

# Chapter 1


## Active Blended Learning: Definition, Literature Review, and a Framework for Implementation

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### EXECUTIVE SUMMARY

*This chapter focuses on the joint implementation of blended learning and active learning. The authors analysed 152 institutional websites containing definitions of these concepts. Blended learning is commonly, though arguably simplistically, viewed as the combination of face-to-face and online components. Active learning is often described as a pedagogical approach that engages students in higher-order thinking tasks, usually requiring collaboration with others. The authors systematically reviewed the literature on active blended learning (ABL). Health sciences is the most common field where empirical studies have been conducted. Most research used quantitative or mixed data and focused on the perspective of students. The tone of the discourse is predominantly positive, with an emphasis on the benefits of ABL. The chapter concludes by defining ABL as a pedagogical approach that combines sense-making activities with focused interactions in and outside the classroom. It puts forward a rationale and a framework for the implementation and scaling up of ABL in a higher education setting.*

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## INTRODUCTION

With the growing use of technologies in educational interventions, approaches to learning and teaching have evolved to take place in different environments with a variety of strategies and techniques. Blended learning programmes have thus become pervasive within academic institutions (Adams Becker et al., 2017; Sharples et al., 2014). As these courses cater to a wide range of needs and lifestyles, they represent an attractive option for both traditional and non-traditional learners (Waha & Davis, 2014). Although researchers have largely reported non-significant differences, particularly in terms of student outcomes and satisfaction, blended learning courses have been found to be as effective or better overall than similar ones in other modes of study (Liu et al., 2016; Stockwell et al., 2015). Comparative studies often attempt to replicate teaching practices in face-to-face, blended and online settings. However, the combination of curriculum materials, pedagogy and learning time seems to create the real advantages (Means et al., 2010). The most effective blended courses enable students to learn in ways not feasible in other formats (Adams Becker et al., 2017).

Active learning is particularly useful for achieving a successful and rewarding educational experience. It can result in fewer failing students, higher performance in examinations (Freeman et al., 2014), enhanced problem-solving skills (Hake, 1998), critical thinking (Shin et al., 2014), increased attendance and learner satisfaction (Lumpkin et al., 2015; Stockwell et al., 2015). It can also reduce the attainment gap between disadvantaged and non-disadvantaged students (Haak et al., 2011). The move towards active learning makes classrooms resemble real-world work and social settings that foster cross-disciplinary interactions (Adams Becker et al., 2017). Students perceive that active classrooms promote creativity and innovation (Chiu & Cheng, 2016). When learners participate in active learning environments, they tend to outperform their peers in more traditional classroom settings (Cotner et al., 2013).

This chapter focuses on the joint implementation of blended and active learning to maximise the benefits of both approaches in higher education settings. We addressed three main areas:

1. *Institutional definitions.* We analysed the information available on public-facing university websites to establish a starting point for the study of these approaches.
2. *Academic literature.* We systematically reviewed the literature on active blended learning (ABL) published in indexed, peer-reviewed journals up to June 2020 to identify trends and patterns.
3. *Framework for active blended learning.* We present and describe an evidence-based framework to guide and scale up the implementation of ABL in higher education.

## INSTITUTIONAL DEFINITIONS

Despite its widespread usage, it is surprisingly difficult to find a universal definition of blended learning. In their review of 97 articles relating to blended learning in higher education, Smith and Hill (2019) reported a lack of consistency and clarity in the literature. Perhaps the only consensus relates to the combination of online and face-to-face elements (e.g., Garrison & Vaughan, 2008). The nature of these components remains ambiguous, and could relate to content availability, teaching strategies, learning opportunities or social interactions. Thus, descriptions of blended learning can refer to the ratio between web-based and traditional provision (Allen et al., 2007; Sener, 2015), the delivery methods (Clayton

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Christensen Institute, 2017; Kim, 2017) or the pedagogy (Freeman Herreid & Schiller, 2013; Mapstone et al., 2014). This variance complicates the development of research and practice, emphasising the need for shared understandings (Smith & Hill, 2019).

Several attempts to define active learning have emerged in the literature. In their seminal work, Bonwell and Eison (1991, p. 19) claim that the concept refers to a pedagogical approach that “involves students in doing things and thinking about the things they are doing”. Their stance draws from constructivism through its emphasis on the role of the learner. It proposes that learning is built on prior knowledge and enhanced by social interactions. Abstract concepts emerge from the experiences in concrete activities, becoming meaningful and transferable (Cooperstein & Kocevar-Weidinger, 2004). Active learning is therefore an approach to education rather than a specific teaching method. Its core elements are student activity and engagement in the learning process, which contrasts with traditional lectures, where students are often perceived as passive receivers of information. In line with this, collaborative, enquiry-based, problem-based, project-based, team-based or experiential strategies are usually part of active learning (Palmer et al., 2017; Prince, 2004).

While the literature offers some insight into the conceptualisation of both active and blended learning, our interest was on how higher education institutions around the world define and describe these terms. We thus analysed the information available on university and college websites to establish practice-based definitions that could serve as a starting point for the study of these approaches. Specifically, the following question guided this work: How do higher education institutions characterise blended and active learning?

## **Methodology**

Searches were conducted using the exact phrases ‘blended learning’ or ‘active learning’ combined with the words ‘university’ or ‘college’. We used the three main multilingual search engines: Google, Yahoo and Bing (Alexa Internet, 2020). The first 10 result pages of each search, in each search engine, were checked. We disregarded duplicated results.

