Operationalizing Blended Learning to the Context: Towards Clarity in Implementation

Royce L. Willis; **David Lynch** and **Paul Fradale**, Southern Cross University, Australia [i]

Implementing Blended Learning can be challenging, especially without a clear or aligned definition of what is being implemented. Factors to consider when operationalizing Blended Learning to the school context will be initially be discussed herein. A process to operationalize Blended Learning to the context of a school or classroom is then presented and utilized in an actual whole of school implementation of Blended Learning. The effect of this process is then quantified and tested in a follow-up assessment of staff members' perceived understanding of Blended Learning in their context. Result identify the developed process as significantly improving the perceived understanding of Blended Learning in the context of the school by those involved. The operationalized definition is intended to aid communicating within the school, to stakeholders and student parents, and in any associated research reporting, as well as aiding in aligning staff in the implementation of Blended Learning and in curriculum development.

Key words: blended learning; e-learning; educational innovation; implement; K-12; operationalize.

Introduction

When implementing Blended Learning into a school, there are many things to consider. Important among these considerations is the question: What is Blended Learning? There are many opinions and definitions of what Blended Learning is, with varying degrees of specificity (e.g. Allen et al., 2007; Dziuban et al., 2004; Christensen et al., 2013). While attempts at defining Blended Learning have been helpful in creating a social representation of it, how helpful these definitions are at an individual school or class level is questionable (Sharpe et al., 2006). Perhaps, instead of asking 'What is Blended Learning?', school leaders and teachers tasked with implementing Blended Learning should be asking 'What does Blended Learning mean in our context?'

To begin to answer this question, understanding how others have defined Blended Learning will first be considered. This will inform a discussion on the importance of creating a context-specific definition of Blended Learning to the school; namely aiding communication and providing focus. Some specific variables recommended to consider when operationalizing Blended Learning and contextualizing it to a school will then be listed and unpacked. Finally, a practical example of the process of operationalizing Blended Learning within the context of a school will be described and assessed, concluding with a discussion on the importance and benefits of this process as an important stage in the implementation of Blended Learning into a school.

Defining Blended Learning

Blended Learning was apparently first coined in a press release in 1999 when a computer skills education company announced that their *Blended Learning methodology* "combined traditional instructor-led training with multiple forms of self-directed training to create flexible, convenient, and effective learning formats, both in a traditional classroom setting and online" (Friesen, 2012; PR Newswire, March 5 1999). Since then, the term has gained traction and is deemed by some as the future of education (Masie, 2006; Ross & Gage, 2006). But what is it actually?

Some have tried to rein in the term Blended Learning by placing restrictions on what it is, but also what it is not. For example, placing restrictions on the percentage of time spent in online versus face-to-face settings can produce discrete nominal groups (Allen et al., 2007). This is done by categorizing the educational experience into face-to-face (or traditional), Blended Learning, and fully online, with cut-off points of how much online is included (e.g. 0-29%, 30-79%, and 80-100% respectively). Such definitions, however, have questionable usefulness when considering the implementation of Blended Learning into a class or school, and may lead to merely adding online elements to fill quotas; adding online components to conform to definitions rather than enhancing student learning. For this reason, using percentage of online elements as a measure for Blended Learning is often opposed (e.g. Department of Education and Early Childhood Development, 2012).

Besides being a combination of bricks-and-mortar classroom and online learning, there is no consensus on what Blended Learning is (Graham, 2012; Oliver and Trigwell, 2005). Perhaps it is when some portion of face-to-face teaching is replaced with online learning, rather than just being added (Dziuban et al., 2004). Perhaps Blended Learning requires the student to have some control over when, where, and how they learn (Staker & Horn, 2012). Perhaps Blended Learning requires the learning experience to be integrated into the definition (Christensen et al., 2013). Maybe Blended Learning is all these things, a few of these things, or more than the sum of its parts. Is an agreement on semantics and an all-encompassing, indisputable definition of Blended Learning really what is most important here?

