



Citation for the published version:

Smith, K., & Hill, J. (2018). Defining the nature of blended learning through its depiction in current research. Higher Education Research and Development. DOI: 10.1080/07294360.2018.1517732

Link to the final published version available at the publisher:

This is an Accepted Manuscript of an article published by Taylor & Francis Group in Higher Education Research and Development. Published on 18/9/2018, available online: <https://doi.org/10.1080/09638288.2017.1398278>

© 2018 Informa UK Limited, trading as Taylor & Francis Group

General rights

Copyright© and Moral Rights for the publications made accessible on this site are retained by the individual authors and/or other copyright owners.

Please check the manuscript for details of any other licences that may have been applied and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights. You may not engage in further distribution of the material for any profitmaking activities or any commercial gain. You may freely distribute both the url (<http://uhra.herts.ac.uk/>) and the content of this paper for research or private study, educational, or not-for-profit purposes without prior permission or charge.

Take down policy

If you believe that this document breaches copyright please contact us providing details, any such items will be temporarily removed from the repository pending investigation.

Enquiries

Please contact University of Hertfordshire Research & Scholarly Communications for any enquiries at rsc@herts.ac.uk

Defining the nature of blended learning through its depiction in current research

Karen Smith

School of Education, University of Hertfordshire, Hatfield, UK

John Hill

Centre for Excellence in Learning and Teaching, University of Derby, Derby, UK

Karen Smith, University of Hertfordshire; School of Education, University of Hertfordshire, Hatfield, AL10 9AB; k.smith27@herts.ac.uk

Defining the nature of blended learning through its depiction in current research

Blended learning has been a feature of higher education practice and research for almost two decades. This article takes stock of current blended learning research, contributing to the growing number of meta-analyses of higher education and blended learning research more generally, through a review of ninety-seven articles relating to blended learning in higher education published in fifteen journals between 2012 and mid-2017. The review focussed on where and when the articles were published; their provenance, scale, scope; methodological approach; the broad research themes; and definition of blended learning used. The review shows that despite its ubiquity, blended learning's definition is all-encompassing; its spread is global but research is dominated by key players; it is of technical interest; and its research is small-scale, individually-focussed, seeking to evidence the benefits of blended learning. The article concludes with recommendations of how higher education research could provide institutions with evidence to ensure their 'best of blends'.

Keywords: blended learning; higher education research; literature review

Introduction

Blended learning has been a feature of higher education since the late 1990s. It has grown in popularity during the intervening years (Mirriahi, Alonzo, & Fox, 2015) with ever increasing numbers of higher education institutions offering at least some of their provision in blended mode. Its ubiquity within higher education practice has led some to describe it as the 'new normal' (Norberg, Dziuban, & Moskal, 2011), whereby pedagogical models that involve 'mixes' are the 'norm' and 'unblended' pedagogical situations to be 'questioned and explored' (Oliver & Trigwell, 2005, p.24).

Arguments for the benefits of blended learning are well rehearsed, and include: increased flexibility for staff and students; personalisation; enhanced student outcomes; the development of autonomy and self-directed learning; opportunities for professional

learning; cost efficiencies; staff and student satisfaction; and increased interaction between staff and students, and between students (e.g. Kim, Park, Yoon, & Jo, 2016; Mirriahi et al., 2015; Lai, Lam, & Lim, 2016; Vaughan, 2007). Importantly, blended learning is cast as transformative; it enables the rethinking and restructuring of pedagogic practice (Garrison & Kanuka, 2004), with the potential to ‘recapture the ideals of higher education’ (Garrison & Vaughan, 2008, p.x). This does not mean that these aims are easily achieved. The challenges of developing blended learning are also well reported; higher education is challenged by a lack of staff capacity to engage with blended learning (Mirriahi et al., 2015); resistance to innovation and change (Salmon, 2005); a paucity of research-informed models to support institutional adoption (Porter & Graham, 2016); and a lack of institutional definition (Mirriahi et al., 2015).

In general, definitions of blended learning are problematic. They are ambiguous (Graham, 2006), describe a myriad of different practices (Moskal, Dziuban, & Hartman, 2013) with little consensus as to what they encompass (Sharpe, Benfield, Roberts, & Francis, 2006). Most simply, blended learning refers to the ‘thoughtful fusion of face-to-face and online learning experiences’ (Garrison & Vaughan, 2008, p.5). This definition, which is (purposefully) broad, does not specify the scale and nature of that fusion, making it hard to see the essence of blended learning, when it can relate to almost anything (Oliver & Trigwell, 2005). Some commentators argue the term is misleading, finding ‘blended pedagogies’, ‘blended teaching’ or ‘learning with blended pedagogies’ more appropriate (Oliver & Trigwell, 2005, p.21). Blended learning stands alongside and is often used interchangeably with terms such as hybrid, mixed mode or flexible learning (see e.g., Keppell, O’Dwyer, Lyon, & Childs, 2010; McGee & Reis, 2012). This lack of definition and cohesion is also apparent in blended learning research, which is described as ‘disparate’ and ‘lacking a centre’ (Halverson, Graham,

Spring, & Drysdale, 2012); individually-focussed (Park, Yu, & Jo, 2016) and devoid of theoretical base (Drysdale, Graham, Spring, & Halverson, 2013).

Building on earlier reviews of blended learning research (e.g. Bliuc, Goodyear, & Ellis, 2007; Drysdale et al., 2013; Halverson et al., 2012; Halverson, Graham, Spring, Drysdale, & Henrie, 2014; Zhang & Zhu, 2017), this article focuses on the use of the term blended learning within higher education research, where it is being used, how it is defined, how the field is being researched, and what this means for future development .

Methodological approach

This article contributes to work that explores topics related to higher education in a systematic way. Existing reviews include those by Tight (2007, 2013), who looked at the development of higher education research broadly; Ashwin (2012), who reviewed how theories were developed in higher education research; Abdullah, Abd Aziz and Mohd Ibrahim (2013) who reviewed international student research; and Tight (2017) who looked at the range and contribution of higher education research journals. Looking specifically at blended learning: Bliuc, Goodyear and Ellis (2007) identified the methodological choices and research focus in blended learning research; Halverson, Graham, Spring and Drysdale (2012) analysed the publication trends of high impact research and scholarship in blended learning, and later conducted a thematic analysis of that highly-cited research and scholarship (Halverson et al., 2014); Drysdale, Graham, Spring and Halverson (2013) explored trends in theses and dissertations looking at blended learning; and Zhang and Zhu (2017) completed a systematic review of blended learning research to identify common themes. This research seeks to contemporise reviews of blended learning research and situate that research within the field of higher education.

