of technology in continental, national, and university policies and strategic plans implicate significant technology integration, especially blended learning, in higher education in the post-pandemic era. However, there lacks sound theoretical frameworks to adequately explain *success indicators* and *success factors* in blended learning. Existing frameworks provided particulars about the impacts of blended learning within certain contexts; none provided a comprehensive analysis of the significant factors that

Journal website: http://epaa.asu.edu/ojs/
Facebook: /EPAAA
Twitter: @epaa_aape

Manuscript received: 2/7/2022
Revisions received: 3/28/2022
Accepted: 3/29/2022

transcend specific application contexts. Moreover, the frameworks did not offer clear conceptions of *knowledge, teaching, learning*, and *technology* and *its role in learning*. To better inform successful blended learning adoption, this study problematizes *success indicators* and *success factors* based on a configurative review of existing frameworks and emerging theoretical perspectives in higher education. A holistic conceptual framework that transcends context specificity is proposed to better inform policy making, instructional design, and teaching and learning. Conceptions of adaptive policy, policy as learning design, and policy as practice are found relevant for blended learning policy making and analysis in higher education.
Keywords: blended learning; higher education; policy making; success factors; success indicators

Características conceptuales centrales del aprendizaje semipresencial exitoso en la educación superior: Implicaciones políticas

Resumen: COVID-19 ha "enseñado" a las universidades de todo el mundo que el uso de tecnologías digitales para apoyar el aprendizaje puramente en línea o semipresencial es una estrategia de supervivencia. Esta lección más la inclusión de la tecnología en las políticas y planes estratégicos continentales, nacionales y universitarios implican una integración significativa de la tecnología, especialmente el aprendizaje combinado, en la educación superior en la era posterior a la pandemia. Sin embargo, existen marcos teóricos sólidos para explicar adecuadamente los indicadores de éxito y los factores de éxito en el aprendizaje combinado. Los marcos existentes proporcionaron detalles sobre los impactos del aprendizaje combinado dentro de ciertos contextos; ninguno proporcionó un análisis exhaustivo de los factores significativos que trascienden los contextos de aplicación específicos. Además, los marcos no ofrecían concepciones claras del conocimiento, la enseñanza, el aprendizaje y la tecnología y su papel en el aprendizaje. Para informar mejor la adopción exitosa del aprendizaje combinado, este estudio problematiza los indicadores de éxito y los factores de éxito en función de una revisión configurativa de los marcos existentes y las perspectivas teóricas emergentes en la educación superior. Se propone un marco conceptual holístico que trasciende la especificidad del contexto para informar mejor la formulación de políticas, el diseño instruccional y la enseñanza y el aprendizaje. Las concepciones de política adaptativa, política como diseño de aprendizaje y política como práctica se encuentran relevantes para la formulación y el análisis de políticas de aprendizaje mixto en la educación superior.
Palabras clave: aprendizaje semipresencial; educación más alta; formulación de políticas; factores de éxito; indicadores de éxito

Principais características conceituais da aprendizagem mista bem-sucedida no ensino superior: Implicações políticas

Resumo: O COVID-19 “ensinou” universidades em todo o mundo que usar tecnologias digitais para apoiar o aprendizado puramente online ou misto é uma estratégia de sobrevivência. Esta lição, mais a inclusão da tecnologia nas políticas e planos estratégicos continentais, nacionais e universitários, implica uma integração tecnológica significativa, especialmente o ensino híbrido, no ensino superior na era pós-pandemia. No entanto, faltam estruturas teóricas sólidas para explicar adequadamente os indicadores de sucesso e os fatores de sucesso na aprendizagem combinada. As estruturas existentes forneceram detalhes sobre os impactos da aprendizagem combinada em determinados contextos; nenhum forneceu uma análise abrangente dos fatores significativos que transcendem

contextos de aplicação específicos. Além disso, os frameworks não ofereciam concepções claras de conhecimento, ensino, aprendizagem e tecnologia e seu papel na aprendizagem. Para melhor informar a adoção bem-sucedida do blended learning, este estudo problematiza indicadores de sucesso e fatores de sucesso com base em uma revisão configurativa de estruturas existentes e perspectivas teóricas emergentes no ensino superior. Uma estrutura conceitual holística que transcende a especificidade do contexto é proposta para melhor informar a formulação de políticas, o design instrucional e o ensino e a aprendizagem. Concepções de política adaptativa, política como projeto de aprendizagem e política como prática são consideradas relevantes para a elaboração e análise de políticas de aprendizagem combinada no ensino superior.
Palavras-chave: aprendizagem combinada; ensino superior; elaboração de políticas; fatores de sucesso; indicadores de sucesso

Core Conceptual Features of Successful Blended Learning in Higher Education: Policy Implications

COVID-19 disrupted higher education (HE) functions worldwide. The International Association of Universities' (IAU) survey indicated that respectively 77%, 55%, and 54% of campuses in Africa, Asia and Pacific and Europe, and the Americas were closed due to the pandemic (Marinoni et al., 2020). More than 90% of the institutions indicated that teaching and learning were adversely affected by the pandemic. Similarly, a study by the Organisation for Economic Cooperation and Development (OECD) revealed that 88% of the 165 students sampled from 21 African countries indicated that their institutions had discontinued in-person classes because of COVID-19 (Koninckx et al., 2021). Although the findings of these two surveys may not be generalized to the diverse HE landscape worldwide and do not cover the entire pandemic period, they uncover the pandemic's enduring impacts on teaching and learning at some point in time.

The pandemic consequently "teaches" universities worldwide that methodically integrating digital technologies for supporting purely online or blended learning is a survival strategy (Andrade et al., 2022). This lesson plus the inclusion of technology in continental, national, and university policies and strategic plans implicate significant technology integration in HE in the post-pandemic era (Bekele, 2021a). Blended and purely online learning are more likely to become normalized strategies in Africa (Teferra, 2021), with a likely focus on the former. The challenge is how to successfully integrate technologies into teaching and learning. Of those universities that did employ remote learning during the pandemic, "40% of students perceive that they have learned less than half of their original academic curriculum; and only 10% reported to have learned about the same" (Koninckx et al., 2021, para. 5). This justifies the need to have a holistic understanding of *success indicators* and *success factors* in blended learning in HE.