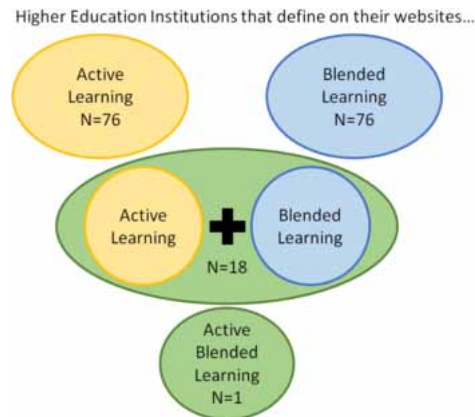
To be in the corpus, each identified page had to meet the following inclusion criteria: 1) written in English; 2) available on the official website of a university or college; 3) conveying an institutional, not an individual’s, view; and 4) defining, presenting or describing the concepts of interest in such a way that their meaning could be inferred. We excluded blogs belonging to specific academics, articles in peer-reviewed journals and social media pages. When a result did not show a clear definition, we broadened the search within the site. Whenever we found two or more web pages with a definition within the same site, we selected the one that seemed most representative of institutional policy.

This analysis focuses on 152 institutional web pages that met the inclusion criteria for blended learning (n=76) and for active learning (n=76). These universities and colleges are located all around the world, but as the search was conducted in English, most results were from the United States of America, the United Kingdom, Canada and Australia (Table 1). The distribution matches the countries where most of the published research on these topics originates (e.g., Smith & Hill, 2019). We found 18 institutions that individually defined blended learning and active learning on their websites. A single university joined both concepts into active blended learning (Figure 1) and offered a description of the term, which informed the framework proposed in this paper.

Table 1. Location of institutions whose websites were reviewed

Region	Country	Concept Defined	
		Blended Learning (n=76)	Active Learning (n=76)
North America	United States	26	52
	Canada	8	14
Europe	United Kingdom	20	5
	Ireland	2	-
	Czech Republic	1	-
	Netherlands	1	-
	Germany	1	-
Oceania	Australia	10	3
	New Zealand	3	-
Africa	South Africa	3	-
Asia	Hong Kong	1	-
	Japan	-	1
	China	-	1

Figure 1. Number of institutions that define active blended learning on their websites



We created two databases, one for each concept. Initially, coding was based on broad categories (Table 2). We then used an inductive analysis to identify emergent themes that would enable us to build a better understanding and characterisation of active learning and blended learning. We created the corresponding categories to establish their prevalence across the websites reviewed (Tables 3 and 4). We also identified the most frequently mentioned authors.

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*Table 2. Initial categories for the description of blended and active learning*

Category	Description
Higher education institution	Name of the university or college
URL	Direct link to the webpage that included the definition of the concept of interest (either blended learning or active learning)
Definition	Verbatim or inferred meaning of the concept of interest
Associated concepts	Other related terms, methods and techniques
Notes	Additional information not considered in the initial categories, such as frequently cited authors and strategies for implementation

*Table 3. Coding scheme for the definition of blended learning*

Category	Description
Face-to-face plus online	Combination of face-to-face and online components (activities, content, evaluations, interactions, etc.)
Flexibility	Emphasis on the possibility of learning in different ways, as decided by students
Effectiveness	Implied improvement of performance or learning
Thoughtful	Clarification that the integration of elements is strategic, meaningful or based upon careful pedagogical considerations
Best of both	Benefits from both face-to-face and online components (i.e., the ‘best of both worlds’)

*Table 4. Coding scheme for the definition of active learning*

Category	Description
Engaged	Students involved, participating, building their own knowledge
Not passive	What active learning is not; description of the opposite of active learning
Student-centred	Learners are in charge, responsible; focus shift from teacher to students
Meaningful	Specification that activities should be relevant to students, life-based
Doing	Undertaking learning activities, general and specific
Thinking Processes	Higher order thinking processes, such as discussion, analysis, argumentation, synthesis, evaluation and problem-solving
Metacognition	Thinking about one’s thinking and about what one is doing
Collaborative	Autonomy, individual work, interactions with content, self-paced study
Independent	Group work, interacting with others, group discussions

## Results

The analysis of institutional websites offered the following characterisation of blended and active learning.

### Blended Learning

Also referred to as ‘hybrid’, blended learning is defined in terms of the mere combination of face-to-face and online components. The consensus across public-facing institutional websites is absolute. The works of Garrison and Vaughan are the most frequently cited, particularly their book *Blended Learning in Higher Education: Framework, Principles, and Guidelines*, published in 2008. In line with these authors’ ideas, some institutions specify that blended learning is not just the integration of elements, but a thoughtful one, an approach that selects the best of both mediums, capitalising on their affordances. Other characteristics associated with blended learning include a focus on the achievement of learning outcomes and the flexibility to enable students to control the time and pace of their learning.

Three institutions explicitly move beyond this basic definition, considering other areas in the mix.

- Leiden University (Netherlands): “At the heart of this [blended learning] approach is, that thought needs to be given to what the most effective blend is for each individual situation: what works for this course? The instructional triangle leads the way here: learning objectives, working methods and testing need to fit together.”
- Lincoln University (New Zealand): “[Blended learning] can involve a mix of delivery modes, teaching approaches and learning styles. [...] You can ‘blend’ time (e.g., face-to-face vs. recorded lectures), place (small group tutorial on-campus vs. online discussion forum; traditional field trip vs. ‘virtual’ field trip using web sites and online chat with industry personnel), people (video link with guest lecturers, or virtual classroom to include both on-campus and off-campus students), resources and activities (textbook vs. online readings; in-class vs. online quiz).”
- Massachusetts Institute of Technology (United States of America): “We define blended learning as structured opportunities to learn, which use more than one learning or training method, inside or outside the classroom. This definition includes different learning or instructional methods (lecture, discussion, guided practice, reading, games, case study, simulation), different delivery methods (live classroom or computer mediated), different scheduling (synchronous or asynchronous) and different levels of guidance (individual, instructor or expert led, or group/social learning).”