The review drew on articles from three kinds of journal. Firstly, six journals identified by Tight (2007) as key higher education journals: *Higher Education*, *Higher Education Research and Development*, *Journal of Higher Education*, *Review of Higher Education*, *Studies in Higher Education* and *Research in Higher Education*; four that focus on teaching and learning: *Teaching in Higher Education*, *Innovations in Education and Teaching International*, *Active Learning in Higher Education* and *Higher Education Pedagogies*; and five that specialise in technology-enhanced learning: *Internet and Higher Education*; *British Journal of Educational Technology*, *Education and Information Technology*, *Research in Learning Technology* and *International Review of Open and Distributed Learning*. The review period looked back to 2012 through to July 2017, when the sample was constructed.

While there are other terms to describe the blend of online and face-to-face teaching (e.g. hybrid learning, multi-mode learning, mixed-mode learning, integrated learning), blended learning remains ‘the dominant label for an educational platform that represents some combination of face-to-face and online learning’ (Moskal et al., 2013, p.15). Since we were particularly interested in the currency of the term blended learning, we searched only for articles where ‘blended learning’ appeared in the article’s title, abstract or keywords. The journals’ internal search engines were used for the search and all results were checked to ensure that the search term was present in either title, abstract or keyword (the *British Journal of Educational Technology* does not list keywords, though does provide the option to search by keyword). Articles were excluded from the results if the research was not higher education focussed. Ninety-seven articles met our inclusion criteria. Information was extracted about the date of publication and the provenance of the research/researchers. The approach to research was coded, using the framework developed by Halverson, Graham, Spring, Drysdale

and Henrie (2014, p.22), which includes: empirical (descriptive, inferential or qualitative), non-empirical (literature review / explanation or model / theory) and combined (combination or ‘gold star’, i.e. empirical analysis and theory or model development) and the scale and target of the blended learning initiatives were also recorded.

The broad research topics were categorised, using the categorisation from Halverson, Graham, Spring, Drysdale and Henrie (2014), which builds on Drysdale, Graham, Spring, and Halverson (2013), Table 1.

| Category | Description |
|--------------------------|---|
| Instructional design | Models, strategies and best practices, design processes, implementation, environment, and course structure. |
| Disposition | Perceptions, attitudes, preferences, student expectations and learning styles. |
| Exploration | Nature of the role of blended learning, benefits and challenges, current trends and future predictions, position / persuasion, purposes for blended learning, transformative potential. |
| Learner outcomes | Performance outcomes, student satisfaction, engagement, motivation and effort, independence in learning, retention rates. |
| Comparison | Blended versus face to face versus online, and blended versus online. |
| Technology | Comfort with, effects of, types of, uses/roles of, and implementation of. |
| Interaction | General interaction, student-to-student, student-to-instructor, collaboration, community, social presence. |
| Demographics | Student, institutional |
| Professional Development | |
| Other | International issues, role of instructors |

Table 1: article themes from Halverson, Graham, Spring, Drysdale and Henrie (2014, p.23)

An overview of findings follows.

Findings

There has been a constant publication of articles over the review period with between nine and twenty articles published per year (Figure 1), with the term maintaining its currency and thirteen articles published by July 2017 suggesting a continuing upward trend.

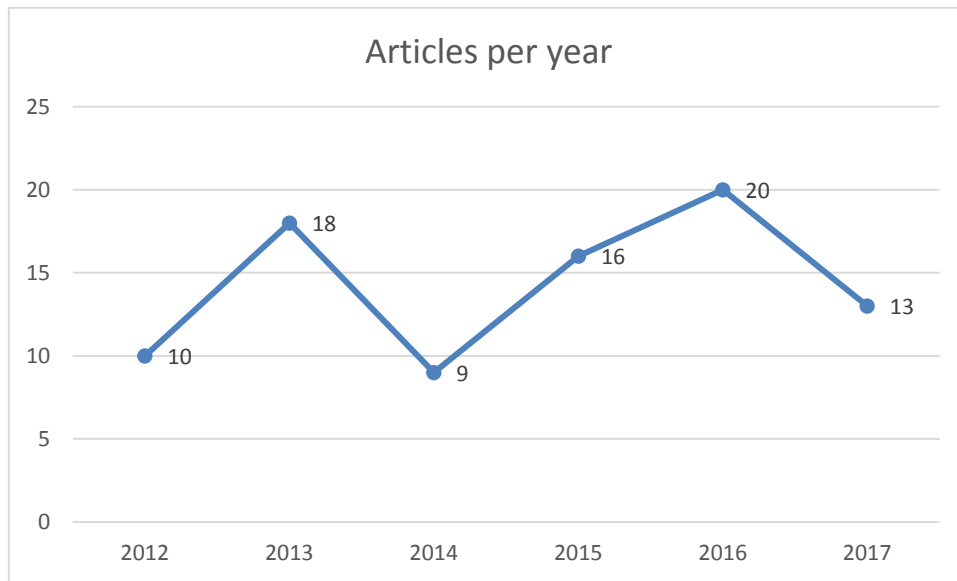


Figure 1: publication over review period (n.b. 2017 was to July only)

The blended learning research was carried out across the globe in thirty-one different countries. For many countries, the samples were small; for example, Nigeria, Japan and Serbia all had $n=1$ article, Germany, Singapore and UAE $n=2$, Greece, South Africa and South Korea $n=3$, and Turkey and Canada $n=4$. Three countries dominated: Australia ($n=15$), USA ($n=13$) and UK ($n=11$).