Although *blended learning* seems "the most prevalent form of e-learning in traditional HE institutions" (Garrison, 2011, p. 2), there still lacks sound theoretical frameworks to fully explain it. Conceptually-driven studies identified success indicators and success factors at various levels. Studies examined institutional factors for sustainability and scalability of blended learning (Graham et al., 2013; Lim & Wang, 2016), stakeholders' needs and concerns (Wagner et al., 2008), teacher factors (Koehler & Mishra, 2009; Torrisi-Steele, 2014), student course performance (Bekele & Menchaca, 2008), critical thinking and problem-solving skills (Bekele, 2009a), and motivation and satisfaction (Bekele, 2010). Although these conceptual studies improved our understanding of blended learning, they exhibited the following methodological shortcomings.

Studies have limited scopes of application and hence they have limited power to inform educational policy making, instructional design, and practice. While individual studies provided particulars about blended learning impacts within particular contexts and courses, none provided a critical and holistic analysis of the significant factors that transcend specific learning contexts (Porter et al., 2014). Studies primarily focused on case descriptions of how certain technologies were used in particular learning settings and how specific factors affected teaching and learning (Garrison, 2011).

These case studies also lacked theoretical grounding in describing and explaining blended learning successfulness, effectiveness, or impact, and the factors that affect these. The fuzzy conceptions of technology and its role in learning (Association for Educational Communications and Technology [AECT], 2008; Clark, 1994, 1996; Ely, 2008; Januszewski, 2001; Koschmann, 1996; Margulieux et al., 2016) seemed to also strangle blended learning research. There is "an underutilization of theoretical models to examine TES (technology enhanced learning) and to generalize about enhancements" (Kirkwood & Price, 2014, p. 25). Transformative learning, connectionism, and constructivist frameworks could offer general principles and methodologies, but none provided core conceptual features of blended learning in HE. Adoption of blended learning and conceptual work on it are even more wanting in HE in the Global South than in the rest of the world where much of the available scholarship is produced. Consequently, our understandings of blended learning successfulness, effectiveness or impact, and success factors seem incomplete (Andrews, 2011; Halverson et al., 2014; Kirkwood & Price, 2014). Halverson et al. (2014) observed that "more attention should be devoted to investigating current proposed theory and developing new theoretical work in blended learning in order to build our understanding and increase the effectiveness of blended learning designs" (p. 27).

This study further conceptualizes *success* in blended learning in HE based on a configurative review of available conceptual frameworks. Specifically, the study contributes to blended learning conceptual clarity, especially linked to *success* and *success factors*, *learning, teaching*, *knowledge*, and *technology* and its roles in learning. This can better inform educational policy making, instructional design, teaching-learning, and evaluation of blended learning in HE.

The overarching question this study aspires to answer is: What does successful blended learning in HE constitute? The core assumption is that *success* in blended learning depends partly on the availability of shared bases of understanding about *learning, teaching, and knowledge*, and *technology*'s role in learning and teaching. The following specific questions were articulated accordingly: What indicators are used to define *success* in blended learning? What core factors affect success across blended learning settings? How are *learning, teaching, and knowledge* defined in blended learning? How does technology affect learning? Answers to these questions can substantially better inform blended learning policy making and practice.

Literature define *blended learning* in different ways, partly because of its varying modalities of implementation. In this study, it involves any meaningful use of classroom and online activities in a given course regardless of the extent of the mix. This study adopted Margulieux et al.'s (2016) comprehensive definition of blended learning as they indicate that blended courses combine instructional delivery via an instructor and via technology and provide instructional support during both receiving and applying content. According to Margulieux et al. (2016), common types of blended courses include "flipped blend (delivers exposition of content online and delivers feedback face-to-face), supplemental blend (delivers exposition of content face-to-face and delivers feedback online), and replacement blend (delivers exposition of content and delivers feedback both face-to-face and online)" (p. 111). In short, blended learning refers to the delivery of instruction using both online and face-to-face modalities in a given course.

We employed a configurative conceptual review in this study to identify the core theoretical and conceptual features that transcend the idiosyncratic characteristics of the various modalities of blended learning. To situate or contextualize our discussions to larger and broader discourses, blended learning should be discussed taking into consideration change dynamics in HE generally. A brief account of emerging discourses and transformations in HE and society are provided below. Moreover, productive discussions of blended learning should consider policy perspectives. To enable the direct identification of policy implications, a brief account of emerging policy conceptions is also provided below. These conceptions of policy and emerging theories on HE inform the discussion of success indicators and success factors in blended learning in HE.

Conceptual Frameworks on HE and Policy Making

Globalization and technological advances seem to bestow special significance to scientific knowledge more than ever before (Carnoy, 1999; Castells, 2000; Gibbons et al., 1994; Krishnan, 2006; Ojha & Rahman, 2021). Higher education institutions (HEIs) that produce and disseminate knowledge do have better global competitive advantages. The studies briefly discussed below identified several conditions and factors that mediate knowledge globalization at national, organizational, and individual levels.

Mainly to reflect and respond to societal transformations, emerging cultures of knowledge and its production, and learning seem to emphasize the need for substantial reconceptualizations of *research, knowledge, teaching* and *learning*. Mode 2 knowledge production (Gibbons et al., 1994; Notowny et al., 2003), for instance, acknowledges the primarily applied trajectory of research and knowledge, transdisciplinary research, diverse knowledge production sites than universities, the highly reflexive nature of knowledge, and novel forms of quality control. These conceptions seem to substantially diverge from the still dominant and traditional mode of knowledge production, disciplinary cultures.

Similarly, Mode 3 knowledge production (Andrade et al., 2022; Barnnet, 2004; Carayannis & Campbell, 2006; Jimenez, 2008; Rhoades & Slaughter, 2006) appears to generally maintain that knowledge is mainly a social construction; knowledge is situated and contextual; knowledge production is framed primarily within application contexts; science/knowledge is open/accessible for use and further validation; research is transepistemic, involving and responding to conditions at individual, institutional, national, regional, professional, and global levels; and multiple/plural perspectives, frameworks, methodologies, and modes of knowledge production are acknowledged. The theory of academic capitalism and the new economy (Slaughter & Rhoades, 2009) also discusses the increasing commercialization of research and education. Although their salience and prevalence differ across socio-cultural and economic contexts, these knowledge cultures (Modes 2 and 3, and academic capitalism) seem to capitalize on the market or economic forces that impinge on knowledge, its production, and teaching and learning in HE (Bekele, 2021b). The societal relevance and significance of learning and knowledge production are increasingly emphasized.

