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The Development of a Template for Structuring Case Studies about Blended Learning, and an Associated Evaluation Check Sheet

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The Development of a Template for Blended Learning Cases Studies, and an Associated Evaluation Checksheet

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Abstract

The Blended Learning International Train the Train Project is focused on the development of a training programme to equip teachers to become proficient in the training others in Blended Learning, which is an approach to teaching that combines online teaching with face-to-face teaching; and aims to leverage the benefits of both. The programme will be developed in two phases, in the first phase a series of case studies relevant to Blended Learning will be developed, followed by a second phase where the training programme with be designed and developed. In developing the blended learning case studies, two key documents were identified as being essential, first, a template to indicate the main headings for the case studies, and, second, a checksheet tool with a number of questions to help undertake reflection on the case studies. These two documents provide a coherent and organized way to structure the case studies.

1. Introduction

The goal of this paper is to outline the process undertaken in creating a template for case studies concerning Blended Learning innovations, to be used as part of the development of a train-the-trainer course on Blended Learning. The approach undertaken used research literature in this area as a starting point, and from there a MindMapping approach to brainstorm features of the template. To compliment the case study template, a checksheet was created with a series of questions that would prompt someone who was reading the case studies to reflect deeply on them.

2. Blended Learning

"Blended learning" typically refers to educational experiences that combine both online teaching with traditional classroom-based teaching [1]. The two most commonly used definitions for it are as follows: Graham [2] defines the term "blended learning" education that "combines face-to-face instruction with computer-mediated instruction" (p. 5), and Garrison and Kanuka [3] define it as "the thoughtful integration of classroom face-to-face learning experiences with online learning experiences". Allen, Seaman, & Garrett [4] suggest that for an educational experience to qualify as blended, the mixture should have a substantial quantity of both modalities of teaching (i.e. traditional classroom and online). In fact, they suggest that a minimum of 70% traditional classroom and 30% online, to a maximum of 20% traditional classroom to 80% online. However, Hrastinski [5] argues that it is better not to be too specific on what the term means, but rather instead it should be seen as an umbrella term, and it should be accepted to mean different things to different people depending on the specific context.

Hubackova and Semradova [6] undertook a survey of 98 language students who participated in two terms of blended learning, and their findings indicate that the students not only found it to be an acceptable alternative to face-to-face teaching, but many found it to be a preferable form of teaching.

Similarly, Gecer and Dag [7] surveyed 67 students from the departments of Mathematics and Education to assess their experience of a blended learning module, and they found that the online activities had positive effects on students from a learning and evaluation perspective, and the students stated that the blended learning environment supported their active participation to the course activities.

Interestingly, Akkoyunlu and Soylu [8] undertook a survey of 64 Education students who undertook a blended module, and although they found the use of a forum extremely helpful and positive, they nonetheless reported that the face-to-face interaction (either in person or online) aspects of in blended learning application as being most important type of interaction.

Finally, Eryilmaz [9] surveyed 110 students undertaking a blended learning module in a Computer Science programme, and she observed that students found their blended experience to be extremely effective, and that they rated it as being preferable to face-to-face teaching, and that their educational attainment was higher in blended modules as compared to any other form of lesson content delivery.

3. Case Studies

A Case Study is an investigation into an individual, a group, an event, or some other occurrence. They describe their target phenomena in a holistic way, taking into account a wide range of information, to help understand and help to explain some research questions related to the phenomena. Yin [10] defines a case study as " an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident". To better understand the phenomena under investigation, sometimes several case studies are used together, so that they can be compared and contrasted. If several case studies are treated as a single entity to explore research questions, they are called either a “quintain” [11], or, more commonly, a “collective case study” [12].

Rowley [13] highlights four key considerations that should be taken into account to ensure that quality of a case study:

- *Construct Validity*: This refers to the need to reduce subjective in case studies, and to ensure data is collected in a manner that doesn’t introduce bias into the case.
- *Internal Validity*: This refers to the degree to which we can establish a clear relationship between the evidence presented in the case and the conclusion or results we can draw.
- *External Validity*: This refers to the generalisation of the case study, or in other words, does this case study agree with existing cases in terms of the general explanation or theory as to which it is proposing?
- *Reliability*: This refers to the repeatability of the case study, or in other words, if the data collection were repeated exactly, would the same case emerge?

Shakir [14] looks at case studies specifically related to the introduction of technologies into organizations, and identifies three continuums or *dimensions* that these cases can be categorized into:

1. *Typical-Significant Cluster*: This scale is used to categorize a case as either being one that is typical or one that is extreme in some way.
2. *Similar-Different Cluster*: This scale is used to categorize a case as either being one that a lot of variation in a range of features (such as using random purposeful or the stratified purposeful sampling strategies), or one that does not.
3. *Convenience-Determined Cluster*: This scale is used to categorize a case as either one that is selected using a pre-determined selection criteria or one that did not use a specific criteria.