Journals featuring most blended learning articles were *Internet and Higher Education* ($n=27$); *British Journal of Educational Technology* ($n=16$); *International Review of Research in Open and Distributed Learning* ($n=12$); *Education and Information Technologies* ($n=12$). Three journals (*Review of Higher Education*, *Research in Higher Education* and *Journal of Higher Education*) did not carry any

articles during the search period (Table 2). The technology-focussed journals carry 75.3% (n=73) of the articles in the review. While accounting for only a small percentage of all articles published during the review period (2.1%, n=97), those relating to blended learning were more likely to appear in technology-focussed journals (4.5%, n=73) than in those relating to learning and teaching (2.1%, n=16) or more general higher education journals (0.4%, n=8).

| Journal Type | Journal | Total articles during review period | Percentage in journal | Percentage in sample |
|---|---|-------------------------------------|-----------------------|----------------------|
| Higher Education journals | Higher Education | 697 | 0.1 (n=1) | 1.0 (n=1) |
| | Higher Education Research and Development | 484 | 0.8 (n=4) | 4.1 (n=4) |
| | Journal of Higher Education | 167 | 0 (n=0) | 0 (n=0) |
| | Review of Higher Education | 104 | 0 (n=0) | 0 (n=0) |
| | Studies in Higher Education | 621 | 0.5 (n=3) | 3.1 (n=3) |
| | Research in Higher Education | 209 | 0 (n=0) | 0 (n=0) |
| Total Higher Education Journals | | 2282 | 0.4 (n=8) | 8.3 (n=8) |
| Learning and teaching journals | Teaching in Higher Education | 380 | 0.5 (n=2) | 2.1 (n=2) |
| | Innovations in Education and Teaching International | 281 | 3.6 (n=10) | 10.3 (n=10) |
| | Active Learning in Higher Education | 93 | 5.0 (n=2) | 2.1 (n=2) |
| | Higher Education Pedagogies | 18 | 11.1 (n=2) | 2.1 (n=2) |
| Total learning and teaching journals | | 772 | 2.1 (n=16) | 16.5 (n=16) |
| Technology | Internet and Higher Education | 198 | 13.6 (n=27) | 27.8 (n=27) |

| | | | | |
|--|---|-------------|-------------------|----------------------|
| | British Journal of Educational Technology | 495 | 3.2 (n=16) | 16.5 (n=16) |
| | Education and Information Technology | 381 | 3.1 (n=12) | 12.4 (n=12) |
| | Research in Learning Technology | 126 | 4.8 (n=6) | 6.2 (n=6) |
| | International Review of Open and Distributed Learning | 429 | 2.8 (n=12) | 12.4 (n=12) |
| | Total technology-focussed journals | 1629 | 4.5 (n=73) | 75.3 (n=73) |
| | <i>OVERALL TOTAL</i> | 4683 | 2.1 (n=97) | 100.00 (n=97) |

Table 2: distribution of articles

This constant publication and global spread suggests that blended learning is a relatively well understood area, particularly within technology-focussed areas of higher education research. Indeed, 41.2% (n=40) of the articles in the review did not provide a definition of what blended learning is, suggesting that it is assumed people will already know. Of the 58.8% (n=57) that did, 15.5% (n=15) provided their own definition and 43.3% (n=42) used a referenced definition. Over sixty different references supported these definitions; the most frequently cited were: Graham (2006, and other editions); Garrison and Kanuaka (2004); Garrison and Vaughan (2008 and other editions); and Allen and Seaman (2014). The first three define blended learning as the combination of face-to-face and online learning, while the fourth is more specific, stating that ‘30-79% of content is delivered online’ (Allen & Seaman, 2014, p.7). Many authors’ own definitions draw on the more general first three, e.g. ‘mixture of physical classroom activities and learning activities supported through online technologies’ (Bohle

Carbonell, Dailey-Hebert, & Gijsselaers, 2013, p.29), while others sought to emphasise what this combination added in terms of, for example, effectiveness (Nguyen, 2017); reach (Oyelere, Suhonen, Wajiga, & Sutinen, 2018) and what was replaced (Owston, York, & Murtha, 2013).

The research focuses predominantly on module level (Table 3) meaning that it is relatively small scale, lacking institutional focus.

| Scale | Percent |
|-------------------------------|-------------|
| Module | 38.1 (n=37) |
| Programme | 6.2 (n=6) |
| Department / School / Faculty | 7.2 (n=7) |
| Cross-institution | 14.4 (n=14) |
| Institution-wide | 13.4 (n=13) |
| Multi-institution | 10.3 (n=10) |
| Not stated | 10.3 (n=10) |

Table 3: scale of reported studies

Studies focused on students (65.9%, n=64) rather than staff (9.3%, n=9), although 3.1% (n=3) reported research relating to both. 21.6% (n=21) did not state a target group.

Methodologically, broadly there is a preference for empirical methods (Table 4).

| Research approach | Percent |
|-------------------|-------------|
| Empirical | 65.9 (n=64) |
| Non-empirical | 9.3 (n=9) |
| Combined | 24.7 (n=24) |

Table 4: Broad research approach

Of the empirical studies, the most frequently employed approaches were inferential (Table 5). The articles drew on a range of data to analyse quantitatively from questionnaires, attitude surveys, and scales; test scores and grades; existing

demographic data; and activity logs and monitoring data. The sample sized varied greatly from n=39 (Schworm & Gruber, 2012) to n=4134 (Gašević, Dawson, Rogers, & Gasevic, 2016), but most were less than 200, due to the reporting focussed, as shown in Table 4, on research conducted at module level.

In contrast, fewer studies used either descriptive or qualitative approaches (Table 6). Descriptive studies reported questionnaire data and did not go beyond the presentation of frequencies to describe their data. The qualitative research used interviews predominantly; but other qualitative data included: focus groups, student feedback, and email reflections.

Studies that combined methodological approaches were the next largest grouping. Only one article used empirical research to develop or refine a model, what Halverson et al (2012) call ‘gold star’. Mirriahi, Alonzo and Fox (2015) proposed a blended learning framework for curriculum design and professional development, which was based on existing literature and empirical data. The empirical data was, however, rather limited – only two focus groups and a total of eight participants. Research that combined more than one kind of empirical data collection approach was more common. The combinations brought together questionnaires, feedback, interviews, focus groups, observations, blogs, and forums.