Drawing on these emerging theoretical frameworks in HE, the following assumptions are made to provide the analytical scaffolds for this study. First, *knowledge production*, and *learning* and *teaching* are becoming increasingly complementary, one affecting the other continuously. Second, the fundamental task of education is thus to "enculturate youth into this knowledge creating civilization" (Scardamalia & Bereiter, 2006, p. 97). Blended learning is also expected to enculturate students to this knowledge creation culture. Third, learning, teaching, and knowledge production in HE are affected by and contribute to societal developments taking place at various levels. Learning is reconceived to support students to promote skills and competencies such as research skills, problem solving and critical thinking skills, and communication and teamwork skills having direct

relevance to society. Fourth, digital technology could support knowledge acquisition, construction and sharing; collaboration and community formation; and teaching and learning (AECT, 2008; Jonassen & Reeves, 1996; Ojha & Rahman, 2021). Fifth, success in blended learning is possible when the needs and concerns of major stakeholders such as students, faculty, universities, and countries are met (AECT, 2008; Wagner et al., 2008). These assumptions are relevant to situate blended learning within larger and broader societal and HE contexts. They are also relevant to the discussions linked to policy making and analysis, conceptions of technology, learning and teaching, and success in blended learning.

As the primary purpose of this study is to map out the core conceptual features of blended learning to better inform educational policy making and instructional design, a brief discussion of core policy conceptions is found relevant. We consider such traditional cycles of policy making as problem recognition and issue selection, policy formulation and decision making, implementation, and monitoring and evaluation (Cheng & Cheung, 1995; Jann & Wegrich, 2007) more as useful guides than as rigid steps or stages to be followed. The multitextured and dynamic nature of blended learning further justifies this reiterative conception of policy making. Consequently, perspectives of *adaptive policy* (Walker et al., 2001) are more relevant and responsive to changing circumstances such as those linked to blended learning in HE.

Complementary conceptions of policy and its making are also found relevant to this study. Policy making and policy analysis consider such dimensions as policy context, text, and consequence (Cardno, 2018; Cobb & Jackson, 2012). Regardless of the context, policy making also embodies and manifests discourse or power (Heimans, 2012; Olssen et al., 2004). A "conception of policy as a practice also provides analytical resources to account for the dynamic nature of the production and movement of policy ideas and their resemiotization, as they are pulled into and used in, and for, education policy" (Heimans, 2012, p. 369). Consequently, educational policies are viewed as "designs for supporting learning" (Cobb & Jackson, 2012, p. 487) and shape the contexts of receptions that students encounter (Brezicha, 2022). This configurative review study uses these policy conceptions (adaptive policy, policy as practice, policy as learning design, and policy as discourse/power) as analytic guides for the identification of implications for policy making and instructional design on blended learning in HE.

Methods

This study aimed to map out the conceptual features of *successful* blended learning in HE based on an interrogation of existing theoretical and conceptual frameworks. A configurative review was found relevant as it aims to "find sufficient cases to explore patterns" (Gough et al., 2012, p.4). This review type could support a comprehensive conceptual mapping that transcends the limitations of individual frameworks (Andrews, 2005; Bearman et al., 2012; Davies, 2000; Gough & Thomas, 2016; Hallinger, 2013). As blended learning is a relatively recent phenomenon that does not yet enjoy rich theoretical works (Andrews, 2011; Garrison, 2011; Kirkwood & Price, 2014; Margulieux et al., 2016), a configurative review of available frameworks was considered most practical in revealing core conceptual features. The subsequent sections consequently explain the criteria used for the inclusion of studies, literature sources, search engines, keywords, and synthesis techniques.

Inclusion Criteria

The following criteria were used to include relevant studies in the review. First, as the goal was to map out the conceptual substrates of blended learning in HE, only conceptual, theoretical, or

conceptually-driven empirical studies were included. A distinction was made in this study between *theoretical* and *conceptual frameworks*. A theoretical framework is

> the application of a theory or a set of concepts drawn from one and the same theory. . . . The researcher may have to "synthesize" the existing views in the literature concerning a given situation–both theoretical and empirical findings. The synthesis may be called a model or conceptual framework. (Imenda, 2014, p. 189)

As long as they satisfied the following criteria, both types of frameworks were included in this study. However, due to their limited scope of application, studies that reported case applications of technology in particular courses or programs were excluded.

The other inclusion criteria concerned the technological platform and type and date of publications. Second, for its potential impact breadth, rapid diffusion and popularity, and its technological diversity (Olson et al., 2011; Thomas, 1987), studies should consider blended learning that uses the Internet. Third, as this study aspires to problematize successfulness in blended learning, studies should explicitly deal with the actual or perceived impact, successfulness, or effectiveness of blended learning. Fourth, studies should be published from 2006 on. Pre-2006 publications were excluded because they might not be significantly relevant given the dynamic nature of blended learning (Güzera & Canera, 2014) and blended learning emerged at the beginning of 2000 (Güzera & Canera, 2014; Margulieux et al., 2016). Fifth, studies included could be published as academic journal articles, books, book chapters, research reviews, conceptual papers, and doctoral dissertations. Conference proceedings, master's theses, evaluation reports, and websites were however excluded for scope, relevance, and quality issues. Finally, only studies published in English were considered for practicality reasons only. This painfully excluded studies published in other languages. Consequently, the conclusions drawn and the conceptual features identified in this study represent scholarship published in English.

Search Strategy and Keywords

For a comprehensive coverage, both Google Scholar and Scopus were considered for the electronic search. Research indicates that "Scopus offers about 20% more coverage than Web of Science. . . Google Scholar, as for the Web in general, can help in the retrieval of even the most obscure information" (Falagas et al., 2008, p. 338). However, this configurative review did not claim to include all potentially available conceptual or theoretical frameworks on blended learning in HE. Configurative reviews are generally "not necessarily attempting to be exhaustive in their searching" (Gough et al., 2012, p. 4). We included studies that reported success factors and success indicators, and our analysis focused on revealing the patterns and the trends that could have direct implications for policy making and practice.