Institutional pages describe blended learning as a teaching approach within courses or degree programmes, or as a feature of resources designed for academic staff development. They incorporate blended learning as part of a broader pedagogical strategy or as a specific area of interest. Relevant initiatives include dedicated toolkits (e.g., University of Central Florida, USA), challenges (e.g., Boston University, USA), entire websites (e.g., Penn State University, USA), labs (e.g., Ryerson University, Canada) and models (e.g., University of Pretoria, South Africa).

### Active Learning

University websites describe active learning as an umbrella term that encompasses over 100 concepts, methods and pedagogical approaches, including, but not limited, to:

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- Collaborative learning
- Experiential learning
- Problem-based learning
- Team-based learning
- Flipped classrooms

All of these terms share a core underlying idea: student engagement in learning tasks.

The vast majority of higher education institutions characterise active learning in line with the definition offered by Bonwell and Eison (1991, p. 19): a pedagogical approach that “involves students in doing things and thinking about the things they are doing”. The concept is often described in opposition to passive learning. Active learning is not sitting down to listen quietly to the teacher. It implies engaging in higher order thinking processes, such as synthesis, discussion and problem-solving, and usually collaborating with others. Some universities and colleges specify that activities should be meaningful and promote metacognition, i.e., the understanding of one’s own thoughts (Veenman et al., 2006). The general narrative suggests that active learning rejects traditional lectures, often of a unidirectional or ‘content delivery’ nature, in favour of a student-centred, interactive approach.

This analysis revealed that while some learning tasks are generally considered active (for example, participating in group work), there is no consensus on others. Particularly, reading is perceived in diametrically different ways. Twenty-one institutions mentioned it, 14 as an active strategy and seven as a passive one. This is exemplified as follows.

- Harvard University (USA): “Active learning includes any type of instructional activity that engages students in learning, beyond listening, reading and memorizing.” [passive view]
- University of North Dakota (USA): “Students are engaged in activities (reading, discussing, writing).” [active view]

Relevant initiatives associated with the institutional implementation of active learning include teaching resources (e.g., Cornell University, USA), dedicated toolkits (e.g., University College London, UK), active learning classrooms (e.g., Queen’s University, Canada), the Active Learning Week (University of Maryland, USA), and active learning awards for undergraduate students (University of Colorado Boulder, USA).

## **Discussion**

Conceptualisations of active learning and blended learning are present on the websites of more than 150 higher education institutions globally. While descriptions vary, as in Smith and Hill (2019), they are mostly in agreement with the standard approach suggested in the literature. Blended learning is usually viewed, arguably simplistically, as the (thoughtful) combination of face-to-face and online components (Garrison & Vaughan, 2008), with little or no further clarification. Some universities and colleges specify that this approach benefits from the best of both modes of study. This ‘mix’ enables the creation of flexible educational experiences for traditional and non-traditional students (Waha & Davis, 2014) and contributes to the achievement of learning outcomes.

In line with claims that the real advantages are a product of more complex mixes (Adams Becker et al., 2017; Means et al., 2010), three institutions explicitly incorporate dimensions beyond the ‘delivery mode’ in the blend. They include learning objectives, teaching methods, ways of communication, environments, participants, resources, activities, technology use and levels of guidance. This wide range of dimensions suggests a potential for blended learning to be much more than the thoughtful combination of online and face-to-face components. So far, most universities and colleges do not seem to acknowledge this multi-layered and challenging characteristic of blended learning, missing an opportunity for a different, enriching way of designing and developing learning interventions.

Active learning is often characterised as a pedagogical approach that engages students in higher order thinking tasks. It usually requires collaboration with peers. Interestingly, however, most universities and colleges that promote active learning, regularly use large lecture theatres. It is difficult to evidence how such active approaches can routinely operate at scale in such settings, where, despite occasional uses of interactive techniques, seating layouts or technologies, listening to a lecturer is the primary ‘activity’.

The approach undertaken to identify definitions based on institutions’ public-facing websites has several limitations. First, websites are not always clear about what the institution means by active learning or by blended learning. In many cases, such definitions were implied, requiring a subjective interpretation. Biases were mitigated by using a coding scheme that involved two independent coders. Secondly, it is possible that clearer institutional policies and more precise definitions are kept behind institutional firewalls. In some instances, there was a clear interest in encouraging lecturers to incorporate active and blended learning into their regular practice, as evidenced by related teaching resources, toolkits, specialist labs, awards and other incentives. However, institutional definitions of such concepts were largely missing. Finally, conducting searches with less widely used terms, such as hybrid learning, could have yielded different results.

The analysis of institutional definitions of active and blended learning established a starting point for the study of the joint implementation of these approaches. To identify trends and patterns in related research, we conducted a systematic literature review, which is the focus of the next section.

## **SYSTEMATIC REVIEW OF THE LITERATURE**

Interest in both blended and active learning is evident in the higher education sector, as exemplified by the numerous resources available on institutional websites and recent publications (e.g., Garnham et al., 2019; Smith & Hill, 2019). While there seems to be agreement on the relevance of both approaches to the student experience in higher education, it is less clear if the potential affordances of their joint conceptualisation and implementation have been studied and capitalised on. This section aims to build an overview of this topic by presenting a systematic search and analysis of the literature on active blended learning (ABL) published in scientific journals. The following research questions guided this work:

1. What has been published on ABL to June 2020?
2. What is the focus of such ABL publications?
3. What research methodologies and data types are most frequently used?
4. What is the predominant discourse of ABL publications (positive, negative, neutral or critical)?