The non-empirical studies were much less frequent, and included four literature reviews: systematic reviews (e.g. Keengwe & Kang, 2013; Laer, Van & Elen, 2017) and reviews of the blended learning landscape, focussing on: masters and doctoral theses (Drysdale et al., 2013); and the methodologies, research questions, and theoretical frameworks in highly-cited blended learning literature (Halverson et al., 2014).

| | Approach | Percent |
|--|----------|---------|
|--|----------|---------|

| | | |
|----------------------|--------------------------|-------------|
| <i>Empirical</i> | Descriptive | 8.2 (n=8) |
| | Inferential | 44.3 (n=43) |
| | Qualitative | 13.4 (n=13) |
| <i>Non-empirical</i> | Lit review / explanation | 7.2 (n=7) |
| | Model / theory | 2.1 (n=2) |
| <i>Combined</i> | Combined | 23.7 (n=23) |
| | 'Gold star' | 1.0 (n=1) |

Table 5: Specific research approach

In terms of research area, the following broad topics were identified (Table 6); some articles covered multiple topics (so the total is greater than the 97 sample size).

| Category | Frequency of use within the review sample |
|--------------------------|---|
| Learner outcomes | 20.9 (n=32) |
| Instructional design | 15.0 (n=23) |
| Exploration | 13.7 (n=21) |
| Technology | 12.4 (n=19) |
| Disposition | 10.5 (n=16) |
| Interaction | 9.8 (n=15) |
| Comparison | 6.5 (n=10) |
| Professional Development | 5.2 (n=8) |
| Demographics | 3.9 (n=6) |
| Other | 1.9 (n=3) |

Table 6: themes in the review articles

The most substantial theme was learner outcomes (20.9%, n=32). Articles demonstrated the positive impact that blended learning had on student attainment, engagement and motivation. These improvements in achievement were attributed to elements of the blended learning design. Engagement in the blended learning

environment was seen to contribute to achievement and articles described how those who are more active in the online environment, who apply more effort, are more likely to achieve. Activities were evaluated for their impact on engagement, e.g. peer tutoring (Sansone, Ligorio, & Buglass, 2016); help seeking prompts (Schworm & Gruber, 2012); and social media (Megele, 2015). The articles showed students' preferences for particular features of blended learning. The key positive features of blended learning for students were also described: interaction, flexibility and new ways to learn and be assessed (Wicks, Craft, Mason, Gritter, & Bolding, 2015) with students particularly valuing interaction with their instructors (Ilgaz & Gülbahar, 2015), preferring their feedback to their peers (McCarthy, 2017). The theme interaction (9.8%, n=15) itself was seen as an important aspect of blended learning; indeed Castaño-Muñoz, Duart and Sancho-Vinuesa (2014) claim that it is the key to success. Blended learning can bring students and externals together to provide richer learning experiences, through for example: simulations of an international workplace (Schech, Kelton, Carati, & Kingsmill, 2017) and engagement with small businesses (Thatcher, Alao, Brown, & Choudhary, 2016).

In establishing the benefits of blended learning, a small number of articles compared blended learning to other modes (6.5%, n=10); namely online versus face-to-face (e.g. Broadbent, 2017; Castaño-Muñoz et al., 2014; Tempelaar, Niculescu, Rienties, Gijsselaers, & Giesbers, 2012).

The design of blended learning was a further key area (15.0%, n=23) and five articles set out the attributes that support institutional uptake of blended learning (Garrison & Vaughan, 2013; Graham, Woodfield, & Harrison, 2013; Moskal et al., 2013; Porter, Graham, Bodily, & Sanberg, 2016; Taylor & Newton, 2013). There was strong overlap between their recommendations; they emphasised the need to have clear

goals and objectives; a shared vision and understanding of definitions; clear information; infrastructure and access to technology; strong advocates, leadership and strategic direction; time; good governance and support (for staff and students).

Yet, as Park, Yu and Jo (2016) also found, the instructional design strategies, as shown in the remaining n=18), tended to be more individual and curriculum-focussed rather than institutional, comprising a mix of delivery, communication, collaboration and sharing, which differed depending on disciplinary context.

Specific technologies were the focus of 12.4% (n=19) articles. The technologies were broad, with sub-topics including learning management systems (Cigdam & Ozturk, 2016; Mijatovic, Cudanov, Jednak, & Kadjevich, 2013; Zacharis, 2015); video (Harrison, 2015; Thomas, West, & Borup, 2017); and social media (Manca & Ranieri, 2016; McCarthy, 2017; Megele, 2015; Thoms & Eryilmaz, 2015). These technologies were often evaluated and recommendations made. Exploratory articles (13.7%, n=21) focussed on the benefits of blended learning more broadly, through literature reviews, the impacts of new forms of blended learning, new spaces and places for blended learning, and the potential of blended learning for specific groups of students, e.g. international postgraduate students (Coates & Dickinson, 2012); those transitioning to university (Harnisch & Taylor-Murison, 2012); students studying foreign languages (O'Dowd, 2013); non-traditional students (Safford & Stinton, 2016); and pre-service teachers (Keengwe & Kang, 2013). Generally however, research that focussed specifically on demographics (3.9%, n=6) was limited, featuring articles relating to, for example, students with disabilities (Heiman, Fichten, Olenik-Shemesh, Keshet, & Jorgensen, 2017); and student characteristics and their achievement on blended courses (Gašević et al., 2016). A range of dispositions (10.5%, n=16) were examined in relation to blended learning; including: learning styles (Cheng & Chau, 2016); approaches to

inquiry (Ellis & Bliuc, 2015); beliefs about e-learning (Scott, 2013); attitudes to blended learning (Mijatovic et al., 2013; Wai & Seng, 2015); and self-regulated learning (Laer, Van & Elen, 2017; Tempelaar et al., 2012; Zhu, Au, & Yates, 2016).

Given that staff are crucial in the design and facilitation of blended learning, it is surprising that there was relatively little research that focussed on professional development (5.2%, n=8) or instructor role / presence, categorised as other (1.9%, n=3). The professional development articles outlined approaches deemed beneficial to the development of blended learning capacity, yet recognised the need to have a shared understanding of what blended learning is (Mirriahi et al., 2015) and a knowledge of teacher beliefs to better target professional development (Owens, 2012). The professional development-focussed articles advocated collaborative design, e.g. Macdonald and Campbell (2012) or community development, e.g. Faculty Learning Communities (Wicks et al., 2015) and blended learning itself was seen as a means to provide or extend professional development (e.g. Benson, Brack, & Samarwickrema, 2012; Paskevicius & Bortolin, 2016).

As indicated in the opening section, the term blended learning can be applied to many different kinds of higher education practice. The range of topic areas, emergent findings, and methodological approaches identified here attest this view of blended learning. In the final section of this article, we seek to identify the key messages from the review process.

Discussion: what the literature has told us about blended learning research and practice

Although other terms exist to describe the integration of online and face-to-face learning opportunities (e.g. hybrid learning, mixed-mode learning, flexible learning) and some find that the term *blended learning* problematic (Oliver & Trigwell, 2005;

Salmon, 2005), it still has common currency and usage within the higher education research literature. Its use, however, demonstrates the lack of definition, clarity and consistency that Oliver and Trigwell (2005) warn against. In this review blended learning has been used to describe the use of a word cloud in an anthropology course (Mostert & Townsend, 2016) through to institution-wide transformation (e.g. Garrison & Vaughan, 2013). While an overarching definition may be useful, this lack of concrete definition is perhaps a reason for its use (Driscoll, 2002) as it provides a flexible term that enables innovation (Garrison & Vaughan, 2013), is recognisant of context (Moskal et al., 2013) and can be locally defined to support successful implementation (Sharpe et al., 2006).