Based on the study questions, initial Google search, and general literature on blended learning, major keywords were identified for electronic searches. Such combinations of keywords and descriptors as Effect/impact of/success in blended learning; Conceptual/theoretical frameworks of blended learning; Success in technology-supported learning; Model of success in technology-supported learning; Conceptual/theoretical framework of technology-supported learning; Success measures/indicators in technology-supported learning; Technology and effective/successful learning; Success factors in technology-supported learning; Role of technology in learning; Effective use of technology for blended learning; and Effect/impact of/success in e-learning were used. Using each of these keywords, the Google Scholar and Scopus databases were searched to identify relevant studies on blended learning successfulness.

Synthesis

Studies that satisfied all the six inclusion criteria were included for further analysis and synthesis. To unravel the core features of blended learning as per the study questions, a synthesis of the included frameworks was conducted in the following way. As per the study questions, conceptual and theoretical frameworks were examined by considering how they conceived of learning and teaching; technology and its role; success, effectiveness, or impact; factors/conditions that affect success; knowledge and its production; and their theoretical or philosophical underpinnings. This level of synthesis supports the direct mapping out of the theoretical and conceptual substrates of blended learning in HE. It prepares the groundwork for further interrogating issues related to success and its mediating factors, which enabled the identification of implications for educational policy making, instructional design, and teaching and learning.

Each study was summarized based on the substantive themes mentioned above. Each study might not contain explicit information about all the major themes. To overcome this, the researchers closely read the studies and efforts were made to "extract" hidden but discernible assumptions. Although this was partially subjective for individual researchers, their final shared sense making enabled the creation of meaningful categories. Once all studies were summarized this way, patterns and/or trends, and unique cases were identified for further interpretation. A discussion of the major findings was conducted, and the inherent limitations and shortcomings of existing frameworks were highlighted. The synthesis used constant comparative, qualitative methodology (Maykut & Moorehouse, 1994); the creation of new categories and indicators regarding success and success factors were constantly compared to existing ones to ensure their independence and salience (see the Findings section below).

Major Findings

The search identified 11 studies that reported conceptual and theoretical frameworks on blended learning in HE. As the study aimed to unravel the core conceptual features of blended learning, frameworks that exclusively focused on institutional adoption or technology use for professional development were excluded. A review of the most cited studies indicated that most of the frameworks explained the institutional design of blended learning (Halverson et al., 2014), which was not within the scope and focus of this study. However, due to some unsystematic errors related to the search process, some frameworks might be missed. As configurative reviews do not aim at an exhaustive search (Gough et al., 2012), it was not the intention of this study to include all possibly available frameworks. The focus was on identifying core conceptual features of blended learning based on an examination of existing frameworks.

Generally, given the relative recency of blended learning itself, the identified frameworks could support better problematization of success and contributing factors. This section problematizes blended learning through a synthesis of the conceptual frameworks. The section consecutively outlined how they conceived of success, effectiveness, or impact; learning; success factors; teaching; technology and its role; knowledge; and their theoretical/philosophical underpinnings. As the study aimed at mapping the core conceptual features of blended learning to better inform policy making and instructional design, only the major findings are highlighted below.

Blended Learning Successfulness, Effectiveness, or Impact

Of particular interest to all blended learning stakeholders is having clear conceptions about its effectiveness, successfulness, or impact, as it may meaningfully inform policy making, planning, implementation, and evaluation. The ways the conceptual frameworks defined successful blended

learning are highlighted next. Generally, to refer to blended learning benefits, the studies used such terms as successfulness, effectiveness, and impact interchangeably without making clear distinctions.

The frameworks explicitly indicated that students take the biggest share of blended learning benefits. Indicators of effectiveness, successfulness, and impact included such student experiences as satisfaction, engagement, motivation, and attitude (Bekele, 2010; Garrison, 2011; Johnson et al., 2008; Khan, 2010; Ojha & Rahman, 2021; Shea, 2007; Shea & Bidjerano, 2010; Wong et al., 2014); student performance in examinations (Bekele & Menchaca, 2008; Garrison, 2011; Johnson et al., 2008; Khan, 2010; Shea, 2007; Shea & Bidjerano, 2010; Wagner et al., 2008; Wong et al., 2014); knowledge acquisition, construction, and lifelong learning spirit (Andrade et al., 2022; Bekele, 2009b; Garrison, 2011; Lim & Wang, 2016; Mishra & Koehler, 2006; Shea & Bidjerano, 2010; Wagner et al., 2008; Wang et al., 2015); higher-order thinking including meta-cognition (Bekele, 2009b; Garrison, 2011; Lim & Wang, 2016; Shea, 2007; Wagner et al., 2008; Wang et al., 2015); course instrumentality (Johnson et al., 2008); rate of return from investment in blended learning (Bekele, 2009b; Khan, 2010); and sustainability and scalability of blended learning (Bekele, 2009b). These were the leading indicators of blended learning successfulness, effectiveness, or impact that appear consistent with student-centred and constructivist approaches recently preferred in HE. What seemed missing are blended learning benefits for or impacts on teaching faculty, although the frameworks indicated that faculty characteristics were among the most significant factors affecting success (see the section that discusses factors). Given that students were the prime beneficiaries of blended learning, it was interesting to examine how *learning* was conceived or defined by the identified frameworks.

Conceptions of Learning

The frameworks offered various conceptions of learning which, to a greater extent, coincided with the success indicators outlined above. Learning was considered as a construction of artefacts/knowledge (Bekele, 2009b; Garrison, 2011; Lim & Wang, 2016; Mishra & Koehler, 2006; Shea & Bidjerano, 2010; Wang et al., 2015). Although knowledge construction was supposed to define learning, it was unclear whether a more constructionist vs. constructivist perspective was taken. Learning was also defined as a demonstration of higher-order thinking (Bekele, 2009b; Garrison, 2011; Shea & Bidjerano, 2010), student performance (Bekele, 2009b; Garrison, 2011; Khan, 2010), student interaction with content, instructor, and peers (Johnson et al., 2008; Shea & Bidjerano, 2010; Wagner et al., 2008; Wong et al., 2014), and student experience (Shea & Bidjerano, 2010; Wong et al., 2014).