## Methodology

We carried out a configurative review aimed at identifying patterns in the documents to answer the research questions and further our understanding of ABL (see Gough et al., 2012). Searches used the exact phrases ‘active blended learning’ and ‘blended active learning’ anywhere in the papers, or all of these words in any order in the title. Three academic databases were searched: Scopus, Web of Science and Google Scholar (Table 5). These sources of peer-reviewed publications were selected due to their capability of providing a broad, accurate coverage of relevant literature, especially when used together (Halevi et al., 2017; Harzing & Alakangas, 2016; Martin-Martin et al., 2018). They enable searches of relevant journals in the field of education.

*Table 5. Number of publications found in each database*

Database	Exact phrase ‘active blended learning’	Exact phrase ‘blended active learning’	Words active + blended + learning in any order in the title
Scopus	8	3	43
Web of Science	3	1	20
Google Scholar	172	118	126

*Note.* Scopus only searched the exact phrases in the title, abstract or keywords. Web of Science only searched the exact phrase in the topic or the title fields and automatically included the variation ‘blending’ in the results.

Duplicate results were eliminated. To be in the corpus, each document had to meet the following inclusion criteria: 1) written in English; 2) published in a peer-reviewed, indexed academic journal; 3) available online at any time up to June 2020; and 4) including an explicit reference to ABL as part of the paper (not only in the references). Therefore, materials such as editorials, conference proceedings, interim reports, white papers and articles in dissemination magazines, were excluded. If a paper had a questionable quality standard (e.g., a website with numerous spelling mistakes or lack of information regarding indexing) or was published in a journal considered predatory (see the [List of Predatory Publishers](#), extracted from the archive of Beall’s List), it was also removed from the corpus.

The analysis focused on the 43 articles that met the inclusion criteria and was based on pre-set categories related to the research questions (Table 6). The authors used discourse analysis to determine the subjective aspects, such as the main topic or the general tone of each paper, with the help of independent coders. Interrater agreement was calculated to be 81.4%. The researchers discussed and reconciled differences until they reached a consensus. Frequencies and sample patterns illustrate the results.

Table 6. Categories for article analysis

Category	Description
Authors	Names of those who wrote the paper
Year	Year when the paper was published
Title	Name of the paper
Journal	Name of the journal
SJR	Metric provided by Scimagojr.com, a size-independent measure of the scientific influence of journals. It accounts for both the number of citations received by a journal and the prestige of the journals where such citations come from. This metric was only available for selected documents.
Affiliation	Institutional affiliation of the first author
Country	Country of the first author's institution
Number of citations	Metric that shows the visibility and influence of a paper in other scholarly publications. Based on data from Google Scholar.
Main topic	Overarching theme in the paper, such as the design of ABL, its effectiveness, or other.
Field	Discipline that offered a context for the study
Design	Information about the general design of the study
Sample size	Number of participants, only applicable to empirical papers.
Participants	Research subjects, such as teachers or learners
Instruments	Data collection methods, such as surveys, interviews or learning analytics
Type of data	Quantitative, qualitative or mixed
Tone of discourse	Underlying view towards ABL. Options included: <ul style="list-style-type: none"> <li>● Positive - focusing on the benefits of ABL</li> <li>● Negative - emphasising the drawbacks of ABL</li> <li>● Neutral - providing neither clear support nor criticism of ABL</li> <li>● Critical - expressing both the pros and cons of ABL</li> </ul>
Notes	Additional information not considered in the initial categories

## Results

The analysis of the literature on active blended learning offered answers to the research questions, as outlined in this section.

### What Has Been Published on ABL to June 2020?

ABL literature is growing (Figure 2). Studies explicitly incorporating both concepts of active and blended learning first appeared in 2006. Most papers (36/43) were written collaboratively. Twenty-four had three or more authors. Thirteen first authors were based in North America (Table 7).

At the time of writing, the 43 publications included in this review were cited a total of 1,153 times. However, four of them were cited 883 times (Table 8). The journals where these works are published have the highest SJR in the corpus. Thirty-four papers have under 15 citations. Eight papers, all published between 2019 and 2020, had not been cited when this chapter was written.

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Figure 2. ABL papers published by year

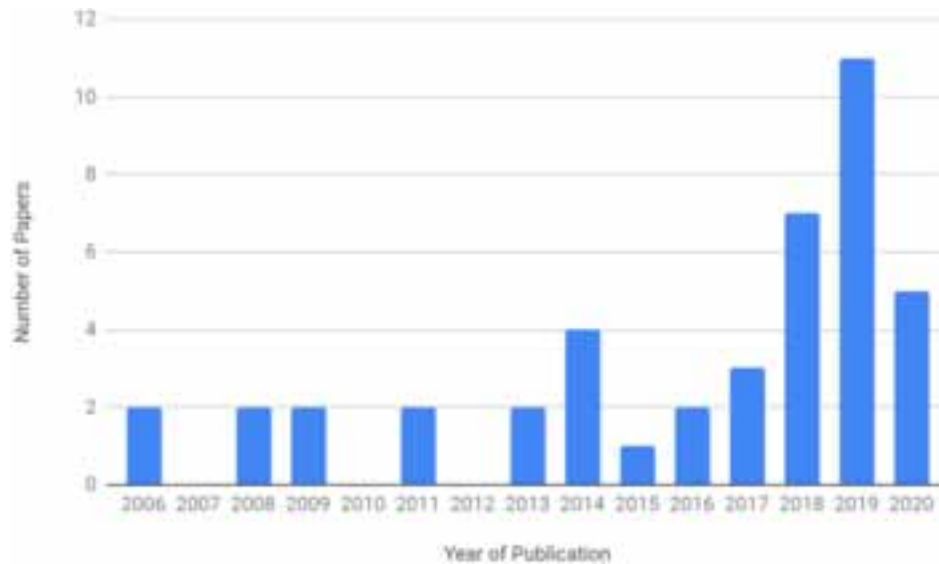


Table 7. Countries of first authors' affiliations

Region	Country	Papers published
North America	United States	13
	Canada	4
Asia	China, India, Indonesia, Japan, Malaysia, South Korea, Sri Lanka, Taiwan	10
Europe	United Kingdom	7
	Greece, Ireland, Netherlands, Norway, Poland	5
Oceania	Australia	3
South America	Brazil	1