It has been suggested that we should not narrow the scope of Blended Learning; that this would limit the potential of Blended Learning (Sharpe et al., 2006). Agreeing to a less restricted definition, that Blended Learning is a formal education program somewhere on the continuum from fully online to traditional face-to-face, not on either extreme, allows it to be innovative and to focus more on student learning rather than semantics and quotas. How does this help school leaders and teachers who want to implement Blended Learning into their school or classroom?

The Importance of Context-specific Operationalization of Blended Learning

Although a universal definition of Blended Learning may never be agreed upon, this should not discourage the development context-specific definitions. There are a number of reasons to develop, or operationalize, a context-specific definition for use within a school or a classroom. To begin with, it will aid in communication on the topic within the school. If an operationalized definition is developed and agreed upon, then stakeholders can grasp what it is and can be more deeply involved in discussion surrounding it. Maintaining the broad umbrella term for communication within a specific school context would likely lead to vague notions, instead of focused understanding (Philadelphia Education Research Consortium, 2014).

Related to communication, is the guidance that an operationalized definition of Blended Learning can bring to the development of course syllabus and lesson plans; focusing on student learning rather than proportions of BL elements (Department of Education and Early Childhood Development, 2012). If clear and thorough, the operationalized definition can serve as a bouncing board when considering what to include in a course or class. That is, the definition of Blended Learning within the context of the school can help direct class preparation and to set unit goals.

A third and very important reason that Blended Learning should be clearly defined and articulated, is that it can aid dissemination of knowledge; advancing the field of education generally, but also Bended Learning more specifically (Partridge, Ponting, & McCay, 2011; Philadelphia Education Research Consortium, 2014). With the growing popularity of Blended Learning, the literature on the topic also grows (Güzer & Caner, 2014; Willis et al., 2018). Blended Learning is in its infancy, and vague definitions, while allowing freedom and innovation, can also confuse research and potentially hinder its progression (Partridge et al., 2011; Philadelphia Education Research Consortium, 2014). If the implementation of Blended Learning within a school is a roaring success, being able to clearly discern what has occurred can lead to a greater understanding of what is important in Blended Learning. By the same token, if the implementation of Blended Learning led to less than ideal or even detrimental outcomes, then having an operationalized definition can aid in the understanding of what should perhaps not be included when implementing Blended Learning in the future.

Operationalizing Blended Learning, then, is the act of taking the abstract umbrella term and making it more concrete and measurable. In a nutshell, having an operationalized and context-specific definition of Blended Learning can allow for clear communication between staff members and stakeholders of a school, give direction in the development of educational resources and experiences within the school, and advance education as a whole, both within and outside of the school. This is obviously important, but how can Blended Learning be operationalized to suit the school's context?

Context-specific Variables Affecting Blended Learning Operationalization

At this stage, the process of operationalizing Blended Learning has not been operationalized. That is, the operationalization of Blended Learning may seem like an abstract concept without any indication of how it can be done. This section will hopefully make the abstract more concrete. This will be done by answering the question: what variables need to be considered when operationalizing Blended Learning to suit the context of a school? The variables considered below are not intended to be exhaustive of what is important to every school. Instead, they are intended to initiate the process of operationalizing Blended Learning; to get the ball rolling.

Rationale for Implementing Blended Learning

Perhaps the first consideration when operationalizing Blended Learning is the rationale for implementing Blended Learning; what is driving the implementation of Blended Learning? The rationale for implementing Blended Learning into a school will hopefully have a strong focus on improving student learning. However, there may be additional reasons. For example, Blended Learning might be implemented in an attempt to better utilize available funds. Indeed, implementing Blended Learning into a school could allow for improved outcomes at a reduced cost (Rosenthal & Weitz, 2012; Vaughan, 2007). Alternatively, instead of being a whole of school implementation, Blended Learning might be considered as an option to: support struggling students; provide options for advanced students; or allow specialized unit opportunities that would otherwise be unavailable (Cavanaugh et al., 2004; Watson, 2008; Vaughan, 2007). The main focus for implementing Blended Learning into a school or classroom, whatever it may be, should be central to the operational definition of Blended Learning within that context and inform other considerations.