Overall, emphasis was given to advance learning outcomes and processes such as higher-order thinking skills and knowledge construction. Although the order and possibly the weight given seems somehow different, the same indicators were listed under *success* and *learning*. Learning and success indicators seemed to include affective/dispositional (motivation and satisfaction), the process (student interaction with content, teacher, peers, and others; and higher-order thinking), and learning outcome (knowledge production and exam performance) dimensions of learning. A question worth asking was then linked to the category of factors that mediated learning and success generally.

Factors Affecting Learning

The factors that affected successful blended learning were categorized at several levels. The most frequently cited were those related to student characteristics (Bekele, 2009b; Garrison, 2011; Johnson et al., 2008; Shea, 2007; Shea & Bidjerano, 2010; Wagner et al., 2008; Wang et al., 2015; Wong et al., 2014). Student conceptions of learning, teaching, knowledge, and technology and its role; their past experiences with technology; their knowledge and skills related to particular technologies; and their needs and expectations from courses were conceived to partly affect

effectiveness. As students were designated as the prime beneficiaries of blended learning, it made sense that the most significant factors that affected learning were also found to be student characteristics.

The second most frequently cited factors included institutional policy, strategy, goal and vision, infrastructure, support systems, faculty professional development (Bekele, 2009b; Brezicha, 2022; Garrison, 2011; Khan, 2010; Lim & Wang, 2016; Wagner et al., 2008; Wang et al., 2015; Wong et al., 2014), and faculty characteristics (Bekele, 2009b; Garrison, 2011; Mishra & Koehler, 2006; Shea & Bidjerano, 2010; Wagner et al., 2008; Wang et al, 2015; Wong et al., 2014). Faculty conceptions of learning, teaching, knowledge, and technology and its role; their skills and past experiences with technology, workload, and their expectations were conceived to partly affect effectiveness. This makes a strong case in support of considering faculty and institutions as the other major benefiting stakeholders in blended learning.

Pedagogical factors (teaching and learning approaches, strategies, methods including social presence, interaction, engagement, and collaboration) were also conceived to affect success (Bekele, 2009b; Garrison, 2011; Johnson et al., 2008; Khan, 2010; Ojha & Rahman, 2021; Shea, 2007; Shea & Bidjerano, 2010). It was interesting to note that the least frequently cited factors were those related to the easiness, usefulness, flexibility and generally the capability of technology (Bekele, 2009b; Khan, 2010; Johnson et al., 2008; Wang et al., 2015), and the relevance and quality of courses (Bekele, 2009b; Lim & Wang, 2016; Wang et al., 2015).

Conceptions of Teaching

As indicated above, faculty characteristics were the second most frequently cited factors affecting successfulness. The next logical question to raise was how teaching in blended learning environments was conceived. The frameworks indicated that teaching was conceived as a coordination and facilitation of learning (Bekele, 2009b; Garrison, 2011; Lim & Wang, 2016; Mishra & Koehler, 2006; Shea & Bidjerano, 2010; Wagner et al., 2008; Wang et al., 2015). *Coordination* included a selection of materials and methods, initiation and sustenance of meaningful discussions, and interactions with students.

Teaching was also defined as support and feedback provision, knowledge validation, problem solving, and student encouragement (Bekele, 2009b; Garrison, 2011; Lim & Wang, 2016; Mishra & Koehler, 2006; Wagner et al., 2008; Wang et al., 2015; Wong et al., 2014). Some frameworks (Bekele, 2009b; Garrison, 2011; Shea & Bidjerano 2010) also defined teaching as involving course re-design and planning to better suit blended learning expectations and technology capabilities.

Role of Technology in Learning

As blended learning partly involved digital technology use, it was significant to precisely understand the roles technologies play. Most frameworks (Andrade et al., 2022; Bekele, 2009b; Garrison, 2011; Johnson et al., 2008; Khan, 2010; Lim & Wang, 2016; Ojha & Rahman, 2021; Shea & Bidjerano, 2010; Wagner et al., 2008; Wang et al., 2015; Wong et al., 2014) viewed technology as the content delivery environment. Course content was uploaded to learning management systems. These studies, except Wagner et al.'s (2008), also considered technologies as communication and interaction media. Using technologies, students interacted with content, peers, faculty, and others. A substantial number of the frameworks (Bekele, 2009b; Garrison, 2011; Lim & Wang, 2016; Mishra & Koehler, 2006; Shea & Bidjerano, 2010; Wang et al., 2015) also considered technologies as cognitive tools for thinking, experimentation, simulation, and knowledge creation and validation. To respond to course nature and other contextual factors affecting learning and teaching, multipurpose and

multimethod technology integration was conceived to affect success. Not least significant were conceptions of knowledge and underlying theoretical scaffolds.

Conceptions of Knowledge and Theoretical Underpinnings

One's view of knowledge affects one's view of learning and teaching. It was thus useful to provide a clear conception of knowledge consistent with blended learning. Unfortunately, more than half of the conceptual frameworks included in this configurative review did not explicitly or at least in a discernible way deal with this issue. This could be considered a formidable challenge in blended learning as it could directly affect faculty and student conceptions of learning and teaching. However, other frameworks (Bekele, 2009b; Garrison, 2011; Lim & Wang, 2016; Mishra & Koehler, 2006; Shea & Bidjerano, 2010) generally viewed knowledge as a social construction that was situated and dynamic and requiring constant validation across blended learning settings. Traditional conceptions of knowledge as something objective and permanent appeared to be challenged by these frameworks.

Outlining underlying theoretical perspectives was useful to ensure consistency in research logic and more importantly in one's conception of learning, teaching, and knowledge. Unfortunately, only five of the 11 frameworks explicitly covered discussions of this type. Underlying theoretical perspectives included situated cognition (Mishra & Koehler, 2006), pragmatism at the intersection of scientific realism and social constructivism (Bekele, 2009b), social cognitive perspective (Shea & Bidjerano, 2010), collaborative constructivism framed within pragmatism (Garrison, 2011), and complex adaptive systems theory (Wang et al., 2015). These perspectives generally indicated the impermanency and negotiated nature of knowledge systems. All the other frameworks did not explicitly address the issue; their articulations of conceptions of learning, teaching, role of technology, and success were made based on mere literature reviews.