Usage of the term blended learning is international. Australia, USA and UK, however, dominate blended learning research, as they do higher education research more broadly (Tight, 2007, p.32). There are indications of the potential of blended learning to expand higher education in developing systems, e.g. e.g. Serbia (Mijatovic et al., 2013), UAE (Cavanaugh, Hargis, & Mayberry, 2016; Kemp, 2013), Vietnam (Nguyen, 2017) and Nigeria (Oyelere et al., 2018).

The prevalence of blended learning research in specialised technology journals over general higher education literature suggests that blended learning remains a somewhat technical term. This finding runs counter to claims that blended learning will become the 'new normal' in higher education course delivery (Norberg et al., 2011). An alternative proposition could be that blended learning practices have become so embedded and normalised that the term is just not used in the general literature, and a limitation of this review is that it does not capture all blended learning practices, only those that define themselves explicitly as blended learning. Yet, its use within the specialised literature suggests that normalisation is not the case.

In line with other research (e.g. Graham et al., 2013; Hinrichsen & Coombs, 2013; Porter & Graham, 2016), this review has shown that blended learning research and blended learning practice more generally is predominantly an individual rather than institutional endeavour. The research projects reported tended to be small-scale, providing a snap-shot in time evaluation of a small number of modules, involving small numbers of students. The limited research that focuses on institutional adoption (e.g. Graham et al., 2013; Moskal et al., 2013; Porter & Graham, 2016; Porter et al., 2016; Taylor & Newton, 2013) provides guidance for institutions seeking a more strategic approach to adoption and implementation (Porter & Graham, 2016). There is clearly a need for more research like this. There might well be capacity, commercial and reputational reasons why this research is not being done or if it is, shared. The reluctance to publish blended learning research might well be a symptom of the broader context where learning and teaching research are still not valued within academia meaning that researchers focus instead on the more prestigious disciplinary research (Macfarlane 2011). Equally, while some working within the field of blended learning might well engage in research, they are often charged with more support-focussed or strategically-driven work (Shurville, Brown & Whitaker 2009) that precludes or does not value research. Yet, as Sharpe et al (2006) contended over a decade ago, there needs to be more ongoing institutional evaluation that is disseminated externally if higher education is to learn from and develop successful adoption and implementation strategies.

Echoing the findings from a synthesis of dissertation theses (Drysdale et al., 2013), yet in contrast with earlier work where impactful blended learning research focussed on definitions, models and explorations of potential (Halverson et al., 2012), this review demonstrates that blended learning research tends to be applied and

practical. In line with the findings of other research (e.g. Graham, 2013), however, there is little work in this sample that seeks to develop or extend theoretical models, suggesting that, as a field of research, there has been limited development in relation to its theoretical base. The focus of reported research is predominantly evaluative and quantitative in nature, using survey data and institutional data that ‘comes easily to hand’ (Sharpe et al., 2006, p.39), e.g.: activity logs, student profiling data, and student grades. In contrast, there is relatively little in-depth qualitative research that seeks to examine the values, beliefs, and experiences of blended learning that are difficult to capture quantitatively. Equally, there is little research that looks longitudinally at blended learning activity, building a picture of development over time.

Most articles focus on students as their unit of research. Clearly the impact of blended learning research on students’ attainment, motivation, engagement and experience is important. Yet the lack of consideration of the staff perspective is concerning, and recognised as a gap in the research on blended learning adoption over a decade ago (e.g. Kaleta, Skibba, & Joosten, 2007). The very small number of articles that deal specifically with professional development for blended learning suggest a lack appreciation of the need for staff to have access to timely professional development opportunities to support their blended learning practice (Graham, 2006).

Like other reviews of blended learning research (Drysdale et al., 2013; Halverson et al., 2014; Zhang & Zhu, 2017), this review has shown the prevalence of research that focuses on learner outcomes. This chimes with Zhang and Zhu’s recent observation that ‘blended learning is still undergoing the beginning period so that most articles aimed at identifying the effectiveness of blended learning and designing blended learning’ (2017, p.676). The learner-outcomes focussed research, comparison studies, and to a lesser extent the exploratory work seem to suggest that blended learning still

needs to prove its worth (and for whom and how) in order to convince people to adopt. The articles do, however, provide compelling examples of the benefits of blended learning that extend beyond its impact on performance outcomes, satisfaction, engagement and motivation. These focus on the kinds of students that can benefit, e.g. non-traditional, international, and students on placement; and the opportunities for enhanced interaction between different groups, e.g. transnational and engagement with industry and international experts. This research supports the role that blended learning plays particularly in fostering collaboration, connection and community building.

Concluding comments

A research review such as this cannot claim to accurately portray the full array of blended learning practices in contemporary higher education as not all initiatives, evaluations and developments are reported in academic journals. Yet this review does provide a comprehensive review of blended learning as depicted in the research literature. The research echoes many of the findings in earlier literature reviews on blended learning, namely that blended learning research tends to be practical in nature, small-scale, individually focussed, and outcomes orientated. This supports the view that while blended learning has been a feature of higher education for approaching twenty years, it is still developing and is not yet fully embedded and institutionalised in higher education institutions either as an area of practice or a field of research. Its limited presence in the general higher education literature suggests that it remains something of specialised rather than general interest. In order to further develop, there needs to be a broadening, and recognition of the importance, of the research base for blended learning: through more qualitative, holistic and longitudinal research into the beliefs, attitudes and motivations of those engaged in blended learning and a recognition of the role that staff play in the adoption of blended learning institutionally. Rather than

individually-focussed studies, more dissemination of institution and cross-institutional studies should be shared in both the technical and the more general research literature enabling more research-informed institutional blended learning development.

The issue of definition however complicates the development of blended learning as a field of research and practice. As indicated by this review, blended learning is used to depict a range of practices and pedagogical approaches; equally, other terms could be used to describe practices that some would term blended learning and a limitation of this study is that work of this nature described differently would not have been picked up by the limited search terms. There is clearly the need for shared understandings across the sector of what blended learning broadly looks like in practice. While not suggesting that there is one single model, clear definitions, which are locally defined, will provide higher education institutions opportunities to rethink course design, transform pedagogy and get the best of blends for their own particular contexts.