Level of Implementation

The level of implementation, from a single class to the whole of school, will affect the number of people involved in operationalizing Blended Learning for that context (Department of Education and Early Childhood Development, 2012; Moskal et al., 2013). If Blended Learning is being implemented in a single class or to allow for a small number of specialized units, for example, there may only be a small group involved in its planning and development, and thus in operationalizing the Blended Learning. A whole of school implementation of Blended Learning, on the other hand, might involve dozens of teachers, a number of technical support employees, as well as the school and department heads. Having input from people with mixed backgrounds can help get an understanding of different perspectives and considerations that may otherwise be left unconsidered, especially technical considerations (Weiss et al., 2014). Whether Blended Learning is being implemented into lower grade levels or higher grade levels, or both, will also influence how Blended Learning is operationalized (Watson, 2008). If it is whole school, it may be that Blended Learning is operationalized differently across grade levels. For example, there may be tailored operational definitions to suit early years, middle years, and later years. Each of these may have different goals and rationale for implementation of Blended Learning.

Stage of Implementation

The operationalized definition of Blended Learning may vary depending on the stage of implementation. For example, a whole of school change may require incremental stages towards becoming fully blended (Christensen et al., 2013; Michigan Virtual University, 2012). As these steps are taken, the operational definition may evolve to suit the next phase. Indeed, early iterations of Blended Learning within a school may not conform to any definitions of Blended Learning available in the literature, instead being used as a place holder or stepping stone towards future Blended Learning goals. It might also be useful to distinguish the different Blended Learning phases with different labels or version numbers.

Availability of Technology

Of course the implementation of Blended Learning is somewhat limited to available technologies within the school (Department of Education and Early Childhood Development, 2012; Inman et al., 2010). Setting technologically impossible standards within an

operationalized Blended Learning definition is not helpful. Resources should be audited and reviewed, with this information available to teachers and other school staff (Beaver, Hallar, Westmaas, & Englander, 2015). Once those involved in the development of the operationalized definition are aware of technological capabilities, they can make informed decisions on what is technologically possible to their context.

Pedagogy

The implementation of Blended Learning should have a pedagogical basis (Jimoyiannis et al., 2013; McLoughlin & Lee, 2010; Picciano, 2009; Precel et al., 2009; Willis et al., 2018; Lynch, et al 2015). Just like any other component of a rich learning environment, Blended Learning components should be purposively incorporated to attain learning goals. The use of technologies should be supported by previous research, or at the very least, should be well thought through with increased student learning and engagement as the basis for decision-making. The exact pedagogy can, however, vary from school to school and potentially class to class. If there is a set pedagogy within a school, then this should be incorporated into the school operationalized definition of Blended Learning. If there is not a school-wide pedagogy, the operational definition of Blended Learning should still incorporate the necessity for pedagogy to inform its implementation. It is of utmost importance that digital technologies and online resources are not merely add-ons; they should be purposeful and considered in terms of increasing student learning (Jimoyiannis et al., 2013; Koehler et al., 2013; Sharpe et al., 2006; Willis et al., 2018; Lynch, 2012).

Evaluation and Adaptation

Data collection should be ongoing to assess what is working and what is not, and adaptation should also be continuous (Hudson, 2015; Moskal, Dziuban, & Hartman, 2013). Systems should be put in place to allow for collecting and reporting of successes and failures (Department of Education and Early Childhood Development, 2012; iNACOL, 2011; Sharpe et al., 2006). The implementation of Blended Learning into a school or classroom is unlikely to be a quick fix (Hudson, 2015). Systematic evaluation of what has been implemented and adaptation based on this evaluation can allow for positive ongoing evolution.

Practical Example

The following example of operationalizing Blended Learning is based on an actual case where a K-12 whole of school implementation was being carried out. Prior to Blended Learning being operationalized for this school, some preliminary research was performed to inform the discussion which took place, but also, school staff members were well-informed of what was planned for the school. Nevertheless, a concrete understanding of what Blended Learning meant to the school was lacking. That is, discussions up to this point revolved around an abstract concept of Blended Learning; what Blended Learning actually looked like within the context of the school was yet unknown. The following outlines how Blended Learning was operationalized and made concrete for the school staff and researchers alike.