Towards a Generic Conceptual Framework

Although the conceptual frameworks included in this study could inform blended learning theorization, policy making, and practice, they exhibited several conceptual and methodological limitations that challenge their saliency and fecundity. First, while individual frameworks provided particular features about blended learning within specific application contexts, none provided a comprehensive analysis of success indicators and success factors that transcended specific contexts (Porter et al., 2014). Second, the role faculty play in blended learning was relegated to coordination/facilitation of learning and support provision. Principles of instructional re-design and course planning, which substantially affected actual teaching and learning, were given marginal attention. Third, *social presence* seemed to be discussed in relation only to technology; the natural classroom interactions between faculty and students were sidelined. Fourth, views of technology and its roles in teaching, learning, and knowledge construction were not sufficiently elaborated on. Finally, the nature of interrelationships among success factors and success indicators was not elaborated.

To overcome these challenges and to better inform policy making and instructional design, a generic conceptual framework is proposed (see Figure 1 below). The framework draws on the contributions of the reviewed frameworks and contemporary developments in HE, technology, and learning (see the contextualization section above). The framework identified success indicators and success factors that transcend the needs of particular settings and modalities of blended learning. This contribution is significant and timely, as HE institutions are poised to significantly adopt technology for teaching and learning, especially in the face of the COVID-19 pandemic and national

development expectations from HE institutions. The proposed framework is briefly explained below.

Success Indicators

Success in blended learning is possible when the needs of major stakeholders are met (AECT, 2008; Wagner et al., 2008). This conceptual framework posits that success indicators are the outcomes that HE institutions, faculty, and students could meet from blended learning. Success in blended learning constitutes student learning outcomes (knowledge production, higher-order thinking skills, lifelong learning spirit, achievement/performance, motivation and satisfaction); faculty outcomes (motivation and satisfaction, knowledge production, professional development); and institutional outcomes (rate of return, student completion rates, faculty development, national and international visibility/presence, sustainability, and scalability).

These student success indicators reflect recent conceptions of learning in HE. Learning is conceived as an active process of acquiring, constructing, discovering, and transferring knowledge. Learning is also a personal and social process that takes place when students and faculty interact with each other and with content. Learning also amounts to meeting desired learning outcomes such as student achievement, knowledge construction, and higher-order thinking skills. This echoes the definition of learning provided by one of the largest educational technology organizations, AECT. This framework also conceived knowledge construction both as a personal and social construction that is situated, dynamic, and needs constant validations across settings. The framework argues for the impermanency and negotiated nature of knowledge systems.

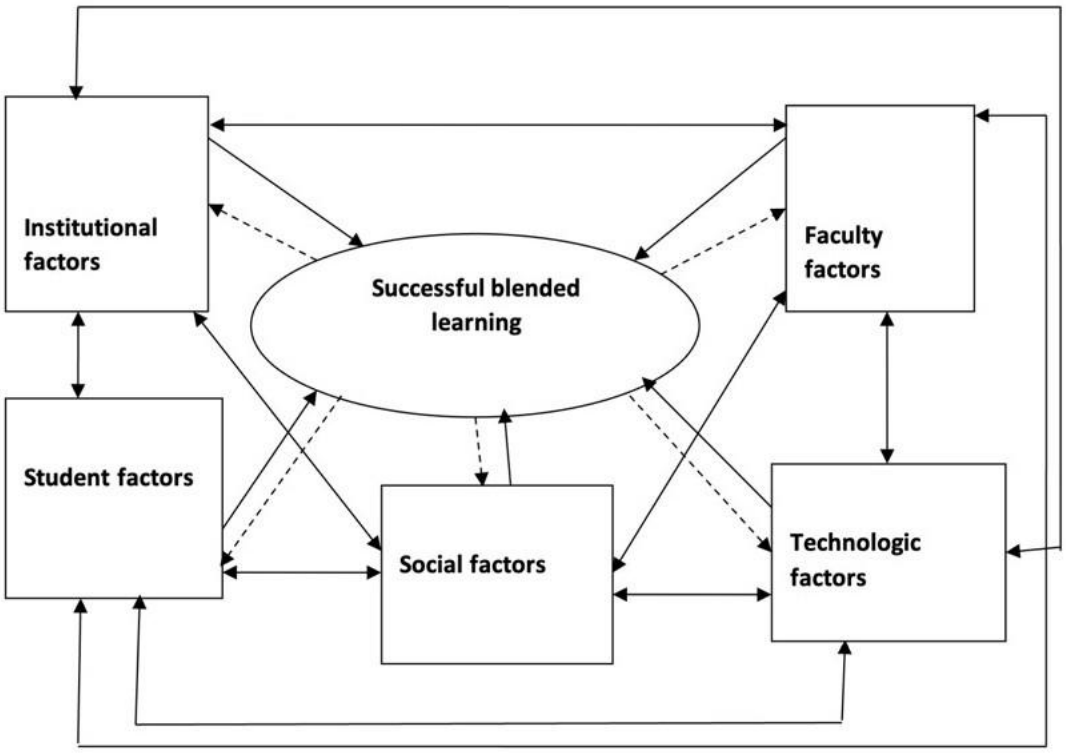
From the preceding, success indicators find roots in the online collaborative learning theory in that their construction of knowledge entails constantly reflecting on their past and reconciling their present to forge their future (Harasim, 2017). The author also highlights intellectual convergence as the third process of the theory wherein the parties reflect in shared understanding or mutual contribution to and the construction of knowledge or for a solution to a problem. Through such processes, not only will solutions be proffered but all parties will have a common understanding of the processes involved in arriving at solutions. This plays a major role in producing the kind of critical thinkers, self-directed learners, and graduates who are ready to provide solutions for societal problems. Thus, HE institutions need to create environments where intellectually stimulating discourses will be predominant in the teaching and learning enterprise. During both face-to-face and online engagements, the role of faculty should be that of a guide or facilitator while the needed equipment and infrastructure are provided to enhance teaching and learning. Cognizance should also be given to Siemens's (2004) connectivism theory to ensure that digital gadgets are leveraged to fill any vacuum that emergency, time, and geographical distances may impose on teaching and learning.

Success Factors

The findings indicated, albeit individually and on a limited scale, that student and faculty characteristics, institutional, pedagogical, technology, and course factors affect success. As categories are helpful to deeply explore ideas by identifying connections and relationships (Suppe, 1989), a more comprehensive set of categories of factors at institutional, faculty, student, social, and technological levels are formed based on their saliency in affecting successful blended learning across varied settings. Success factors transcend particular learning settings and impact success directly (see Figure 1).