Table 8. Most cited ABL papers

Number of Citations	Reference
618	Baepler, P., Walker, J. D., & Driessen, M. (2014). It's not about seat time: Blending, flipping, and efficiency in active learning classrooms. <i>Computers &amp; Education</i> , 78, 227-236. <a href="https://doi.org/10.1016/j.compedu.2014.06.006">https://doi.org/10.1016/j.compedu.2014.06.006</a>
127	Dantas, A. M., & Kemm, R. E. (2008). A blended approach to active learning in a physiology laboratory-based subject facilitated by an e-learning component. <i>Advances in Physiology Education</i> , 32(1), 65-75. <a href="https://doi.org/10.1152/advan.00006.2007">https://doi.org/10.1152/advan.00006.2007</a>
74	Davidson, L. K. (2011). A 3-year experience implementing blended TBL: active instructional methods can shift student attitudes to learning. <i>Medical Teacher</i> , 33(9), 750-753. <a href="https://doi.org/10.3109/0142159X.2011.558948">https://doi.org/10.3109/0142159X.2011.558948</a>
64	Bodie, G. D., Powers, W. G., & Fitch-Hauser, M. (2006). Chunking, priming and active learning: Toward an innovative and blended approach to teaching communication-related skills. <i>Interactive Learning Environments</i> , 14(2), 119-135. <a href="https://doi.org/10.1080/10494820600800182">https://doi.org/10.1080/10494820600800182</a>

## What is the Focus of ABL Publications?

Most publications are case studies. They report on specific modules, courses or programmes designed or redesigned to promote active blended learning. Thirteen of the 43 studies were framed within the field of health sciences (Table 9). Participants were normally undergraduate students. The main areas of research were learners' perspectives, satisfaction and learning outcomes. Only two studies included data collected from teachers who were not the authors of the respective papers.

*Table 9. Contextual fields of ABL literature*

Field	Number of Papers
Health Sciences: ● Medicine ● Midwifery ● Nursing ● Odontology ● Pharmacy ● Physiology	13
Science, Technology, Engineering and Mathematics (STEM)	11
Business and Management	5
Education	4
Other fields	5
Generic ABL literature without a disciplinary focus	5

The main themes were course design for ABL and the effectiveness of ABL in terms of the student experience. Six papers propose frameworks linked to specific aspects of ABL. For example, Wood, Eccott and Bainbridge (2013) put forward a technology-enabled, interprofessional education model, which they describe as flexible, modular and blended. Jang and Kim (2016) discuss a framework for an active learning environment that enables self-directed, discovery learning using augmented reality. Lieser, Taff and Murphy-Hagan (2018) offer guidelines for implementing webinars to enhance interactions in blended environments. Aligning ABL to large-scale programme redesign, (including level-appropriate learning outcomes across the entire academic portfolio), an institutional framework of graduate attributes and employability potential is the focus of Maxwell and Armellini (2018).

The following concepts appeared in the reviewed papers, in association with ABL:

- Augmented reality
- Collaborative learning
- Game-based learning
- Flipped classroom
- Problem-based learning
- Team-based learning

Researchers also explored technological tools as part of ABL strategies, such as online lectures, forums, chats, digital badges, e-portfolios, video tutorials, and webinars.

## What Research Methodologies and Data Types Are Most Frequently Used?

Twelve papers did not report on any empirical research. The rest were based predominantly on case studies with mixed (15/31) or quantitative (13/31) data. Surveys were the most common instrument, followed by academic examinations. Three studies also considered learning analytics. Qualitative information usually came from open-ended questions. Sample sizes ranged from 12 to 1100, with a median of 78 participants.

Most studies were cross-sectional. Three used a pre-post approach. Seven had a longitudinal design, covering the experience of implementing courses based on ABL for two to seven years. Three of the studies were poorly reported and seemed more anecdotal than scientific. They failed to describe their methodology in full, which prevents replication.

## What is the Predominant Discourse in ABL Publications?

The tone of the discourse across the ABL literature is mostly positive, emphasising the benefits of ABL such as student satisfaction, high engagement and enhanced academic performance. For example, Godlewska and colleagues (2019) reported on the iterative use of blended learning to achieve active learning in a class with c.400 students. Through seven years of experimentation, they found that ABL approaches work effectively and can facilitate the teaching of content, skills and work habits.

No papers showed a negative perspective. Five had a critical stance, presenting both pros and cons of ABL. One of these was a manuscript by McDonough (2014), which discussed the barriers to and benefits of active learning. Nine were neutral, more descriptive than analytic, and thus provided no clear support or critique of ABL.

Eight studies compared ABL with more traditional teaching strategies, such as non-interactive lectures. They reported equal or enhanced learning outcomes (e.g., Baepler et al., 2014; Bayley & Hurst, 2018; Dantas & Kemm, 2008; Goetzen et al., 2009). Shimizu and colleagues (2019) describe an intervention in which medical students participated in either a face-to-face problem-based learning programme or a blended equivalent. They found that the latter resulted in significantly higher self-efficacy, motivation and knowledge gain than the former. When students are engaged in their own learning and have the flexibility of a blended approach, results are predominantly positive.