The initial step towards operationalizing Blended Learning for the school was to gather a number of key stakeholders together. In this case, this included the school head, heads of different grade levels of the school (i.e. early years, primary school years, middle school years, and high school years), and some technical staff and researchers. Altogether, 10 people. Discussions regarding the implementation of Blended Learning had been running for a few days already, but it became apparent that until Blended Learning was made concrete and agreed to within the school's context, progress was being hindered. Each individual within the group had different experiences with and expectations of Blended Learning, and an open forum was not leading to a quick resolution. Thus, the following procedure was developed and implemented.

The Process of Operationalizing Blended Learning in the Context of the School

1. To assure that each person involved had a basis for Blended Learning, a list of existing definitions was circulated. Each Person was requested to write a succinct definition of Blended Learning that contained the aspects that were important to them. The only other instruction was to try to keep a focus on the rationale for implementing Blended Learning into the school; in this case it was to *maximize student learning*. Sufficient time was given to allow people to read, contemplate, and then write their definition.

2. Individuals then were asked to form pairs, with care taken to have people from different backgrounds pair up. These couples were requested to reach an agreement on what they thought Blended Learning was, being sure to include the aspects most

important to them. Sufficient time was given to allow couples to discuss and then write their definition.

3. One person from each pair was then asked to write the couple's Blended Learning definition on a whiteboard. Once all definitions were on the white board, the entire group was tasked with highlighting crossover between the definitions. In the process, a number of recurring themes became apparent. The specifics will not be reported here, as these will vary between schools and contexts, and it is the process rather than the specifics that are important here.

4. A single definition was then written up based on the similarities of the previous iterations. This was then scrutinized and refined further. Missing aspects that some found important were discussed and added or not based on the outcome of these discussions. Terms used were also discussed in an attempt to reach consensus on which of them were most suitable.

5. Finally, important aspects and terms within the definition formed column headings of a table. The group then brainstormed what each of these aspects and terms meant and how they could be manifested. That is, indicators were established for each of operationalized definition aspects.

The outcome of this process was an operationalized definition of what Blended Learning meant in the context of the school; allowing for a shared definition across the group and subsequently the school. Again, the specifics are not important to this paper, but they included: (1) the rationale; (2) what was being blended; and (3) the pedagogical basis for Blended Learning. The Blended Learning definition was a single sentence, but indicators to clarify aspects of this definition were available as a point of reference.

Evaluation of the Operationalization Process

This section briefly describes an evaluation of the above described process of operationalizing Blended Learning in the context of the school. Specifically, the evaluation was to determine whether the process would improve teacher clarity on what Blended Learning meant in their school context. It was predicted that the process would improve the understanding in those involved of what Blended Learning meant in the context of the school.

Method

Participants

The participants were 7 school staff members, including the head of school, heads of school departments, and an educational advisor. Two participants were female. Ethical approval was given through the first author's University. No incentives were given for participation.

Materials

Participants completed an online survey created for the study. The survey included two versions of the same items; one version asking about understanding of Blended Learning in the context of the school *BEFORE* the operationalization process, and the other version *AFTER* the process. Example items include *I was very comfortable with my understanding of Blended Learning in the context of [the school] BEFORE going through the Process* and *I could have easily explained Blended Learning in the context of [the school] to someone else BEFORE going through the Process*. The only difference between the two versions was the interchange of the words *BEFORE* and *AFTER*. There were six items in each version and responses were made using a 7-point Likert scale anchored with *Strongly Disagree* and *Strongly Agree*. Inter-item reliability was very good for both versions: BEFORE Cronbach's alpha = .972; AFTER Cronbach's alpha = .989.

Procedure

Attendees of the operationalizing of Blended Learning process were emailed directly and invited to complete the online survey. They were informed that the survey was voluntary, anonymous, and that they could withdraw at any stage. Prior to responding to the survey items, participants were reminded of the *Process* of operationalizing Blended Learning of which the survey items referred to. Respondents were asked an initial item about their recollection of the *Process* before completing the 12 before and after items. Respondents were thanked for their time.