Figure 1

A Generic Conceptual Framework of Blended Learning



Institutional Factors

These denote the roles HE institutions play in formulating proactive technology policies and legal frameworks, acquiring new technologies, arranging regular training for students and faculty, creating new opportunities for faculty professional development, hiring teaching support staff, and providing all other logistics required in the successful execution of courses. University leadership needs to have appropriate views of technology and its role in learning, teaching, and knowledge production.

The theory of connectivism (Siemens, 2004) aligns with our thinking. If institutions are to thrive and remain relevant in the 21st century, amid the pandemics, the knowledge explosion age, and the unforeseen future, there is a need to reason with Siemens (2004) that knowledge does not only exist in humans. Thus, non-humans (notably the computer) host large volumes of knowledge and make possible connections between the knowledge they host and humans (managers, instructors, students, and other stakeholders). HE institutions should, as a matter of necessity, procure new technologies and train all parties to effectively use them based on well-crafted and publicized policies.

To avoid misconstruing the idea of blended learning and rendering faculty ineffective, HE institutions need policy initiatives that will warrant the training of its faculty. This also means creating a conducive environment where adequate provisions are made for both virtual and face-to-face teaching and learning engagements to thrive.

Faculty Factors

These refer to all factors that come along with teaching practice (course design, actual teaching, pedagogy, supervision, and feedback). Faculty conceptions of learning, teaching, knowledge and its production, and technology and its role; their past experiences with and skill in technology; and workload partly affect success. Success is possible if blended learning is student-focused, collaborative, individualized, problem-based, feedback intensive, and more process-oriented. This category is consistent with Mishra and Koehler's (2006) teacher content knowledge, pedagogical knowledge, technological knowledge, technological content knowledge, and technological pedagogical knowledge (TPACK) conceptions, and Davis's (1989) perceived usefulness and perceived ease of use conceptions of the Technology Acceptance Model (TAM). These factors also affect student use of technology.

Student Factors

Student conceptions of learning, teaching, knowledge and its construction, and technology and its role; their past experiences with and skill in technology; and their needs and expectations from courses partly affect success. These ideals are consistent with Harasim's (2017) notion that people reflect on their past to reconcile their present as they prepare for the future. Most of the factors highlighted under faculty factors also hold for student factors. However, it is critical to appreciate Harasim's position in her online collaborative learning theory, in which she distinguishes the roles of students in the past and present in learning. She states:

> The role of the student in an online group discussion, seminar, or project is to engage in the three processes of collaborative discourse [idea generation, idea organizing, and intellectual convergence] and to learn and apply the analytical terms of the discipline to solve a knowledge problem. This very serious process is not about students memorizing definitions or formulas. (Harasim, 2017, p. 125)

From the foregoing discussion, HE institutions should create environments where communities of practice are formed between learners and the needed guidance is given to them to become analytical, pragmatic, problem solvers and contributors to the knowledge economy rather than being receptacles of knowledge. To achieve these, there is a need for HE institutions to re-think their curriculum in terms of content, assessments, and pedagogical approaches.

Social Factors

Learning is conceived as an active social process of knowledge construction and validation. Digital technologies naturally support a/synchronous social interactions. Social factors denote interpersonal communications; student interactions with content, peers, and faculty; and knowledge sharing and validation. These are enshrined in the online collaborative learning theory as people are expected to construct knowledge together through the three-tier-process of idea generation, idea organizing, and intellectual convergence (Harasim, 2017). In addition, these activities are facilitated mainly by digital technologies. The quality of social interactions and engagements defines the quality of learning, teaching, knowledge production, and success generally.

Central to effectiveness is the quality of social interactions supported by both technology and face-to-face interactions. Since interaction in teaching and learning is supported by the constructivist learning theory, we conclude this section with highlights from Jonassen's (1994) summary of the characteristics of a constructivist learning environment, which emphasizes knowledge construction instead of knowledge reproduction, emphasizes authentic tasks in a meaningful context rather than abstract instruction out of context, provides learning environments such as real-world settings or

case-based learning instead of predetermined sequences of instruction, fosters thoughtful reflection on experience, enables context- and content-dependent knowledge construction, and supports "collaborative construction of knowledge through social negotiation" (p. 35), not a competition among learners for recognition.

Technological Factors

These refer to the capabilities of technologies and unlimited access to them. These factors reflect feedback immediacy, symbol variety, parallelism, rehearsability, and reprocessibility principles of media synchronicity theory (Dennis & Valacich, 1999) and the perceived attributes (trialability, observability, relative advantage, complexity, and compatibility) of innovation diffusion theory (Rogers, 2003). Technological factors also include the roles technologies play in learning, teaching, and knowledge construction, which existing frameworks fail to clearly explicate.

Technology could generally support knowledge acquisition, construction, and sharing; collaboration and community formation; and teaching and learning. Accordingly, this framework adopted the *learning through* the Internet conception (Hill et al., 2004), wherein students interact with peers, faculty, and content using technology. This is also consistent with the theory of connectivism, wherein Siemens (2004) put out that knowledge resides in both humans and non-humans with the latter referring to computers that link humans to knowledge and other people in the knowledge community. Simply, technologies are considered as communication tools through which meaning is created and conveyed (Sawyer, 2006). The *learning with* the Internet conception (Jonassen & Reeves, 1996) is also appropriate for more engaged learning. This is the most advanced use of technology, requiring students to develop their critical thinking, problem solving, and other metacognitive skills. As Sawyer (2006) noted, technology can:

> represent abstract knowledge in concrete form, enable students to articulate their developing knowledge in a visual and verbal way, allow students to manipulate and revise their developing knowledge via the user interface which can support simultaneous articulation, reflection, and learning, and support reflection in a combination of visual and verbal modes. (p. 9)

The *learning from* the Internet conception (Jonassen & Reeves, 1996) is also relevant as students look for declarative knowledge from the web. For meaningful learning to occur, students should first acquire relevant subject matter knowledge, for which technologies are ideal storehouses (Siemens, 2004). This role of technologies is significant particularly for classroom contexts wherein updated instructional materials lack.