## Discussion

While the concepts of active learning and blended learning are not new, their joint study, in the form of ABL, is still an emerging and growing research field. As part of this chapter, we systematically reviewed and analysed the literature on ABL published in indexed, peer-reviewed academic journals up to early June 2020. Documents written in languages other than English were excluded, thus, limiting the size and diversity of the corpus. The 43 papers that met the inclusion criteria were from all continents except Africa.

Active learning is sometimes used as an umbrella term for a range of pedagogical strategies, for instance, collaborative and problem-based learning (Palmer et al., 2017; Prince, 2004). As our search for institutional definitions showed, over 100 concepts, methods and techniques are associated with active learning. It is likely that many studies have focused on ABL without framing it as such. For example, they might have referred to ‘team-based learning’ (TBL) without stating that TBL is a form of active learning. Thus, they would have been excluded from this systematic literature review, which constitutes a further limitation.

However, results from ABL research across the higher education sector are encouraging. Most papers focus on strategies for ABL course design or its effectiveness. They emphasise the benefits of ABL as a pedagogical approach. As previously reported (Liu et al., 2016; Stockwell et al., 2015), studies that compared ABL with other approaches to learning and teaching found either non-significant differences or enhanced outcomes.

Future studies on ABL could attempt to address some of the many outstanding questions. Most of the data collected originated from quantitative surveys, which sometimes contained open-ended questions. A qualitative approach could contribute to a deeper, more holistic view of ABL in higher education. The field could benefit from strengthening the scientific rigour of the studies that focus on ABL through the use of empirical data and methods that enable replication. Most studies report on learners' experiences. The perspectives of other relevant stakeholders, such as teachers, designers and administrators, are largely absent. Similarly, systematic studies into institutional learning and teaching strategies and policies for the review and possible uptake of ABL are missing from the literature. An evidence-based framework to guide the articulation, communication and implementation of ABL at the institutional level can help individual academics, subject teams, students and universities.

## **AN ACTIVE BLENDED LEARNING FRAMEWORK**

Active learning and blended provision are not new topics in higher education. Our literature review shows evidence of their benefits. However, the wide range of conceptualisations presented in the literature and via institutional websites can lead to ambiguity. Educators and academic institutions may struggle to understand, research, design and implement strategies to support and scale up these approaches effectively. In this section, we build upon our previous findings, by analysing the definitions and descriptions of blended learning and active learning. We then integrate both concepts into one: active blended learning (ABL), by putting forward a definition and a transferable framework for the implementation and practice of ABL in higher education.

### **Expanding the Traditional View of Blended Learning**

The standard definition of blended learning revolves around the pedagogically sound combination of face-to-face and online elements. This reductive conceptualisation has a number of limitations. To enhance the learning experience, 'blends' should encompass more than the (thoughtful) incorporation of face-to-face and online elements. Other complex and challenging dimensions play a key role in any academic intervention (Means et al., 2010), such as (a)synchronicity, forms of participation, types of activities, levels of guidance, technology use, learning spaces and approaches to assessment.

The prevalence of technologies implies that most, if not all, contemporary educational interventions include *de facto* online components. Consider a face-to-face course where students create an informal group on social media to share ideas and advice. Even if not originally designed as such, the course may fit the traditional definition of blended learning because it includes a combination of face-to-face and online elements.

Another criticism is the tendency to 'tick the online box by putting materials on the virtual learning environment (VLE)'. With the VLE functioning solely as a content repository (e.g., Armellini et al., 2012), the conclusion could be that the course is blended. However, in many cases, the course runs as

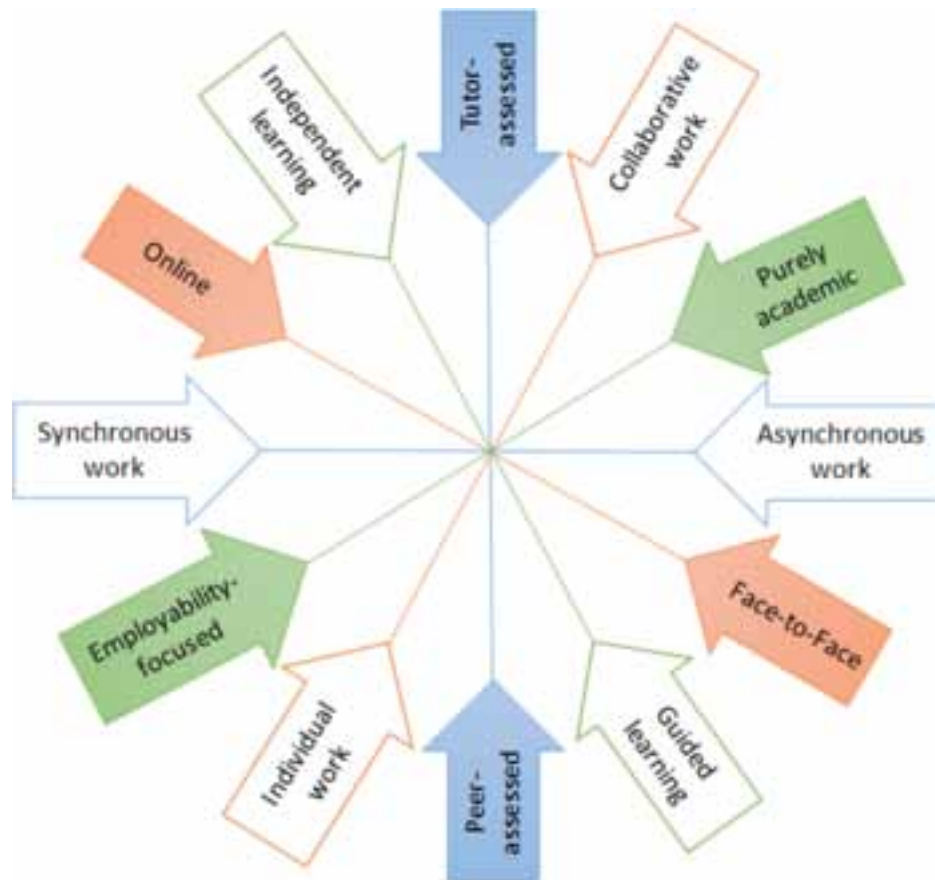
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two separate tracks: one in the classroom and one online, with little or no integration between them. This clearly does not constitute a blend.