Results

In order to measure the impact of the operationalization of Blended Learning process, a paired samples *t* test was conducted. Figure 1 shows the group means of self-rated understanding of

the concept of Blended Learning in the context of the school, revealing the post-process mean scores to be larger than the pre-process mean scores. To assess normality of the pre-process, post-process, and difference scores, z scores for skewness and kurtosis were calculated and normal Q-Q plots were assessed, revealing no violations. Despite the small sample, the t test suggested a significant difference between the before and after ratings of understanding of Blended Learning in the context of the school, $t(6) = 2.57$, $p = .043$, $d = 1.15$. This effect size is considered to be large. These results suggest a greater understanding of Blended Learning in the context of the school after participating in the operationalization process than before.

Discussion

The importance of operationalizing Blended Learning in the context of the school or class where it is to be implemented has been outlined. Methodology on how the process of operationalizing Blended Learning has been developed and implemented with a group charged with a whole of school implementation of Blended Learning. The effect of this process was then quantified and tested for significance.

The results of the study identified the developed process for operationalizing Blended Learning as significantly improving the understanding of Blended Learning in the context of the school of those involved, as predicted. Prior to going through the process, the group mean score was below neutral. This indicates that as a group, they were not confident in their understanding of what Blended Learning actually meant in the context of the school. This is a serious issue, considering that these were the people who were charged with implementing Blended Learning into the school. It is important to note that the implementation of Blended Learning into the school had been discussed for a number of months prior to the group going through the process. Each individual may have had their own ideas of what Blended Learning was in general, but the pre-process scores indicate that the concept was not clear or aligned in the context of the school.

The group mean score after going through the process increased to well over a neutral score. This indicates that the confidence of the group in their understanding of what Blended Learning was in the context of the school was increased. This was shown to be a statistically significant improvement with a large effect size. This substantial increase in understanding was the outcome of approximately half a day's work with the group. Again, considering that discussion

about the implementation of Blended Learning into the school had been going on for months, it shows that this process would have been very beneficial earlier in the discussions to clarify and align thinking of the group. Up until the process of operationalizing Blended Learning in the context of the school, the group was uncertain of what it actually was that they were implementing.

The actual operationalized definition outcome of the process is not reported here because its content is context-specific; it is not intended to be *the* definition of Blended Learning. The definition's purpose is to inform the school and its teachers of the goals of Blended Learning within their context and to allow for meaningful communication within and outside of the school. The results of this study show that student parents and other stakeholders could have the intentions of the Blended Learning implementation more clearly explained to them after the groups went through the process of operationalizing Blended Learning. This can then be elaborated on with the indicators if necessary. Teachers can refer back to the definition to assure their teaching aligns with the school's goals for Blended Learning. Also, very importantly, this operationalized definition of Blended Learning can inform research within the school to assess what elements are working and what are not, but also allow for more clarity when reporting findings of research on the Blended Learning implementation.

Operationalizing Blended Learning became a very important *aha moment* for the group. It allowed discussion surrounding its implementation to progress unhindered by abstraction. The clarity of what Blended Learning was in the school's context significantly increased momentum and led to more meaningful insight into the strategies and goals of the project. Although seemingly simple, the operationalization of Blended Learning is an essential, yet easily overlooked, step towards the implementation of Blended Learning.

Conclusion

With its increasing popularity, schools will continue to implement some form of Blended Learning into their classrooms. Although there are plenty of proponents of Blended Learning, debate over what it actual is continues (Allen et al., 2007; Dziuban et al., 2004; Christensen et al., 2013; Graham, 2012; Oliver & Trigwell, 2005). We do not wish to prolong or extend this debate any further. Instead we propose following Sharpe et al.'s (2006) suggestion, and leave the term Blended Learning as an umbrella term to describe a great number of iterations and models. This proposal, however, comes with the caveat that the term Blended Learning as an

umbrella term will be unhelpful within the context of *specific* schools and classrooms, and that it needs to be operationalized to suit the specific context of the school and classroom under consideration. The operationalization of Blended Learning to the context will then allow for clearer goals and faster progress towards these goals. And this, it is hoped, can be agreed to by all.