4. Developing the Template

The methodology employed in this research was a two-stage approach, where six researchers familiar with case study research came together and initially began with a general discussion of the types of headings that should be in a case study in general, as well as focusing an on what a blended learning case study should be. Following this, an iterative MindMap session [15] was undertaken, where the participants undertook an iterative brainstorming approach to develop the key headings of the case study template, using the MindMap to structure the discussion. One important key to the discussion was that whatever heading were eventually agreed upon had to allow for a wide range of types of case studies, including ones that lead to contradictory conclusions (Creswell and Poth [12] refers to this as “Purposeful Maximal Sampling”).

The basic assumption inherent in the design process for this research is that each case study is describing a transformation of some kind, potentially from a non-blended scenario to a blended scenario, or from a blended scenario to a different blended scenario. Based on this assumption, the main body of the case study has three parts: before the transformation, after the transformation, and detailing the intervention that caused the transformation to occur. These parts serve as the main body of the case study as well as some documentation of the sources of evidence of the case.

Following the main body of the case study, another essential section in the case study is the Issues Section. This section allows the reader to explore the “meaning” of the case study, and it provides a summary of the key issues of the case, as well as exploring some of the challenges or complexities of the case, and finally critically examining the case for confirming and/or disconfirming evidence to ensure the elimination of potential sources of bias.

The cases also need an Introduction and Conclusion sections. The Introduction section helps “sets the scene” by providing some background information about the case, including time and date information, geographical information, ecological information (people), and any ethical information relevant to the case. The Conclusions section restates the key information of the case, as well as describing the key themes, the key questions raised, and some reflections on alternative approaches. Finally, the Title Section focuses on the title of the case study, which may have a main title and a sub-title; and should provide a detailed overview of the nature of the case study.

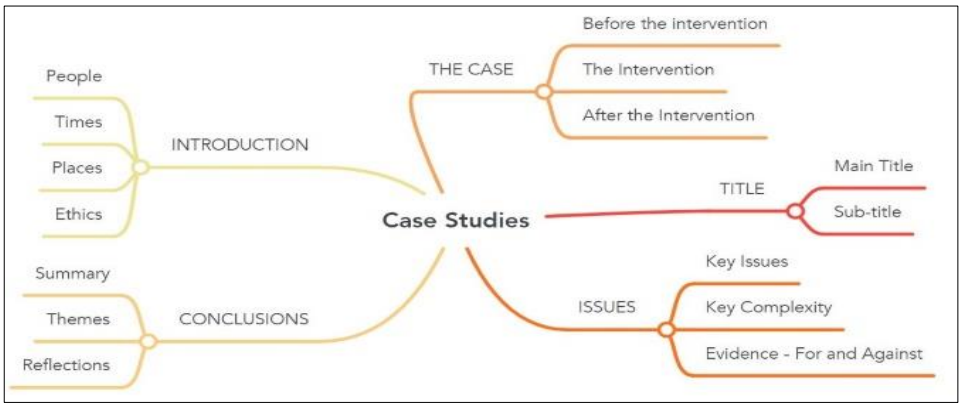

Figure 1. MindMap of the Structure of a Case Study

The headings from the MindMap (See Figure 1) were put in a table, and a further review was undertaken, and any missing concepts were discussed, and two in particular were noted:

- In the Case section, although the notion of evidence is implicit, it was decided to make the concept explicit, and refer to the "Sources of Information".
- In the Conclusions section, it was felt another useful prompt would be to include "Questions Raised", to ensure that the readers were reminded that a Case can raise more questions than answer them.

The completed template is presented below:

Title Section
• Title of the case study • Sub-title of the case study
Introduction Section
• Time (chronological information) • Place (geographical location) • People (individuals involved) • Ethics of Case, if applicable
The Case Section

• Evidence/Sources of Information, if applicable
• Situation before intervention
  ○ Challenges, issues
• The Intervention
  ○ Technology, Organisations, Education, Processes & Policies
• After the intervention
  ○ Outcomes

Issues Section
• Key issues of the case • Complexity of the case • Confirming and Disconfirming evidence
Conclusions Section
• Summary • Themes that emerged • Questions raised • Reflections (what should have been done)

5. Developing the Checksheet

To ensure that the checklist was not merely a duplicate of the case study template, an almost completely separate group of four researchers (with one person in common) were involved in the development of the checksheet, and a different diagraming technique was used to develop it, in conjunction with a reviewing process of several other checksheets developed by members of this group in the past concerning the evaluation of different aspects of computer science teaching and training (e.g., [16] and [17]).