We thus challenge the idea that blended learning should focus on the notion of locating pedagogic practice on a continuum from face-to-face to online activity. Furthermore, we reject the view that it is possible to quantify the proportions or percentages of a course ‘delivered’ in the classroom and online (as in Allen et al., 2007; Sener, 2015). Such attempts tend to be put in place to satisfy administrative requirements, market positioning or institutional agendas, without reflecting clear benefits for course design, teaching practice or student behaviour. Appropriate learning technologies are essential for classroom and out-of-classroom use, but it is the pedagogical approach (including design and teaching practice), not the use of technology, that determines the suitability and potential success of the blend (Means et al., 2010).

This scenario has led to the emergence of more sophisticated conceptualisations. Blended learning is an approach that incorporates a range of dimensions that interact with and shape one another in an educational intervention (Figure 3). ‘Face-to-face to online’ is just one of them. The ideal blend for a course is contextual: it will vary from one iteration of the course to the next, from one student cohort to another, from one tutor to another, within and between disciplines. The blend will be perceived differently by each learner and will vary across settings, preferences and circumstances (Waha & Davis, 2014).

Figure 3. Sample dimensions of blended learning



## Implementing Active Learning

The benefits of active learning might encourage educators to simply add more hands-on tasks or discussions. Incorporating a higher number of interactions as a means to achieve meaningful learning has been suggested in the past (e.g., Anderson, 2003). However, behavioural activities or superficial engagements might not necessarily have an influence on educational goals (Woo & Reeves, 2007). Ensuring that students are organising, integrating and building new knowledge is key (Mayer, 2004). In this context, Bonwell and Eison's (1991) definition of active learning is still valid today: an approach that requires students to do things as part of their educational experience and think about the things they do. According to these authors, active learning should aim to: 1) develop students' skills, not solely transmit information, 2) foster higher-order thinking processes, such as analysis, synthesis and evaluation, and 3) promote engagement beyond listening (e.g., discussing, writing, creating).

Active learning can take place in a number of spaces, such as in the classroom, field, laboratory or online. It can take multiple forms across disciplines and modes of study (e.g., Baepler et al., 2014; Ransdell & Gaillard-Kenney, 2009). It can include numerous strategies and capitalise on diverse, multi-layered approaches that combine traditional and more innovative teaching methods with a range of learning technologies. Active learning can therefore be planned and operationalised through a *blend* of many components, learning settings, approaches and technologies combined to enhance the learning experience of individuals and groups.

## Combining Approaches: Active Blended Learning

The active blended learning (ABL) framework emerged at the University of Northampton in the United Kingdom from an interest to move away from traditional approaches to learning and teaching towards context-sensitive 'blends' that operate in appropriate learning environments. ABL represented a practical way to make this shift. The University has pioneered this approach since 2013, establishing ABL as its standard approach to learning and teaching (see also Wareing, 2021) and moving from 'pockets of good practice' to large-scale pedagogic innovation across its entire academic portfolio. This process culminated in the opening of its new Waterside campus, which has no large lecture theatres. Several reports and studies have emerged from this initiative (e.g., Palmer et al., 2017; Teixeira Antunes et al., 2021).

**Active blended learning** can be defined as a pedagogical approach that combines sense-making activities with focused interactions (with content, peers and tutors) in appropriate learning settings – in and outside the classroom. ABL focuses on engaging students in knowledge construction, reflection and critique, in developing learner autonomy and in achieving learning outcomes (University of Northampton, 2020). ABL modules and programmes are taught through student-centred activities that support the development of subject knowledge and understanding, independent learning and digital fluency. Face-to-face teaching is facilitated in a practical and collaborative manner, clearly linked to learning activities (both teacher-mediated and self-study) carried out outside the classroom.