Figures
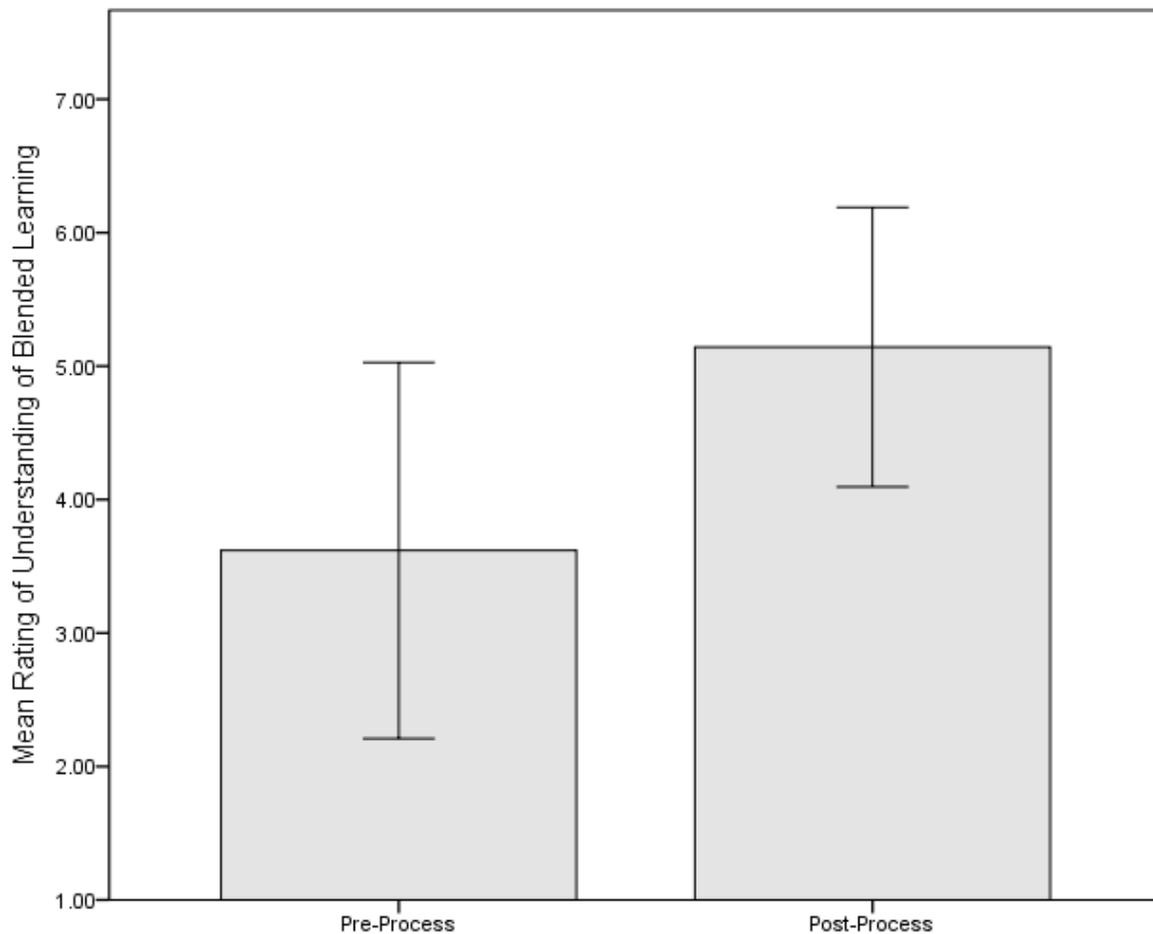
Figure 1. Mean understanding of the Blended Learning concept in the context of the school before and after the process of operationalization. Error bars represent 95% Confidence Intervals.

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[i] **Corresponding Author:** Royce L. Willis, Southern Cross University, Coffs Harbour
Campus Hogbin Drive Coffs Harbour NSW 2450 Australia royce.willis@scu.edu.aum
Phone: +61 2 6659 8003