References

- Abdullah, D., Abd Aziz, M.I., & Mohd Ibrahim, A.L. (2013). A “research” into international student-related research: (Re)Visualising our stand? *Higher Education*, 67(3), 235–253. <https://doi.org/10.1007/s10734-013-9647-3>
- Allen, I.E., & Seaman, J. (2014). *Grade change: Tracking online education in the United States*. Babson Park, MA.
- Ashwin, P. (2012). How often are theories developed through empirical research into higher education? *Studies in Higher Education*, 37(8), 941–955. <https://doi.org/10.1080/03075079.2011.557426>
- Benson, R., Brack, C., & Samarwickrema, G. (2012). Teaching with wikis: improving staff development through action research. *Research in Learning Technology*, 20(2), 16149. <https://doi.org/10.3402/rlt.v20i0.16149>
- Bliuc, A.-M., Goodyear, P., & Ellis, R.A. (2007). Research focus and methodological choices in studies into students’ experiences of blended learning in higher education. *Internet and Higher Education*, 10(4), 231–244.

- Bohle Carbonell, K., Dailey-Hebert, A., & Gijsselaers, W. (2013). Unleashing the creative potential of faculty to create blended learning. *Internet and Higher Education, 18*, 29–37. <https://doi.org/doi.org/10.1016/j.iheduc.2012.10.004>
- Broadbent, J. (2017). Comparing online and blended learner's self-regulated learning strategies and academic performance. *Internet and Higher Education, 33*, 24–32. <https://doi.org/doi.org/10.1016/j.iheduc.2017.01.004>
- Castaño-Muñoz, J., Duart, J. M., & Sancho-Vinuesa, T. (2014). The Internet in face-to-face higher education: Can interactive learning improve academic achievement? *British Journal of Educational Technology, 45*(1), 149–159. <https://doi.org/10.1111/bjet.12007>
- Cavanaugh, C., Hargis, J., & Mayberry, J. (2016). Participation in the Virtual Environment of Blended College Courses: An Activity Study of Student Performance. *International Review of Research in Open and Distributed Learning, 17*(3), 263–275. <https://doi.org/http://dx.doi.org/10.19173/irrodl.v17i3.1811>
- Cheng, G., & Chau, J. (2016). Exploring the relationships between learning styles, online participation, learning achievement and course satisfaction: An empirical study of a blended learning course. *British Journal of Educational Technology, 47*(2), 257–278. <https://doi.org/10.1111/bjet.12243>
- Cigdam, H., & Ozturk, M. (2016). Factors Affecting Students' Behavioral Intention to Use LMS at a Turkish Post-Secondary Vocational School. *International Review of Research in Open and Distributed Learning, 17*(3), 276–295. <https://doi.org/http://dx.doi.org/10.19173/irrodl.v17i3.2253>
- Coates, N., & Dickinson, J. (2012). Meeting international postgraduate student needs: a programme-based model for learning and teaching support. *Innovations in Education and Teaching International, 49*(3), 295–308. <https://doi.org/10.1080/14703297.2012.703018>
- Driscoll, M. (2002). Blended learning: Let's get beyond the hype. *LTI Magazine*. Retrieved from <http://elearningmag.com/ltimagazine/article/articleDetail.jsp?id=11755>
- Drysdale, J. S., Graham, C.R., Spring, K.J., & Halverson, L.R. (2013). An analysis of research trends in dissertations and theses studying blended learning. *Internet and Higher Education, 17*, 90–100. <https://doi.org/doi.org/10.1016/j.iheduc.2012.11.003>

- Ellis, R.A., & Bliuc, A-M. (2015). An exploration into first-year university students' approaches to inquiry and online learning technologies in blended environments. *British Journal of Educational Technology*, 47(5), 970–980.
<https://doi.org/10.1111/bjet.12385>
- Garrison, D.R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *Internet and Higher Education*, 7, 95–105.
- Garrison, D.R., & Vaughan, N.D. (2008). *Blended Learning in Higher Education: Framework, Principles and Guidelines*. San Francisco: Jossey-Bass.
- Garrison, D.R., & Vaughan, N.D. (2013). Institutional change and leadership associated with blended learning innovation: Two case studies. *Internet and Higher Education*, 18, 24–28. <https://doi.org/doi.org/10.1016/j.iheduc.2012.09.001>
- Gašević, D., Dawson, S., Rogers, T., & Gasevic, D. (2016). Learning analytics should not promote one size fits all: The effects of instructional conditions in predicting academic success. *Internet and Higher Education*, 28, 68–84.
<https://doi.org/doi.org/10.1016/j.iheduc.2015.10.002>
- Graham, C.R. (2006). Blended Learning Systems: Definition, Current Trends and Future Directions. In C.J. Bonk & C.R. Graham (Eds.), *The Handbook of Blended Learning: Global Perspectives, Local Designs* (pp. 3–21). San Francisco: John Wiley & Sons.
- Graham, C.R. (2013). Emerging practice and research in blended learning. In M. G. Moore (Ed.), *Handbook of distance education* (pp. 333–350). New York: Routledge.
- Graham, C.R., Woodfield, W., & Harrison, J.B. (2013). A framework for institutional adoption and implementation of blended learning in higher education. *Internet and Higher Education*, 18, 4–14.
<https://doi.org/doi.org/10.1016/j.iheduc.2012.09.003>
- Halverson, L.R., Graham, C.R., Spring, K.J., & Drysdale, J.S. (2012). An analysis of high impact scholarship and publication trends in blended learning. *Distance Education*, 33(3), 381–413.
<https://doi.org/doi.org/10.1080/01587919.2012.723166>
- Halverson, L.R., Graham, C.R., Spring, K.J., Drysdale, J.S., & Henrie, C.R. (2014). A thematic analysis of the most highly cited scholarship in the first decade of blended learning research. *Internet and Higher Education*, 20, 20–34.
<https://doi.org/doi.org/10.1016/j.iheduc.2013.09.004>