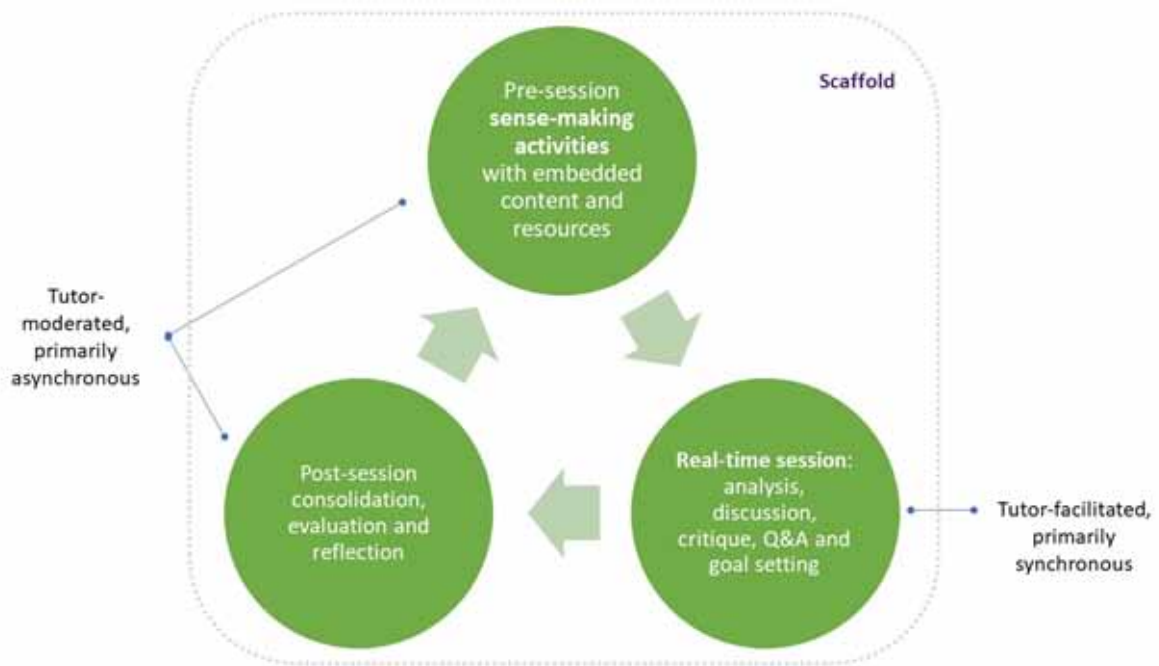
Figure 4 captures the essence of ABL as it was rolled out and scaled up at the University of Northampton between 2014 and 2021. In ABL, what matters is not the academic content *per se* (which is often the tutors' focus), but what students do with it, why they do it, how they do it and who they do it with. The sense-making activities are therefore an integral component of the learning design and teaching processes. These activities support learning in preparation for face-to-face sessions, as well as providing an appropriate scaffold and a consolidation opportunity for each session.



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There is an expectation that this scaffold should be more sophisticated than simply asking learners to ‘read X’ or ‘watch Y’ and ‘come back with three key points’, which is what many proponents of the ‘flipped classroom’ do in practice. In ABL, content is not king. Context is. The focal point of tutors’ efforts should be the design of context-sensitive scaffolds, particularly the creation of activities that enable students to make sense and take ownership of the content. Learners subsequently demonstrate the achievement of the learning outcomes and evidence such achievement through aligned assessments. Activities can be set for synchronous and asynchronous work, in and outside the classroom, and can focus on individual as well as collaborative projects.

Figure 4. An active blended learning framework



Although the framework suggests a cyclical but ultimately linear process, which some may view as restrictive, the intention is not to prescribe a single way of addressing pedagogic challenges. On the contrary, this model is a guide for practice, rather than a one-size-fits-all tool. At the University of Northampton, staff have successfully used it to improve their pedagogic design and teaching practice, and create more engaging interventions for their students (Bennett & Nie, 2019).

The definition and rationale for ABL, presented here with its framework for application, may help and inspire colleagues and institutions as they rethink their approaches to learning and teaching, with a view to offering students authentic, learner-centred, engaging academic experiences. Since 2016, the level of interest in this approach to ABL from across the global HE sector has been significant and taken the form of multiple related events (examples include programmes by [AdvanceHE](#) and [Jisc](#)). Over 40 universities and organisations of different profiles and sizes, including traditional, research-based institutions, have engaged in the discussion and in some cases, the implementation of ABL in specific

academic areas. The amount and depth of interest in ABL from across the sector suggest the potential for further research in a variety of settings. This chapter invites HE colleagues to critique, adapt, apply and evaluate this framework across disciplines and learning contexts.

## CONCLUSION

There is ample evidence of widespread interest in both active learning and blended learning across the higher education sector internationally. This paper explored these concepts through the analysis of their definitions on the public-facing websites of universities and colleges and a systematic literature review. It then proposed a framework for conceptualising and implementing active blended learning (ABL). We conclude that:

- 1) **The most common conceptualisation of blended learning can be regarded as simplistic.** By only focusing on the (sometimes thoughtful) combination of face-to-face and online components, which arguably occurs *de facto*, other key dimensions relevant to the educational experience, are often ignored. These include, but are not limited to, (a)synchronicity, forms of participation, types of activities, levels of guidance, technology use, learning spaces and approaches to assessment.
- 2) **Active learning requires encouraging students to do things and think about what they do.** Active learning is not about increasing the number of activities, but about ensuring that they are focused, meaningful, engaging and aligned to the stated learning outcomes and assessment strategy. The analysis of the institutional websites of universities and colleges globally, in conjunction with the ABL literature, suggests that there are over 100 strategies, methods and techniques to foster active learning.
- 3) **The growing literature on ABL is mostly positive.** Studies report enhanced outcomes and other benefits for students, highlighting the usefulness of incorporating this joint approach as part of both pedagogic design and learning and teaching practices. However, research has primarily used quantitative data to focus on student perspectives, leaving numerous gaps for future studies to address.
- 4) **ABL is a pedagogical approach that combines sense-making activities with focused interactions with content, peers and tutors in appropriate learning settings – in and outside the classroom.** In ABL, what matters is not the content or course materials *per se*, but what learners do with it, why and how they do it, and who they do it with. The framework used at the University of Northampton (Figure 4) may serve as a guide for planning and implementation.

This chapter provides a starting point for the understanding and implementation of ABL. Further research is needed to obtain a comprehensive insight into the benefits and drawbacks of this pedagogical approach. Such research might consider the perspectives of the different stakeholders, barriers to implementation and embedding, student outcomes, as well as differences in conceptualisation of ABL across cultures and educational settings. We encourage institutions fostering ABL and comparable approaches to document, analyse and share their experiences.

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