Interrelationships Among Factors

There also exist complex interrelationships among the success factors themselves, as indicated by the double-headed arrows in Figure 1, something not considered in previous frameworks. There are symbiotic relationships among the five categories of success factors (Bekele, 2009b). Student and faculty attitude, view, and motivation, for instance, may directly impact the optimal use of technologies, the adoption of specific learning methods, and the nature and quality of courses. Once most or all of the success indicators are met, the success factors may be positively affected, as indicated by the dashed single-headed arrows in Figure 1. For instance, once a degree of success is brought, students and faculty might improve their understanding and attitude to blended learning, more or better technological tools might be acquired and used, process-oriented learning approaches might be strengthened, better support systems might be put in place, and quality might be added to courses (Bekele, 2009b).

To further foster the interrelationships between the five success factors, it is important to understand that computer-mediated learning in HE institutions deals with adult learners who desire higher levels of autonomy and self-directed learning. Consequently, the three elements of online collaborative learning theory (Harasim, 2017) should be fully enforced. Thus, HE institutions should create an enabling environment, through intentional training of faculty and issuing of policies that ensure that students are part of idea generation, idea organizing, and intellectual convergence. These processes are grounded in constructivism, and if well implemented, will generate students and graduates who are poised to solve problems and contribute meaningfully to society.

However, some points need to be highlighted with regard to the nature of the categories of success indicators and success factors of the proposed framework. Rosch's (1987) prototype theory of categorization is found useful in this regard. The theory indicates that in most social science research, categories are indefinite, continuous, mutually inclusive, and non-exhaustive. These attributes are used to briefly characterize the nature of the categories of this conceptual framework.

First, as in most social research, the categories of blended learning success indicators and success factors identified in this conceptual framework do not have clear-cut or definite features, attributes, or characteristics. Rather, the categories are formed primarily based on *prototypicality*; what appears to be the most typical cues or features that cut across varied blended learning settings guide categorization. The student benefits category, for example, does not have clearly defined attributes but the most typical gains students could accrue from any organized educational engagement are considered.

Second, because of the indefinite nature of categories, there exists fuzzy boundaries between and among the categories (e.g., between social and student factors, faculty and social factors, and institutional and technology factors). Again prototypes, which appear to be the most typical factors, form each category. Third, each category is thus not absolutely independent; categories are mutually inclusive. Successful management of faculty factors, for instance, calls for successful management of institutional and student factors.

Fourth, categories are collectively non-exhaustive. Depending on the degree of abstraction, context specificity of blended learning and individual (faculty/student) attributes, other lists or even categories of specific factors could be formed. The categories of the framework should rather be conceived of enlisting *the most typical phenomena* highlighted in existing conceptual and empirical literature. The categories are generic in the sense that they transcend the idiosyncrasies of varied modalities of blended learning. The framework comprehensively features the conceptual contours of blended learning in higher education. This is the central organizing logic of the framework and its major contribution to policy making and analysis and the existing scholarship on blended learning.

Implications for Educational Policy

The proposed framework problematizes successful blended learning in HE. It is grounded on research (it draws on conceptual frameworks on blended learning and emerging perspectives in HE learning, teaching, and technology); is comprehensive (it identifies success indicators and success factors at various levels); is generic (it identifies core features of blended learning that transcend varied application modalities); is independent of specific methodology (it does not endorse any particular teaching style); describes how the various dimensions of the framework affect each other constantly; holds clear assumptions about knowledge, learning, teaching, technology and its role; and reflects the multidisciplinary nature of the field of educational technology. The framework can better inform educational policy making, instructional design, teaching and learning, evaluation of blended learning, and further research and theorization on the topic. It can contribute

to creating a shared basis of understanding and a common language among faculty, students, and university leadership as to how to successfully adopt blended learning in HE.

The framework has the following clear implications for policy making and analysis. One, relevant institutional policies are needed to guide the successful adoption and implementation of blended learning. Throughout the cycles of policy making (Cheng & Cheung, 1995; Jann & Wegrich, 2007), all the major stakeholders such as faculty, students, administrators and managers, and support service personnel need to be meaningfully and fairly engaged. This inclusive and participatory approach to policy making can create a shared basis of understanding and a sense of ownership, which are critical for success.

Two, such dimensions of policy context as explicit rationales behind and the purposes of policy making, the values that guide policy making and implementation, and linkages and consistency with other institutional and national public policies need to be clearly identified.

Three, policy consequences (Cardno, 2018; Cobb & Jackson, 2012) also need to be clearly stated. The specific strategies, mechanisms or procedures to guide policy practice, monitoring and evaluation strategies, and the intended overall impact or consequence of the policy need to be an integral part of the policy making process and its implementation.

Four, blended learning policies have to be comprehensive in the sense of including relevant policy areas such as procuring the needed technologies and creating enabling environments; arranging regular training for faculty, students, and staff; stipulating major approaches and methods of implementation; identifying roles and responsibilities; and ensuring virtual safety and security measures.

Five, due to transformations taking place in society, technology, and in HE specifically, stakeholders need to embrace the conception of adaptive policy (Walker et al., 2001) in the sense that blended learning policy making needs to be considered as an iterative and responsive process to emerging dynamics. Through the process of adapting policies, and conducting monitoring and evaluation routines, stakeholders move up and down through the policy making cycle. That is why educational policies are viewed as "designs for supporting learning" (Cobb & Jackson, 2012, p. 487), as the process itself is educative. As blended learning is a recent phenomenon and as it is constantly evolving in terms of technology and methodology, considering policy making as a learning arena is significant.

The proposed framework also has implications for further research and validation. Although the framework explores generic indicators and factors that transcend the needs of specific courses across the disciplines, further research that explores how and to what extent success factors affect each other and success indicators in different disciplinary, socio-cultural, economic, and learning contexts is recommended. Especially significant is the need to interrogate how faculty and students view knowledge, learning, teaching, assessment, and technology's role in these. Moreover, stakeholders' lived experiences and challenges across application contexts equally warrant further studies. An issue and process-oriented perspective employing multimethod and transdisciplinary perspectives can further deepen and extend our understanding of blended learning in HE.

Acknowledgement

The third author is grateful to BECHS-AFRICA and the Andrew W. Mellon Foundation for funding his fellowship at The American University in Cairo, which connected him to the two other researchers for this research.

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Volume 30 Number 156 October 25, 2022 ISSN 1068-2341