- Harnisch, H., & Taylor-Murison, L. (2012). Transition and technology—Evaluation of blended learning delivered by university staff to 6th form students. *British Journal of Educational Technology*, *43*(3), 398–410.
<https://doi.org/10.1111/j.1467-8535.2011.01190.x>
- Harrison, D. J. (2015). Assessing Experiences with Online Educational Videos: Converting Multiple Constructed Responses to Quantifiable Data. *International Review of Research in Open and Distributed Learning*, *16*(1), 168–192.
<https://doi.org/http://dx.doi.org/10.19173/irrodl.v16i1.1998>
- Heiman, T., Fichten, C., Olenik-Shemesh, D., Keshet, N.S., & Jorgensen, M. (2017). Access and perceived ICT usability among students with disabilities attending higher education institutions. *Education and Information Technologies*, *22*(6), 2727–2740. <https://doi.org/10.1007/s10639-017-9623-0>
- Hinrichsen, J., & Coombs, A. (2013). The five resources of critical digital literacy: a framework for curriculum integration. *Research in Learning Technology*, *21*, 21334. <https://doi.org/10.3402/rlt.v21.21334>
- Ilgaz, H., & Gülbahar, J. (2015). A Snapshot of Online Learners: e-Readiness, e-Satisfaction and Expectations. *International Review of Research in Open and Distributed Learning*, *16*(2), 171–187.
<https://doi.org/http://dx.doi.org/10.19173/irrodl.v16i2.2117>
- Kaleta, R., Skibba, K., & Joosten, T. (2007). Discovering, designing, and delivering hybrid courses. In A. G. Picciano & C. D. Dziuban (Eds.), *Blended learning: Research perspectives* (pp. 109–143). Needham, MA: Sloan-C.
- Keengwe, J., & Kang, J-J. (2013). A review of empirical research on blended learning in teacher education programs. *Education and Information Technologies*, *18*(3), 479–493. <https://doi.org/10.1007/s10639-011-9182-8>
- Kemp, L.J. (2013). Introducing blended learning: An experience of uncertainty for students in the United Arab Emirates. *Research in Learning Technology*, *21*(1), 18461. <https://doi.org/10.3402/rlt.v21i0.18461>
- Keppell, M., O'Dwyer, C., Lyon, B., & Childs, M. (2010). Transforming distance education curricula through distributive leadership. *Research in Learning Technology*, *18*(3), 165–178. <https://doi.org/10.1080/09687769.2010.529112>
- Kim, D., Park, Y., Yoon, M., & Jo, I-H. (2016). Toward evidence-based learning analytics: Using proxy variables to improve asynchronous online discussion

- environments. *Internet and Higher Education*, 30, 30–43.
<https://doi.org/10.1016/j.iheduc.2016.03.002>
- Laer, Van, S., & Elen, J. (2017). In search of attributes that support self-regulation in blended learning environments. *Education and Information Technologies*, 22(4), 1395–1454. <https://doi.org/10.1007/s10639-016-9505-x>
- Lai, M., Lam, K. M., & Lim, C.P. (2016). Design principles for the blend in blended learning: a collective case study. *Teaching in Higher Education*, 21(6), 716–729. <https://doi.org/10.1080/13562517.2016.1183611>
- Macdonald, J., & Campbell, A. (2012). Demonstrating online teaching in the disciplines. A systematic approach to activity design for online synchronous tuition. *British Journal of Educational Technology*, 43(6), 883–891. <https://doi.org/10.1111/j.1467-8535.2011.01238.x>
- Macfarlane, B. (2011). Prizes, pedagogic research and teaching professors: lowering the status of teaching and learning through bifurcation. *Teaching in Higher Education*, 16(1), 127–130. <https://doi.org/10.1080/13562517.2011.530756>
- Manca, S., & Ranieri, M. (2016). “Yes for sharing, no for teaching!”: Social Media in academic practices. *Internet and Higher Education*, 29, 63–74. <https://doi.org/10.1016/j.iheduc.2015.12.004>
- McCarthy, J. (2017). Enhancing feedback in higher education: Students’ attitudes towards online and in-class formative assessment feedback models. *Active Learning in Higher Education*, 18(2), 127–141. <https://doi.org/DOI:10.1177/1469787417707615>
- McGee, P., & Reis, A. (2012). Blended Course Design: A Synthesis of Best Practices. *Journal of Asynchronous Learning Networks*, 16(4), 7–22.
- Megele, C. (2015). eABLE: embedding social media in academic curriculum as a learning and assessment strategy to enhance students learning and eprofessionalism. *Innovations in Education and Teaching International*, 52(4), 414–425. <https://doi.org/10.1080/14703297.2014.890951>
- Mijatovic, I., Cudanov, M., Jednak, S., & Kadijevich, D.M. (2013). How the usage of learning management systems influences student achievement. *Teaching in Higher Education*, 18(5), 506–517. <https://doi.org/10.1080/13562517.2012.753049>

- Mirriahi, N., Alonzo, D., & Fox, B. (2015). blended learning framework for curriculum design and professional development. *Research in Learning Technology*, 23(1), 28451. <https://doi.org/10.3402/rlt.v23.28451>
- Moskal, P., Dziuban, C., & Hartman, J. (2013). Blended learning: A dangerous idea? *Internet and Higher Education*, 18, 15–23. <https://doi.org/10.1016/j.iheduc.2012.12.001>
- Mostert, L.A., & Townsend, R. (2016). Embedding the teaching of academic writing into anthropology lectures. *Innovations in Education and Teaching International*. <https://doi.org/10.1080/14703297.2016.1231619>
- Nguyen, V.A. (2017). A peer assessment approach to project based blended learning course in a Vietnamese higher education. *Education and Information Technologies*, 22(5), 2141–2157. <https://doi.org/DOI 10.1007/s10639-016-9539-0>
- Norberg, A., Dziuban, C.D., & Moskal, P.D. (2011). A time-based blended learning model. *On the Horizon*, 19(3), 207–216. <https://doi.org/10.1108/10748121111163913>.
- O’Dowd, R. (2013). Telecollaborative networks in university higher education: Overcoming barriers to integration. *Internet and Higher Education*, 18, 47–53. <https://doi.org/10.1016/j.iheduc.2013.02.001>
- Oliver, M., & Trigwell, K. (2005). Can “blended learning” be redeemed? *E-Learning*, 2(1), 17–26. <https://doi.org/10.2304/elea.2005.2.1.2>.
- Owens, T. (2012). Hitting the nail on the head: the importance of specific staff development for effective blended learning. *Innovations in Education and Teaching International*, 49(4), 389–400. <https://doi.org/10.1080/14703297.2012.728877>
- Owston, R., York, D., & Murtha, S. (2013). Student perceptions and achievement in a university blended learning strategic initiative. *Internet and Higher Education*, 18, 38–46. <https://doi.org/10.1016/j.iheduc.2012.12.003>
- Oyelere, S.S., Suhonen, J., Wajiga, G.M., & Sutinen, E. (2018). Design, development, and evaluation of a mobile learning application for computing education. *Education and Information Technologies*, 23(1), 467–495. <https://doi.org/10.1007/s10639-017-9613-2>

- Park, Y., Yu, J.H., & Jo, I-H. (2016). Clustering blended learning courses by online behavior data: A case study in a Korean higher education institute. *Internet and Higher Education*, 29, 1–11. <https://doi.org/10.1016/j.iheduc.2015.11.001>
- Paskevicius, M., & Bortolin, K. (2016). Blending our practice: using online and face-to-face methods to sustain community among faculty in an extended length professional development program. *Innovations in Education and Teaching International*, 53(6), 605–615. <https://doi.org/10.1080/14703297.2015.1095646>
- Porter, W.W., & Graham, C.R. (2016). Institutional drivers and barriers to faculty adoption of blended learning in higher education. *British Journal of Educational Technology*, 47(4), 748–762. <https://doi.org/10.1111/bjet.12269>
- Porter, W.W., Graham, C.R., Bodily, R.G., & Sanberg, D.S. (2016). A qualitative analysis of institutional drivers and barriers to blended learning adoption in higher education. *Internet and Higher Education*, 28, 17–27. <https://doi.org/10.1016/j.iheduc.2015.08.003>
- Safford, K., & Stinton, J. (2016). Barriers to blended digital distance vocational learning for non-traditional students. *British Journal of Educational Technology*, 47(1), 135–150. <https://doi.org/10.1111/bjet.12222>
- Salmon, G. (2005). Flying not flapping: A strategic framework for e-learning and pedagogical innovation in higher education institutions. *Research in Learning Technology*, 13(3), 201–218.
- Sansone, N., Ligorio, M.B., & Buglass, S.L. (2016). Peer e-tutoring: Effects on students' participation and interaction style in online courses. *Innovations in Education and Teaching International*. <https://doi.org/10.1080/14703297.2016.1190296>
- Schech, S., Kelton, M., Carati, C., & Kingsmill, V. (2017). Simulating the global workplace for graduate employability. *Higher Education Research & Development*, 36(7), 1476–1489. <https://doi.org/10.1080/07294360.2017.1325856>
- Schworm, S., & Gruber, H. (2012). e-Learning in universities: Supporting help-seeking processes by instructional prompts. *British Journal of Educational Technology*, 43(2), 272–281. <https://doi.org/10.1111/j.1467-8535.2011.01176.x>
- Scott, K. M. (2013). Does a university teacher need to change e-learning beliefs and practices when using a social networking site? A longitudinal case study. *British*

Journal of Educational Technology, 44(4), 571–580.

<https://doi.org/10.1111/bjet.12072>

Sharpe, R., Benfield, G., Roberts, G., & Francis, R. (2006). *The undergraduate experience of blended e-learning: a review of UK literature and practice*. York.

Shurville, S., Browne, T., & Whitaker, M. (2009) Accommodating the newfound strategic importance of educational technologists within higher education: A critical literature review. *Campus-Wide Information Systems*, 26(3), 201-231. <https://doi.org/10.1108/10650740910967384>

Taylor, J.A., & Newton, D. (2013). Beyond blended learning: A case study of institutional change at an Australian regional university. *Internet and Higher Education*, 18, 54–60. <https://doi.org/10.1016/j.iheduc.2012.10.003>

Tempelaar, D.T., Niculescu, A., Rienties, B., Gijssels, W.H., & Giesbers, B. (2012). How achievement emotions impact students' decisions for online learning, and what precedes those emotions. *Internet and Higher Education*, 15, 161–169. <https://doi.org/10.1016/j.iheduc.2011.10.003>

Thatcher, J., Alao, H., Brown, C.J., & Choudhary, S. (2016). Enriching the values of micro and small business research projects: co-creation service provision as perceived by academic, business and student. *Studies in Higher Education*, 41(3), 560–581. <https://doi.org/10.1080/03075079.2014.942273>

Thomas, R.A., West, R.E., & Borup, J. (2017). An analysis of instructor social presence in online text and asynchronous video feedback comments. *Internet and Higher Education*, 33, 61–73. <https://doi.org/10.1016/j.iheduc.2017.01.003>

Thoms, B., & Eryilmaz, E. (2015). Introducing a twitter discussion board to support learning in online and blended learning environments. *Education and Information Technologies*, 20(2), 265–283. <https://doi.org/10.1007/s10639-013-9279-3>

Tight, M. (2007). Bridging the Divide: A comparative analysis of articles in higher education journals published inside and outside North America. *Higher Education*, 53(2), 235–253.

Tight, M. (2013). Discipline and methodology in higher education research. *Higher Education Research & Development*, 32(1), 136–151. <https://doi.org/10.1080/07294360.2012.750275>

- Tight, M. (2017). Higher education journals: their characteristics and contribution. *Higher Education Research & Development*.
<https://doi.org/10.1080/07294360.2017.1389858>
- Vaughan, N. (2007). Perspectives on blended learning in higher education. *International Journal of E-Learning*, 1, 81–94.
- Wai, C.C., & Seng, E.L.K. (2015). Measuring the effectiveness of blended learning environment: A case study in Malaysia. *Education and Information Technologies*, 20(3), 429–443. <https://doi.org/10.1007/s10639-013-9293-5>
- Wicks, D.A., Craft, B.B., Mason, G.N., Gritter, K., & Bolding, K. (2015). An investigation into the community of inquiry of blended classrooms by a Faculty Learning Community. *Internet and Higher Education*, 25, 53–62.
<https://doi.org/10.1016/j.iheduc.2014.12.001>
- Zacharis, N.Z. (2015). A multivariate approach to predicting student outcomes in web-enabled blended learning courses. *Internet and Higher Education*, 27, 44–53.
<https://doi.org/10.1016/j.iheduc.2015.05.002>
- Zhang, W., & Zhu, C. (2017). Review on Blended Learning: Identifying the Key Themes and Categories. *International Journal of Information and Education Technology*, 7(9), 673–678. <https://doi.org/10.18178/ijiet.2017.7.9.952>
- Zhu, Y., Au, W., & Yates, G. (2016). University students' self-control and self-regulated learning in a blended course. *Internet and Higher Education*, 30, 54–62. <https://doi.org/10.1016/j.iheduc/2016.04.001>