The diagraming technique chosen was Ishikawa diagrams (also called Fishbone or Herringbone Diagrams), which were developed by Kaoru Ishikawa in the 1960s to explore the potential causes of a specific event [19]. The diagram places the issue or challenge at the "head" of the fish, and the causes extending to the left as fishbones; the ribs branch off the backbone for major causes, with sub-branches for root-causes, to as many levels as required. In different scenarios that "ribs" are labelled with different terms, and in this activity the ribs were labelled with the questions: "Why", "How", "Where", "When", "Who", and "What" (as per Figure 2). The issue in this case was stated as "What are the important things to consider when reviewing a blended learning case study".

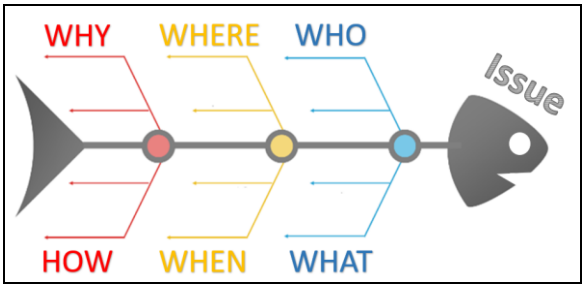

Figure 2: Ishikawa Diagram with the 5 Ws and a H.

The group developed a number of key questions that were drafted and redrafted, and they were finally categorized into seven main themes:

- *Introduction*: The initial questions are about understanding the context of the specific case.
- *Main Features*: These questions deal with the main features of the case, including the intervention.
- *Organisation*: These questions relate to the organisation, or organisations, that are involved in the case.
- *People (Ecology)*: These questions concern the people involved in case, and the people impacted by the case.
- *Pedagogy*: These questions look at the teaching philosophy and techniques employed in the case.
- *Technology*: These questions focus on the software and hardware involved in the case.
- *Evaluation*: These questions reflect on the outcomes of the case, the positives, the negatives, and the alternatives.

The full checksheet is available in Appendix A.

6. Discussion

This research presents the development of a case study template for blended learning activities, as well as an associated checksheet for reviewing the case study. The case studies are designed to be used as part of a training course, and thus have to serve several purposes, in the sense that they can be used in their complete format to discuss an intervention that has occurred concerning a blended activity, or a section of the case study can be extricated and used to highlight a specific point in the training course. Additionally, the case studies need to be structured in such a way that multiple cases can be used in concert to highlight a specific point, or to contrast different outcomes of different cases.

A set of PowerPoint slides were developed based on the case study template, and some cases were input into it, and based on that activity, it is essential to point out that a case study when used in a training situation should not necessarily limited to content that can be incorporated into PowerPoint, the trainer should also do other things such as demonstrate software, visit websites, display physical artefacts, invite guests to discuss their experience of the case, and initiate a debate on the issues raised in the case.

7. Conclusions

This paper explores the dimensions of blended learning by getting two groups of experts to develop two artifacts associated with categories of interest in a case study concerning a blended learning initiative. One group focused on the development of a template for Case Studies, and they used a MindMap as their approach to both reflecting and brainstorming. The second group focused on developing a questionnaire for blended learning case studies, and they used an Ishikawa diagram as their approach to both reflecting and brainstorming. The majority of the content developed from both activities was identical, with other a few differences, while the template included the theme on reflections, the checksheet asked for more details on the organization.

8. Acknowledgements

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Appendix A: Reviewing and evaluating Blended Learning Case Studies

A task sheet for students to work through several times and hopefully then internalise.

Evaluation criteria	Notes
What is the case study about?	Introduction:
What is the organisation?	Introduction:
What are the technology issues?	Introduction:
Who are the principal actors?	Introduction:
What was the situation previously?	Main Features:
What innovations have been introduced?	Main Features:
What were the general outcomes of this innovation?	Main Features:
Are there any legal, social or ethical issues associated with this innovation?	Main Features:
Is there are chronological or other logical sequence for analysis?	Main Features:
What is the nature of the organisation?	Organisation:
What is its history?	Organisation:
How is it structured?	Organisation:
How has it changed as a result of the innovation?	Organisation:
Who are the principal actors in detail?	People (Ecology):
What are their positions within the organisation?	People (Ecology):
What are their technical skills?	People (Ecology):
Does the target population for this innovation include more people?	People (Ecology):
What teaching approach was being used?	Pedagogy:
What teaching skills needed to be learned?	Pedagogy:
What were the challenges because of students with differences in time or geography or culture?	Pedagogy:
Was there a new model of Instructional Design used for the change?	Pedagogy:
How was the division between content taught online and f2f decided on?	Pedagogy:
What technology was present? What software? What hardware?	Technology:
What technical level of expertise exists within the organization?	Technology:
What new technology has been introduced for this innovation?	Technology:
How successful has the innovation been?	Evaluation:
What new outcomes have been identified?	Evaluation:
What went well in this innovation?	Evaluation:
What did not go well in the innovation?	Evaluation:
What alternative approaches could have been taken?	Evaluation: