

Context-Specific Computer-Assisted Language Learning

Research, Development and Practice

Edited by
Jeong-Bae Son



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TABLE OF CONTENTS

Preface

[Research]

Chapter 1 1

Teacher Capacity Building as a Means to Promote Blended Learning
Sustainability: Lessons Learned
Cynthia Nicholas Palikat

Chapter 2 27

Learner Training in Digital Language Learning for Pre-Service Translators and
Interpreters
Jeong-Bae Son

Chapter 3 50

MOOC-Based Learning Environments: A Comparison of Conventional,
Synchronous and Flipped Classrooms
Morteza Mellati and Marzieh Khademi

Chapter 4 75

Promoting Student Autonomy, Engagement and Interaction through Mobile-
Assisted Language Learning
Bradley Joseph Perks and Daniel Warchulski

Chapter 5 102

Using Different Types of Computer-Supported Signaling in Explicit Online
Grammar Instruction
Ferit Kilickaya

[Development]

Chapter 6 122

Instructional Design of Technology-Enhanced Process Writing for Secondary
EFL Learners in Hong Kong
Moonyoung Park and Lu Wang

[Practice]

Chapter 7 137
Implementing a Mobile Peer-Evaluation System for In-Class Student
Presentations

Peter Gobel and Makimi Kano

Contributors 154

Preface

This book is an examination of contemporary topics of computer-assisted language learning (CALL) research, development and practice. It explores several different dimensions of CALL while looking at the ever-changing faces of CALL in different contexts. Topics covered in the book include teacher capacity building, learner training, massive open online courses, mobile learning, grammar instruction, process writing and peer evaluation. The book draws on context-specific studies and activities conducted by CALL researchers and practitioners and provides a valuable resource for postgraduate students, language teachers, teacher educators and researchers.

The book includes seven chapters anonymously peer-reviewed by independent reviewers and divided into three sections: research (Chapters 1-5), development (Chapter 6) and practice (Chapter 7). Chapter 1 examines the use of a learning management system (LMS) in a teacher capacity building initiative for blended learning sustainability. Chapter 2 looks into the implementation of learner training in CALL for a special target group. Chapter 3 explores connectivist massive open online courses (cMOOCs), flipped classrooms and conventional classrooms. Chapter 4 investigates English as a foreign language (EFL) learners' engagement, interaction and autonomy on a social networking site. Chapter 5 deals with different types of signalling in online grammar instruction. Chapter 6 discusses the instructional design of technology-enhanced process writing with sample activities. Finally, Chapter 7 presents a mobile peer evaluation system for in-class presentations. Each chapter finishes with four questions for further discussion and investigation.

As the fourth volume of the Asia-Pacific Association for Computer-Assisted Language Learning (APACALL) Book Series, the book presents the findings and outcomes of recent work in the field of CALL and offers opportunities for readers to engage in meaningful discussions on the use of technology for language learning and teaching in the digital age. A collaborative effort has been made again in publishing this refereed volume. I would like to thank all authors whose work appears in the book and all reviewers of submitted manuscripts. My thanks also go to my family for their love and support.

Jeong-Bae Son
July 2019

[Research]

Chapter 1

Teacher Capacity Building as a Means to Promote Blended Learning Sustainability: Lessons Learned

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Abstract

CALL professionals have long argued for ongoing professional development to build the capacity of teachers to use technology. This chapter, which forms part of a broader study on blended learning sustainability, reports on the case study findings of one such capacity building initiative. Undertaken by the English for Academic Purposes (EAP) department of a large university pathways program, the purpose of the initiative was to promote the sustainability of blended, or hybrid, learning that is designed to integrate technology in face-to-face classrooms. In this EAP department, program directors sought to equip teachers with the knowledge and skills needed to develop and host materials on a proprietary learning management system (LMS). Framed by the model of sustainable blended learning proposed by Blin, Jalkanen, and Taalas (2016), this study details the experiences of teachers involved in the capacity building initiative to understand their perspectives on the factors that can influence the sustainability of technology. The results of the case study point to the complexity of the issues which emerged, highlighting the need for a proper understanding of program context in the implementation of technology related initiatives, particularly with regard to sustainability. The chapter concludes with recommendations on addressing the emerging issues so that the sustainability of blended learning enacted through teacher capacity building initiatives can be better implemented.

Keywords

Sustainability, blended learning, capacity building, teachers, professional development

INTRODUCTION

Despite claims that technological investments will significantly transform existing classroom practices, there is little evidence to show that technology has changed much of the way teaching and learning are conducted (Cuban, 2011; Stern & Willits, 2011). Perhaps one reason for the lack of technology uptake relates to the pressing need of teacher professional development (Littlejohn, 2003). As the primary stakeholders who are at the heart of technological change (Blin, Jalkanen, & Taalas, 2016), teachers play a crucial role in institutionalizing blended learning practices. In other words, for blended learning to be sustainable, there needs to be a focus on teachers, their experiences with technology and how these experiences relate to the long-term development of blended learning. Numerous studies (e.g., Bennett, Lockyer, & Agostinho, 2018; Blin, Jalkanen, & Taalas, 2016; Hinkelman, 2018; Niederhauser et al., 2018) have advocated for continuous teacher professional development to better integrate technology in teaching. However, professional development is just one component in a system of interacting factors which constitute the sustainability of blended learning.

This notion of a sum being greater than its parts (Ison, 2008) suggests the need for a broader systemic view of technology. Technology from such a perspective could be viewed as a complex interaction of components working together as a unified whole (Banathy & Jenlink, 2004). Accordingly, this chapter takes a systems-focus view of technology through a study of the institutional, proprietary learning management system (LMS). The aim of this chapter then is to investigate the use and application of the LMS as a capacity building initiative for blended learning sustainability. Going beyond the technical aspects involved when teachers work with the LMS as a system, this case study seeks to uncover the complexities of teacher collaborative practices through the process of initial planning, materials design, and the subsequent translation of the designed learning materials into the LMS format.

LITERATURE REVIEW

In this study, blended learning sustainability refers to sustaining the purposeful integration of technology and face-to-face components by considering how factors such as education, leadership and innovation can influence such initiatives (Cerone, 2014; Davies & West-Burnham, 2003; Gruba & Hinkelman, 2012). The study adopted the institutional model of sustainable blended learning which is conceptualised as a system of inter-related components (Blin et al., 2016). A similar view is held by Singh and Hardaker (2014) who argue that studies investigating the sustainability of blended environments should adopt “a more

interactive approach to examine the complexity and multiple levels and dimensions of social reality” (p. 105).

Based on an earlier study to develop a sustainability framework for an oral language application (Blin, Jalkanen, Taalas, Nic Giolla Mhichil and O Ciardubhain, 2012), initial development work drew on studies of the environment, particularly the ecology framework of sustainable development. Building on the developed framework, the authors expanded its scope to the wider field of blended learning. The resulting framework consists of four components or ‘pillars’ of sustainable blended learning: environments and tools for learning, community and knowledge building, organisational structures, and pedagogical and professional development (Blin et al., 2016). Notably, the pillars operate on the same level, with interactions occurring within and among the different components (Blin et al., 2016). These pillars are summarised in Table 1.

Table 1

Summary of Four Components of Sustainable Blended Learning (Adapted from Blin et al., 2016)

| Component | Description |
|---|---|
| Pillar 1 Environments and tools for learning | Sustainable environments and tools for learning are purposeful and tailored to the needs of students, teachers, learning objectives and pedagogical tasks. |
| Pillar 2 Pedagogical and professional development | With teachers as change agents of new teaching initiatives, professional development is vital in sustaining educational technology integration, through continuous adaptation to changing classroom environments. |
| Pillar 3 Community and knowledge building | Building a community of teachers means constantly evolving and adapting current teaching practices, along with the tools and environments for implementation. |
| Pillar 4 Organizational structures | With a view of the organization as an ecosystem, change is implemented across all levels in relation to broader institutional objectives, with the ability to adapt to unexpected outcomes. |

As this chapter’s approach is to consider the LMS as a complex educational system, it is necessary to understand what is meant here by a system. Although defining terms such as systems and systems thinking have been contentious, the

strength of a systems view lies in its capacity to provide explanatory and predictive power in unpacking complex situations or behaviour (Arnold & Wade, 2015; Patton, 2011). This may be attributed to the complex nature of systems which are typically made up of interconnected components (elements); as well as the interactions which occur within and among those components (process) (Ison, 2008).

Literature suggests that systems thinking can be applied to technology integration. To illustrate, in the specific context of blended language learning, Bax (2011) cautions against the tendency for oversimplification, arguing for a broader view of the various socio-cultural factors at play when teachers make use of technology. According to Bax (2011), attributing the success or failure of ‘normalising’ technology based on the dichotomy between the device used (for example, tablet computers) or the people using it (for example, teachers) suggests that such initiatives are somehow independent of a host of larger extenuating factors. In reality, the issues surrounding technology integration are far more complex (Gruba & Hinkelman, 2012) and require a continuous and complex cycle of improvements based on the feedback received (Patton, 2011).

Bringing together the concepts of systems and systems thinking in relation to technology, a case can be built that the LMS as a ubiquitous system (Stern & Willits, 2011; Zanjani, Edwards, Nykvist, & Geva, 2017) used in blended learning technologies could exemplify a broader systemic view of technology. Through this lens, the LMS is regarded as a dynamic, collaborative, and adaptive system involving teachers working together in an effort to maintain the sustainability of blended learning through capacity building initiatives.

CONTEXT OF THE STUDY

Program Description

Having established blended learning sustainability and systems as the pertinent concepts underpinning this study, the focus will now shift to situating this investigation in its broader context. Conducted for approximately six months from January–July 2017, the site of the study was Royal College, an Australian based institution which runs foundation studies programs for international students as a pathway for entry into universities in Australia and abroad. More specifically, the case study focused on the EAP (English for Academic Purposes) department which offers pre-foundation (EAP Intensive) and foundation (EAP Main) programs.

The intake in question is the EAP March Intensive which was conducted from March–August 2017. According to the Royal College prospectus, the March Intensive is one of two pre-foundation intakes sharing the same curriculum but taught in two sessions (the other being in August) every year. The EAP Intensive is a 20-week general English course which then feeds into the Main EAP programs. In terms of student learning outcomes, an analysis of the EAP Intensive program syllabus revealed two broad objectives. The first is the ability to demonstrate linguistic ability through the development of vocabulary, sentence structure, writing, and reading comprehension of textual and graphical information. The second relates to a more cognitive application of critical thinking skills where students analyse and evaluate information from spoken and written stimuli.

Curriculum development for the Intensive program was based on six themes which include family, learning skills, music, art, food, and social networking. Although the development of micro-level language skills (such as grammar tenses, pronunciation, and language forms and functions) was not explicitly outlined in the syllabus, evidence of grammar related content was revealed through document analysis of the program’s LMS platform. The deliberate integration of language related input implies that defining the program’s linguistic aspects is important to teachers.

LMS Capacity Building Project

In this second cycle of action research (refer to Appendix 2), issues faced by the EAP department were identified through an administrative level planning meeting. Here, it was determined that an LMS teacher capacity building initiative would be the best solution to address such issues. Based on an analysis of interview data and supporting documentation, the issues and justification for the LMS Capacity Building Project are summarised as follows:

- | | |
|---|--|
| Lack of instructional designers | - the proprietary LMS is a readily available platform which would only require the training of teachers. |
| Lack of security in online shared drive systems | - the institutional LMS is more secure as only those with login rights can have access. |
| Lack of a centralized repository of materials | - the LMS provides a centralised platform for materials accessible to both students and teachers. |

Lack of access to independent study materials (to fulfil audit requirements)

- the LMS provides the best platform for implementing a ‘flipped approach’ to independent study resources.

The main purpose of the project was to provide teachers with the skills to develop online materials and host them on the LMS platform. The project began with training in online materials development and configuring various lesson content to the LMS format. Workshops were conducted by Ethan, the EAP Subject Head, who was well-versed with the Moodle system and online materials development. To ease materials development work, Ethan provided a model lesson which teachers were to use as a guide.

After attending the training sessions, materials development work commenced with teachers being grouped into teams of two to three members to work on one of the Intensive program’s six themes. Groups began by outlining the assessment tasks (if any) that were covered in the theme, as well as the linguistic knowledge/skills to accomplish those assessments. Using these linguistic elements, ‘lesson units’ were developed and assigned to teachers for the development and hosting of lesson materials onto the LMS platform.

A flipped approach was perceived as the best solution to fulfil an audit requirement of student access to self-study materials. Such an approach encourages independent learning where lesson materials are made available *prior* to students coming to class. However, besides the model lesson, no further guidelines regarding a common blended learning approach to adopt were provided.

THE STUDY

Aim

The aim of this study is to highlight teachers’ experiences as they navigate with technology as a means to build their capacity and promote blended learning sustainability. In this study of the meso level, three teachers were interviewed in their training and role as instructional designers, along with the relevant EAP program administrators. To achieve this aim, a combination of a systems perspective and the framework for sustainable blended learning (Blin et al., 2016) was employed to better situate this case study.

Participants

As shown in Table 2, the LMS Capacity Building project was overseen by Ethan, the EAP Subject Head, but no coordinator was formally appointed to lead the project. There was a total of eight committee members whose primary roles were to develop lesson materials which would then be hosted on the LMS platform. However, only four teachers agreed to take part in this study.

Materials

To gather data for this study, a combination of semi-structured interview protocols, supporting documents as well as field notes was used (refer to Table 3).

Table 2
Participants in LMS Capacity Building Project

| Name | Position | Role | Purposes |
|-------------|--|------------------|--|
| 1. Ethan | EAP Subject Head | Project Head | Train, oversee and lead project |
| 2. Melissa | EAP Teacher/ Associate Subject Head | Committee Member | Facilitate the development and hosting of online materials |
| 3. Sophia | EAP Teacher | Committee Member | Develop and host online materials |
| 4. Charles | EAP Teacher | Committee Member | Develop and host online materials |
| 5. Jennifer | EAP Teacher | Committee Member | Develop and host online materials |

Note. Pseudonyms are used for all participants.

Table 3
Summary of Data Collection Techniques

| Level | Target | Duration/ frequency | Method | Area of focus/ Pillar focus (Blin et al., 2016) |
|-------|--|--|-----------------------------------|---|
| | Subject Head of the EAP program | Approx. 30-45 mins. / Two (beginning and end of course) | Semi- structured interview | Development and implementation of LMS as capacity building initiative (Pillar 2 & 4) |
| | Curriculum Review Project Coordinator | Approx. 30 mins. / One | Semi- structured interview | Development and implementation of the Curriculum Review Project and its relation to the LMS Capacity Building Project (Pillar 4) |
| Meso | 3 EAP teachers | 30-45 mins | Semi- structured interviews | Teachers' experiences of materials development through LMS (Pillar 1, 2) The use of the LMS as a technological tool (Pillar 1 & 3) The implementation of blended learning through LMS materials/ lessons in the classroom (Pillar 1) |

Procedures

This study employed a participatory action research approach (Somekh, 2006) as it was deemed appropriate in the context of this investigation. Here, a continuous effort towards program improvement (Norris, 2016) can be achieved through an understanding of program context, identifying issues and their corresponding solutions, as well as putting interventions in place; all of which are core tenets of participatory action research (Patton, 2015). Based on cycle two of the action research (see Appendix 1), the focus of the study concerns materials development. To gain insights from both a project implementer and administrator

point of view, interviews with teachers and program administrators were conducted. In addition, pertinent program documentation such as literature on the EAP program, prospectus and other related marketing material were analysed along with the institution's learning management system, website, curriculum and syllabus documents, and course materials. Recorded data collected from interviews were transcribed and analysed. The data, along with those from field notes, were coded through thematic analysis (Fereday & Muir-Cochrane, 2006) and categorised according to the four pillars of sustainable blended learning (Blin et al., 2016) where further sub-themes were identified. For data triangulation (Kress, 2011) purposes, content analysis (Bowen, 2009) of related documents was done to corroborate findings from the other data collection methods employed.

RESULTS

Analysis of teacher interview data revealed that the affordances of the LMS centered on its security, ability to streamline content, and function as a central repository of materials. In relation to sustainability, these strengths imply that the LMS can provide a secure platform where lesson materials are easily accessible to both students and teachers. In terms of scalability, hosting lesson materials on the LMS facilitates the reuse, repurposing, and refinement of resources through a continuous cycle of improvement. Nevertheless, as the overall tone of the interviews was negative, the focus of the results section is centered on its limitations.

Applying Blin et al.'s (2016) model of blended learning sustainability as an underpinning framework, data gathered from document analysis, field notes, and interviews with program administrators and EAP teachers were analysed. Findings from the data analysis are presented here according to the four pillars of sustainable blended learning (Blin et. al., 2016).

Pillar 1: Environments and Tools for Learning

The first pillar of environments and tools for learning focuses on creating environments and utilizing tools that offer utility and flexibility according to the needs of students, teachers, learning outcomes. The discussion of these findings combines both environments and tools for learning to encompass a broader view of technology integration. The first area of focus is the type of learning environment created by the LMS. The change to the LMS as the main mode of lesson instruction was to inculcate a more streamlined approach to blended learning by providing a centralised, self-access materials repository for students

through a flipped classroom (Chen Hsieh, Wu, & Marek, 2017; Rabidoux, & Rottmann, 2018) approach.

From interviews with all three teachers, it appears that each has their own interpretation of the flipped classroom approach. However, the general understanding is that lesson materials are made available to students prior to class (such as assigned readings or videos explaining a certain concept) to facilitate independent study through preparatory learning tasks. With the assumption that students have gone through the necessary input, they would be better equipped for face-to-face class sessions involving oral or written application tasks. However, while having self-access study materials can provide many benefits, interview data with teachers' revealed limitations in this approach.

The first limitation was the sense that adopting a flipped approach creates a non-communicative, passive classroom. Such a learning environment may be attributed to the over-reliance of PowerPoint slides as the main medium for input transmission. The lack of student interactivity was confirmed through interview data where Jennifer revealed that students tended to get disengaged when they come across a PowerPoint slide since they associated it with static input. Also, since students could access this information independently, they may have found it unnecessary to engage since they could read the information for themselves. Besides PowerPoint slides, other self-access activities such as videos tended to result in students working in isolation. In other words, there was a lack of meaningful extension between the lesson input and face-to-face class activities. In fact, teachers were of the view that the flipped classroom approach seemed to be an avenue for assigning unfinished tasks as homework, which may or may not be extended in face-to-face sessions. This limitation can be seen from the following interview quote:

... it does feel a little bit like a buzzword in that, great, that means they can do stuff for homework, but the lessons aren't necessarily being developed. For me, if it's a flipped classroom ... the whole material on LMS is designed to be done individually. Then there are tasks that we have developed that they're going to do in the classroom ... (Charles – Int. 1, Line 93-94)

Another limitation of the flipped approach is that students become too focused on their tablet devices during face-to-face class sessions; creating less diversified classroom environments. While incorporating self-access study materials may lead to greater student autonomy, improper lesson design may result in an imbalance of the face-to-face components necessary for a blended learning system. To illustrate, conducting online quizzes with automatic feedback systems led to one teacher not “[knowing] what to do as a teacher ... they've done the

quiz, checked their answers and then we just sit there” (Jennifer – Int. 1, Lines 129-130). Jennifer goes on to explain the value of going over the answers together as a class but highlights its challenges because (1) students already know the answer, and (2) the small font size makes it difficult to project the answers on an LCD screen. The following quotes illustrate this limitation:

I just think as teachers we need ... it's not, it's not really a criticism of the materials so much ... it's just we've got to work out how to best vary activities so that there's some time away from their tablet devices. Sometimes there's a real communicative need that I think we've really got to think about. (Jennifer – Int. 1, Line 135)

You then have to make a conscious effort to then of course, kind of get them up and moving and doing other things and working with paper or you know something sort of ... so it's not just totally attached to their tablet devices. I think it's unethical even of us to kind of just have everything ... they have to do everything through their tablet devices. (Sophia – Int. 1, Line 113)

Summary

In summary, the main issue under this pillar concerns the flipped model approach which led to decreased classroom interaction and a lack of task diversity. While the emerging issues seem to focus at the device level, from a systems view, what led to these issues is limitations in lesson design. These findings have important implications on the need for thoughtful lesson design, and systematic blended learning approaches. An informed lesson design (as opposed to mere materials development) eschews the view of materials as stand-alone resources, ensures that each learning component is inter-related, and reflects task diversity, so that students can achieve the desired learning outcomes. In addition, face-to-face sessions should incorporate more communicative activities such as oral discussions, and active learning tasks involving minimal or no use of technology.

Pillar 2: Pedagogical and Professional Development

Under the second pillar of pedagogical and professional development, Blin et al. (2016) advocate for the capacity building of teachers to better promote sustainable teaching practices. From analysis of data, the lack of professional development emerged as a core finding.

Based on analysis of LMS lesson materials, and confirmed through teacher interview data, it can be concluded that the developed LMS resources were more

content than language based. As all three teachers commented on this issue, this finding was particularly significant:

Just the material we're tying together, often like with listening or reading, there's a bunch of quiz questions that someone's made but ... that's just comprehension. What are the skills that we're teaching them around these kinds of electronic videos and things that we've made? It often just seems like we're throwing content at them without really a thought of how ... what exactly are we learning here you know? (Charles – Int. 1, Line 49-50)

... but I think that we've gone a little bit down this path of very content ... what do you call it? We've got themes and I think that sometimes we've fallen into the trap of trying to teach the kids about that content rather than the language that underpins it. (Jennifer – Int. 1, Line 124)

It's not very systematic no. So, we're all feeling a bit like we're pulling ... we're sort of feeling a bit bad about not teaching enough grammar so we're pulling it out of the air a bit and... that THAT needs to be addressed somehow in the next revision of the course. (Sophia – Int. 1, Line 78)

The issue of more content than language-based materials can be attributed to a lack of professional development training on instructional design. In this context, perhaps the teachers did not have sufficient knowledge or skills in online lesson design. Keeping up with the latest in online educational technology is especially relevant for teachers who may not have been trained in such technologies during their undergraduate or graduate teacher training programs. Even in cases where educational technology was integrated in teacher training, having continuous professional development training in this area is crucial as technology will also keep changing.

Another contributing factor was that LMS training sessions were conducted solely by the EAP subject head, who also manages the EAP department. Such management roles involved among others, meeting with the upper management, performing administrative tasks, managing over 30 teachers, as well as overseeing all EAP courses offered under various intakes. Thus, juggling these various roles may have limited his capacity to conduct LMS materials development training in the manner and frequency that teachers needed.

Summary

In summary, the lack of professional development training emerged as an area of primary concern. Teachers' need for pedagogically based training is paramount if they are to make more informed decisions regarding lesson design. Examples of such necessary training include technological skills to design and upload materials, theoretical underpinnings of online materials design which can help them link theory with practice, and fundamentals of blended approaches to justify the rationale behind the lessons they create. Additionally, professional development initiatives should not rest solely on the EAP departmental manager with limited capacity to provide the rigorous and time-consuming training required for materials development work.

Pillar 3: Community and Knowledge Building

The third pillar of sustainable blended learning requires that teachers collaborate and pool their resources. The LMS Capacity Building Project presents a unique opportunity for teachers to build a community of practice, provided that they share a common objective and are supported by a conducive environment for collaborative initiatives.

The first issue under this pillar was the inflexibility of the LMS as a system for materials development, due to its hierarchical structure and the procedures involved in adding content. This inflexibility did not leave much room for teachers to experiment or make further content or layout changes (without repeating the necessary steps) once it was hosted on the platform. Therefore, its lack of user-friendliness may have discouraged teachers from conducting any collaborative work to further revise the content. The inherent inflexibility of the LMS as a system is also confirmed in the literature where it can be limiting for teachers who strive for more creative and dynamic lesson content (Stern and Willits (2011). Interview data from Sophia confirms this where she states:

The thing is ... that freedom has been taken away from us quite a lot so we haven't put any materials on as such as a group of teachers because it's now been designed in a way that you can't add anything. We had more freedom to just put our own stuff up before. (Sophia – Int. 1, Line 102)

The second issue is the limited time to foster collegiality and collaboration due to teachers' involvement in the LMS and other curriculum development projects. Charles recalled his past experience teaching in the August Intensive compared to the March intake the following year. He concluded that not only there was less

sharing of resources, but there was limited time for discussions and collaborations among teachers:

And we don't, we just don't have time to collaborate that much. There hasn't been as much sharing of resources this time as there was last time between teachers or talking about what you're doing because there's all these meetings, committee meetings. And then there's the rush to create materials ... (Charles – Int. 1, Line 133)

This sentiment was also shared by Sophia who explained that prior to the adoption of LMS as the main mode of technology, teachers collaborated in a more collegial fashion through a shared drive system. Here, all teachers had access to a repository of pooled materials which they could adapt according to students' needs. The absence of a designated platform for lesson instruction provided teachers with greater freedom to interpret the curriculum and create lessons according to their individual teaching styles, which they then shared with other teachers.

Summary

In summary, community and knowledge building practices were hindered by several factors. The first factor was the LMS's lack of flexibility and user-friendly features which affected teachers' collaborative initiatives, compared to the previous system of a shared drive. The second factor was the limited time the teachers had for collegiality and collaboration, due to their involvement in various curriculum development projects.

Pillar 4: Organisational Structures

The fourth sustainability pillar concerns organisational structures, which underscore two important aspects. The first is that the multi-level components which make up an organizational structure (macro, meso or micro), should all work together as a cohesive unit to achieve shared goals. The second aspect requires that the system (as well as its related components) are able to adapt to external or internal factors of change. The manner in which these changes are addressed can bring positive or negative impact to the overall system. Based on analysis of data, two themes emerged under this pillar.

Theme 1: Power relations

The first theme relates to meso-micro power relations between Ethan as the subject head and teachers involved in the LMS project. Besides Ethan's technical knowledge and skills, being in a management role also helped with

institutionalizing a culture of blended learning, particularly in the EAP department. As an important actor in the LMS Capacity Building Project, Ethan's role as technology "champion" (Heaton-Shrestha, May and Burke, 2009, p. 85) is crucial to sustainability as such individuals can exemplify technology adoption practices and provide the necessary skills and training.

As discussed, although Ethan's role as subject head was crucial, it also resulted in issues stemming from power relations. More specifically, the hierarchical structure of the LMS offered limited flexibility particularly if a model had been proposed by a stakeholder in a higher management position. In the context of the LMS project, Ethan had developed a model lesson for teachers to follow "in the format that [he] wanted on the LMS" (Charles – Int. 1, Line 70). Potentially, being influenced by a prescribed model lesson could impact teachers' planning and design of their own materials. Such tendencies were confirmed by Charles who stated that in certain cases, the teachers would come up with a lesson design that they felt Ethan would approve of, instead of what they felt was suitable.

Unsurprisingly, due to tensions in power relations, teachers being in a more subordinate position would choose to follow the subject head's prescribed format. However, this issue was exacerbated by two factors. The first was the fact most teachers were not as well-versed as Ethan when it came to materials design or operating in the Moodle environment. Teachers may have found it easier to follow the model, instead of investing time trialing more creative ways of presenting input or developing more varied tasks. The second issue was the time pressure of producing materials. While teachers may have been able to learn the technical skills on their own, they simply did not have enough time to do so. It appeared that not having as much technical knowledge as Ethan affected teachers' confidence to experiment with alternative designs or content beyond the model provided.

In light of these factors, the issue of power relations affects sustainability in that following a prescribed model may mean a lack of ownership. The developed materials may be based on a vision or pedagogical belief that the teachers may not share or even disagree with. Teachers may have been given autonomy in lesson design, but due to the highlighted factors, they may have based such lessons on the given model. Indirectly, this issue of power relations may affect the emotional investment teachers have towards materials development work, their vested interest in using the LMS, and the likelihood that they will continue to use technology in their own teaching.

Theme 2: Timing

The second theme of timing refers to time or duration when describing an event and/ or experience. In relation to the organisational structures pillar, timing refers to the simultaneous implementation of two curriculum development projects. The ensuing effects of these projects on teachers can be seen from two aspects.

The first aspect is the limited time to develop materials and lessons for the LMS capacity building project. According to teacher interviews, there was a typical four-week gap between the August and March intakes. In the past, teachers would use this gap for post-mortem meetings on the intake's strengths and weaknesses in order to refine lesson materials for the next course iteration. However, this process was disrupted by the unexpected development of the wider EAP Curriculum Development Project.

According to the Curriculum Development Project coordinator Hannah, the EAP Intensive program would undergo significant curriculum and technology integration changes as a pilot project for curriculum renewal of the Main program. This unexpected development meant that the August Intensive curriculum could no longer be used, and a complete redevelopment of the March Intensive needed to be done.

As summarised in Appendix 1, the pilot project began with a survey of the EAP Intensive program, followed by a meeting to determine the objectives and student exit attributes. Analysis of supporting documents and interview data revealed that the entire process was completed in the beginning of March. As a result, teachers only had two weeks to develop materials before the March Intensive program commenced. A quote from Sophia illustrates the time pressure faced by teachers at the time:

... because the modules are being written so close to time. You know we're not aware of what's coming up so you know so we're not really prepared for it at all... like the materials, it's kind of day to day a bit at the moment. (Sophia – Int. 1, Line 105)

The second aspect of timing is that on top of lesson preparation and teaching, teachers were also involved in multiple working groups under the LMS and Curriculum Development Projects. The delicate act of balancing project work and teaching meant that the quality of learning outcomes became compromised, especially with the tight deadlines imposed. As mentioned, lesson materials needed to be developed quickly since they would be used as the main teaching resource. Several quotes from the teachers illustrate this:

... this word of innovation you know gets thrown around a lot and should be, we should be really innovative but at the moment I don't always feel that it is ... because there's just not that timeline and there's not enough time to develop resources that are really rich. (Charles – Int. 1, Line 145-146)

However, what I have not loved is the enormous time pressure to do it while you're teaching ... everything else just keeps on going. And you know you've got to be prepared for class and students' work and all that sort of thing but fit in doing this materials development which if you ... in my view if you do it well, it's very, very time consuming ... (Jennifer – Int. 1, Line 14)

Theme 3: Lack of clear organisational structures

The third theme relates to the lack of a clear organizational structure, which is further categorized into three levels. To clarify, a further breakdown of levels is possible even within a level of focus, since the concept of levels is fluid and context dependent (Gruba, Cardenas-Claros, Suvorov, & Rick, 2016).

Macro level

The first category is at the macro level, where two teachers were involved in both the LMS and Curriculum Improvement Projects. Other than the loosely structured semi-autonomous group system, there was no clear method of running the various sub-projects. The lack of a clear work structure created a sense of uncertainty in terms of task distribution, teacher's roles, and interactions with other group members. The following extract illustrates the confusion faced by the teachers:

It would be nice to be able to tell you like ... that I have a sense of like I'm on this committee and on this committee and this is how everything fits in and this is where like ... it's very ... it's just kind of like slowly getting to know this wall of jungle rather than this clear sense of like these are how the committees structure works. (Charles – Int.1, Line 177)

Meso level

The next category is at the meso level and refers to the implementation of the LMS Capacity Building Project. At this level, the lack of a clear project leader led to teachers not having a clear idea on project reporting structures and who they should turn to for arising issues. Although teacher interviews revealed that

Ethan was essentially the project leader, this presented problems in immediacy and access. Since Ethan was also responsible for managing the EAP department's other intakes, this meant limited time to address any pressing issues related to the LMS project:

... it's been started off by Ethan and then there have been little teams that work on each different module. So, it's been just how we work it out ourselves as professionals you know which as you can imagine, it can get tricky. (Jennifer – Int. 1, Line 80-82)

Although there was an associate subject head (Melissa), her role involved the administrative, day-to-day running of the intake and not addressing LMS project issues. The lack of clear organisational structures was further exacerbated by Sophia who gradually took on the role of associate subject head after her heavy involvement in the LMS project. The gradual assumption of the role could be attributed to her close relationship with Ethan, who spent a considerable amount of time training her on the technicalities of uploading materials, such as coding and HTML. Through these sessions, it is possible that Sophia became Ethan's go-to person for passing on information to the other teachers. However, since the position was never formalised, she assumed the role but did not have the authority to act on it.

Micro level

The third category at the micro level related to teachers' assigned working groups. The lack of a clear delineation of roles and responsibilities caused friction among group members as they were unsure how to approach certain issues. With teachers operating at the same level, conflicts arose as they did not want to appear to be overstepping their boundaries. For example, if they felt that materials created by another teacher were not appropriate, they were careful not to raise the issue.

In addition, a further source of tension occurred between the roles of content developer and materials uploader which were designated to different teachers to streamline lesson development work. In this context, teachers realised that the materials they developed had been changed without any consultation. In other words, the materials hosted on the LMS did not match the teacher's original interpretation of the lesson. This situation frustrated teachers who found it disheartening to spend hours and hours developing materials, only for them to be changed beyond what they had originally intended; especially considering the huge amount of personal time invested in such work:

So, what happened with one of my colleagues was I spent a long time developing something and then my colleague changed it completely. And I thought, what a waste of time. (Jennifer – Int. 1, Line 66-67)

Summary

In summary, the three themes under this pillar were power relations, timing and the lack of clear organisational structures. In the first theme, the issue of power relations resulted in a lack of ownership for the developed materials, as the prescribed lesson was created by an authority figure who was comparably more technologically versed in lesson design. Therefore, teachers' loss of confidence may have resulted in lesson materials which conflicted with their pedagogical beliefs. The added pressure of time meant less opportunity for more creative lesson design. As for the second theme on timing, the unexpected development of the Curriculum Development Project presented another layer of complexity to the challenges faced by teachers in the LMS Capacity Building Project. With the significant time investment in simultaneous projects, this not only limited the time teachers had to develop lesson materials, but it also affected their day-to-day teaching responsibilities. The third theme under lack of clear organisational structures was evident at the macro, meso and micro levels. The macro level presented unique challenges for two teachers who were involved in multiple projects in the Intensive and Main programs. Without a clear structure on task distribution and committee roles, negotiating teacher involvement in such projects was confusing. The main issue at the meso level was the lack of an overall LMS project leader. The assumption of the associate subject head role without a formal appointment also created further tensions. At the micro level, the loose structure of the semi-autonomous groups, meant a lack of clarity in terms of members' roles and responsibilities, as well as a hesitation to provide critique, however warranted. Also evident was a sense of mistrust, with changes being made to developed materials without teachers' knowledge or consent, leading to further friction among group members.

DISCUSSION

In the spirit of systems thinking (Arnold & Wade, 2015), a view of the teacher capacity building initiative as a complex system of interacting components can provide insight into emerging issues, and the best course of action to address them. From these issues, possibly the major contributing factor is timing as this factor impacts on all other factors.

The first aspect of timing concerns investing the necessary time for proper planning of the LMS project. For example, rather than having teachers develop

required teaching materials as the course progresses, more time could have been allocated for the proper design and hosting of materials. Consequently, factoring the limited time available could have meant not fully adopting LMS as the new technology in the March Intensive intake. Rather, the previous system of a shared drive of resources with the LMS for quiz administration and assignment submissions, could have been maintained. In so doing, teachers could have taught the March Intensive in the way they were familiar with, leaving them with six months to focus on LMS materials development work for the next iteration of the course the following year.

Secondly, time limitations resulted in a lack of targeted, and continuous professional development training. Without a proper grounding on materials development work and gradually developing complex technical skills such as coding, it was difficult for teachers to conduct effective materials development work. Although a few training sessions were conducted prior to project commencement, teachers reported that they were insufficient and lacked follow-up sessions. Additionally, teachers needed time to get accustomed to using the LMS in a more nuanced way through the development of materials. Although the teachers did use the LMS previously, this was limited to the creation of folders which they used to organize their own materials.

A third aspect of time restrictions is the impact on building a community of practice, collegiality, and collaboration. Findings from the third pillar revealed that the department's adoption of the LMS greatly impacted teachers' collegiality and willingness to share resources. Additionally, being involved in multiple projects left little time for teachers to build the community of practice necessary for sustainable technology integration practices. As sub-components under the pillar of community and knowledge building, staff collegiality and resource sharing can go a long way in promoting the sustainability of blended learning.

The final aspect of timing related to teachers being involved in simultaneous curriculum development projects, while at the same time teaching. By having their focus shifted and fragmented across different projects, this added another layer of duties which took up the limited time teachers had. Therefore, certain provisions could have been made such as a reduction in class load or limiting the number of projects each teacher was involved in.

Limitations of the study

The main limitation relates to the scope of the study which was set at the meso or departmental level. The data collected primarily focused on how meso level stakeholders coped with the changes in technology adoption over a period of 12 months, particularly teachers who are at the heart of change as highlighted by

Kennedy and Levy (2009). Besides teachers, program administrators (Subject Head and Curriculum Review Project Coordinator) were also interviewed. From here, a limitation of the study is the exclusion of data from the students' point of view, whether this be from interviews or class observations.

It can be argued that students form an integral part of the classroom structure and excluding them could be likened to a missing part of a puzzle that could have yielded more comprehensive study outcomes, and an additional source of data triangulation. However, as a review study by Wang, Han and Yang (2015) has shown, research on blended learning has emphasised far more on student-related factors compared to teachers, learning support and institutional factors. Indirectly, this may justify the need for more meso level studies to provide a balanced perspective of blended learning and the factors that can help or hinder its continued success. Perhaps the imbalanced focus on learner-related studies signal a need for more studies on institutional factors, to contribute further to blended learning.

A related limitation is the exclusion of data from the macro or senior management level which could have yielded helpful insights regarding institutional policies and how these affect stakeholders at the meso level. Again, due to the limited scope of this study and its primary focus on the perspective of teachers, it was deemed best to focus on the meso level, acknowledging that factors at the macro and micro would be blurred in the process.

CONCLUSION

A close examination of the core issues revealed in the findings section can lead us to conclude whether the LMS teacher capacity building initiative makes blended learning sustainable in the EAP. From analysis of data mapped through the four pillars, it can be concluded that the main issues relate to a lack of proper training, project clarity and timing. In other words, the issues relate more to the actors involved in using such technology than the technology itself.

By focusing and identifying issues on the LMS as a system, this investigation revealed problems in the wider organizational system. More specifically, in the process of LMS project implementation, weaknesses in the socio-cultural aspects of the EAP department were identified. By viewing technology as a system of inter-related components, once the problems are identified, changes can be made to the system to achieve the desired outcomes.

Determining the sustainability of the LMS as a system is crucial because a system needs to be sustainable to be maintained in the long-term. By structuring this case

study and analyzing the data through the lens of blended learning sustainability (Blin et al., 2016), a case can be built to determine whether the LMS as a teacher capacity building initiative, helps to promote blended learning sustainability. In the context of this case study, it can be concluded that such an initiative was not sustainable, as revealed through the various issues raised by teachers involved. However, should the necessary time be invested in crucial areas such as project planning, professional development needs and an overall sense of project clarity through proper planning, improvements could be made for more successful implementation in future projects. By adopting a systemic view of technology integration, it is hoped that this case study has contributed to the limited literature on blended learning sustainability as highlighted by Blin et al. (2016).

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APPENDICES

Appendix 1 Cycles of action research

| Cycles | Stages | Interventions |
|---------------------------|-----------------------|---|
| One (Feb. 2017) | Planning | - Develop project plan |
| | | - Survey stakeholders |
| | | - Based on survey results, develop EAP Intensive program goals and objectives |
| | | - Alignment of EAP objectives with other foundation studies programs |
| | | - Communicate finalised syllabus to teachers of EAP and other subjects |
| | | - Develop plan to populate LMS platform |
| Two (Mar. – Jul. 2017) | Materials development | - Grouping of teachers to assigned themes |
| | | - Division of tasks |
| | | - Development of materials |
| | | - Transfer of developed materials into LMS/ online format |
| Three (Aug. 2017) | Evaluation | - Teacher feedback on materials developed |
| | | - Proposed changes/ refinement of materials |

Appendix 2

Interview Protocols

Teachers

1. What do you think of the LMS Capacity Building Project?
2. How do you think this project relates to the sustainability of blended learning at the college?
3. What is your role in the project?
4. What has your experience been so far being involved in the project?
5. Have you used the developed materials on the LMS? What are your experiences in using them?
6. What are the strengths and weaknesses of this project?
7. How do you think the LMS Capacity Building Project can be improved?
8. Are there any additional comments you want to make?

Subject Head

1. What do you think of the status and progress of the Curriculum Improvement Project so far?
2. What do you think of the LMS materials as a whole?
3. How do you think the incorporation of LMS affects the sustainability of blended learning?
4. Do you know whether the teachers have used the developed materials on the LMS? What do you think their experiences have been using the lessons/materials?
5. What are the strengths and weaknesses of this project?
6. How do you think the project can be improved in the future?
7. Are there any additional comments you want to make?

Curriculum Review Project Coordinator

1. Can you give some background information on the inception and development of the curriculum review project?
2. What is the organisational structure of the Curriculum Review Project Committee? What is your role in this project?
3. How do you think this project relates to the sustainability of blended learning at the college?
4. What has been your experience so far in coordinating it?
5. How have teachers responded to this project?
6. What is the status/progress of the project so far?
7. What have been the successes and challenges of this project?
8. How do you think this project can be improved in the future?
9. Are there any additional comments you want to make?

Questions for Further Discussion and Investigation

1. Why is it important to see technology ‘as a system’ and not simply as an add-on to any language curriculum?
2. Why does the study adopt a qualitative approach, and what are the main techniques used in data collection?
3. Thinking of the themes that have emerged from the study, can you see your own program having similar outcomes? Why or why not?
4. How does the study contribute to our current understanding of the sustainability of CALL?

[Research]

Chapter 2

Learner Training in Digital Language Learning for Pre-Service Translators and Interpreters

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Abstract

Given the importance of language learners' digital literacy skills in digital environments, there is a need for learner training in the use of digital technologies for language learning. Learner training can help learners develop language learning skills and strategies and become effective and independent language learners. This chapter presents a study examining the implementation of technical, strategic, pedagogical and contextual training offered through a series of face-to-face workshops for advanced language learners enrolled in Master programs of translation and interpreting at an Australian university. It describes the context of the training and discusses the training content and process. It then looks at the participants' responses to a digital literacy questionnaire administered in the beginning of the training. It also offers comparisons between the participants' attitudes and views of technology-enhanced language learning before and after the training based on quantitative and qualitative data collected through the digital literacy questionnaire and a post-training questionnaire. The results of the study suggest that learner training needs context-specific approaches and needs to offer more opportunities for learners to select and use digital tools and resources for their learning.

Keywords

Learner training, digital literacy, language learners, technology-enhanced language learning, translator and interpreter education

INTRODUCTION

Technology plays a central role in language education these days. As the use of digital technologies is gaining more attention in language learning, the need for learner training in digital language learning is gradually growing. Hubbard (2013) points out the importance of such learner training and argues that learner training can facilitate “more effective and efficient use of technology for language learning” (p. 164). Learner training should help learners develop language learning skills and strategies and become effective and independent language learners while helping them develop their digital literacy skills in digital learning environments.

In translator and interpreter education, the need for learning about technology is also emphasised. For example, Fictumova (2004) says, “For translators the advent of computers has meant a revolutionary change” (p. 43) and “Translators are required to be at the cutting edge of technological endeavour” (p. 44). Similarly, Brauer (2011) stresses that there is a need to “acknowledge, understand and embrace the digital revolution” and “learning is not an option”. She urges interpreters to “embrace technology and run with it”. These points raise the question of how to train and help translators and interpreters develop digital literacies for the enhancement of their linguistic and professional competence.

This chapter presents a study examining the implementation of learner training in computer-assisted language learning (CALL) offered through a series of face-to-face workshops for advanced language learners enrolled in Master programs of translation and interpreting at an Australian university. It describes the context of the training and discusses the content and process of the training. It then looks at the participants’ responses to a digital literacy questionnaire, which investigated their awareness of and experience with digital technologies and their level of digital literacy in the beginning of the training. It also explores the differences between the participants’ attitudes and views of technology-enhanced language learning (TELL) before and after the training based on quantitative and qualitative data collected through the digital literacy questionnaire and a post-training questionnaire.

LEARNER TRAINING AND LANGUAGE LEARNING

The need for learner training in second/foreign/additional language learning has been recently emphasised in the field of CALL. For example, Hubbard (2013) makes an evidence-supported case for learner training and argues that additional training is needed for the effective use of technology in language learning tasks and activities in TELL environments. For the implementation of mobile-assisted

language learning (MALL), Stockwell and Hubbard (2013) also say, “Some, possibly most, learners will need guidance and training to effectively use mobile devices for language learning” (p. 9). This recommendation is supported by Gobel and Kano (2014) who investigated Japanese university students’ use of digital technologies through a survey of 337 students in a Japanese context. They found that, while the students have a wide access to digital media and information and communication technologies (ICTs), particularly mobile phones, their use of digital technologies is limited and they do not know much about the ways of using the digital technologies for their language learning. They argue that the students could be labelled as mobile natives rather than digital natives (a term proposed by Prensky, 2001).

Romeo and Hubbard (2008) looked at technical, strategic and pedagogical components of learner training for an advanced English as a second language (ESL) listening comprehension course. According to them, technical training is concerned with “how to use the options and controls of both general and specific applications on the computer for language learning purposes”; strategic training explores “what to do to support certain learning objectives, including how to link sequences of strategies (or techniques) into learning procedures”; and pedagogical training covers “determining specific learning objectives and understanding why to use certain techniques and procedures to achieve those objectives” (p. 84). Romeo and Hubbard conclude that the overall benefit of CALL learner training outweighed the cost. In another exploratory study of learner training and learner engagement, similarly, Hubbard and Stockwell (2014) report that learner training based on technical, strategic and pedagogical training appeared to have a positive impact on Japanese university students’ English language learning experience in mobile learning. They found that the students took more responsibility for their own learning and participated in learning activities more actively.

Together with the benefits of learner training, the difficulties of learner training also need to be identified and considered in research and practice. Fisher (2012) states that learner training in CALL can be a difficult task because it “entails not only guiding learners to make good pedagogical decisions to facilitate their learning, but also instructing them how to use technological resources in support of those pedagogical decisions” (p. 28). Related to the development of learner training strategies and materials, specifically, Pomann and Hubbard (2008) describe a five-year project and highlight “the importance of setting language goals, giving more priority to collaborative reflection and debriefings, and incorporating learner strategy training into our regular classrooms on an ongoing basis” (p. 14). A key component of their CALL training was the use of reflection/debriefing journals for collaborative reflective learning.

The learner training reported in this chapter was developed and implemented in line with four domains of learner training: technical training (how to use); strategic training (what to do); pedagogical training (why to do); and contextual training (where and when to use). The first three components were adapted from Romeo and Hubbard (2008) and the fourth component was added to reflect contextual aspects based on target participants' own experiences, needs and situations. When the workshops were conducted, in other words, technical, strategic, pedagogical and contextual training in CALL was given to the participants.

THE STUDY

Aims

The study was proposed and developed through the collaboration between a translator/interpreter educator and a CALL specialist. As part of the study, a series of workshops was designed to introduce digital tools for language learning to postgraduate students in a translator and interpreter training course entitled Advanced Bilingual Enhancement and offered at a large public university in Australia. The course was considered as a practical course, which attempted to facilitate students' language enhancement in their respective working languages (Kim, 2014).

The study aimed to investigate advanced language learners' awareness of digital technologies for language learning and to examine the self-perceived effects of learner training on the use of digital technologies for their target language enhancement. The scope of the study was guided by the following research questions:

- To what extent are the participants aware of digital technologies for language learning?
- How capable are they of using digital technologies?
- How do digital technologies help them enhance the learning of their target languages?

Participants

Participants in the study were postgraduate students (pre-service translators and interpreters) who enrolled in the Advanced Bilingual Enhancement course. Table 1 shows profiles of 27 students (6 male and 21 female; mean age 25.9, ranging from 22 to 48 years old) who attended an orientation meeting and completed the digital literacy questionnaire in the beginning of the first workshop session. The

participants included twenty native speakers of Chinese (Mandarin), two native speakers of Japanese, two native speakers of Korean, two native speakers of English and one native speaker of Cantonese. They indicated that they had 5-26 years (an average of 14 years) of computer experience. Of the 27 students, 25 students attended all three workshop sessions. As a result, the 25 students' responses to the post-training questionnaire were analysed.

Table 1
Participant Profile

| | | |
|--------------------------------------|--|----------|
| Gender | Male | 6 (22%) |
| | Female | 21 (78%) |
| Average age | 25.9 years old (ranging from 22 to 48 years old) | |
| Native language (mother tongue) | Chinese (Mandarin) | 20 (74%) |
| | Japanese | 2 (7%) |
| | Korean | 2 (7%) |
| | English | 2 (7%) |
| | Cantonese | 1 (4%) |
| Average years of computer experience | 14 years (ranging from 5 to 26 years) | |

Note. N=27.

Materials and Procedures

Before the study, the research team received a formal ethical approval from the university where the learner training workshops were conducted. Data were mainly collected from two questionnaires: Son's (2015) Digital Literacy Questionnaire – Language Learners (DLQ-LL); and a post-training questionnaire. The first questionnaire contained questions related to the use of digital technologies, the level of digital literacy skills and factors affecting the use of digital technologies for learning purposes, while the second questionnaire contained questions related to the participants' experience with the learner training workshops in CALL. Each survey took about 15-20 minutes to complete. The participants' responses to the two questionnaires were analysed quantitatively and qualitatively. They included demographic information; self-assessment of technical skills; self-reported frequency of and familiarity with digital activities and tools; views on digital literacy and digital technologies; and comments on their experiences with the learner training.

The learner training workshops consisted of three face-to-face sessions, which were delivered in the format of 2-hour lecture and 1-hour tutorial in each session

per week for three weeks. When the workshop instructor was away in another city between the second session and third session, there was an additional 20-minute online meeting (video conferencing) to give the students an opportunity to experience synchronous computer-mediated communication (SCMC). The digital literacy questionnaire was administered in the beginning of the first workshop while the post-training questionnaire was administered at the end of the last workshop.

Table 2 shows the topics of each session of the workshops. The lectures widely explored the concept and development of CALL, online tools (Son, 2011), computer-mediated communication (CMC) activities, web-based language learning (WBLL) resources and mobile-assisted language learning (MALL) apps while the hands-on tutorials covered how to create and/or use some selected tools, activities, resources and apps. At the same time, a Moodle site was set up and open to all participants for additional information and discussion on the workshop activities and tasks.

Table 2

Topics of the Workshops

| Session | Workshop |
|-------------------------------------|---|
| 1 | Digital technology and language learning: An overview |
| 2 | Computer-mediated communication (CMC) and web-based language learning (WBLL); CMC tools and web resources |
| (Video conferencing – Zoom meeting) | |
| 3 | Mobile-assisted language learning (MALL); language learning apps |

In terms of the four domains of learner training, pedagogical training (why to do) and contextual training (where and when to use) were mainly conducted during the lectures while technical training (how to use) and strategic training (what to do) were mainly conducted during the hands-on tutorials. When a wiki was introduced to the participants, for example, the questions of why it is used and where and when it can be used were discussed during the first-hour lecture and then the questions of how to use it and what it can be used were discussed during the subsequent hands-on tutorial where the participants were instructed and guided to create a wiki themselves. At the same time, the participants were also encouraged to discuss the following questions: “How might the creation of a wiki support your language learning? How would you reflect on what and how you communicate via the wiki site? How do you think you can collaborate with others through the wiki?”

RESULTS

Digital Literacy Questionnaire

All participants stated that they own electronic dictionaries, smartphones, table computers and/or laptops. In terms of their previous experience with the computer, the participants indicated that they learnt how to use the computer in the first place mainly from their family (41%), teacher/trainer (30%), themselves (19%) and friends (11%). Also, their responses to the question of how to find out about new digital technologies indicated that they obtained the information largely from their friends (21 responses), websites (20 responses), social networks (13 responses) and family (8 responses) (see Table 3).

Table 3

Learning about Computers and Digital Technologies

| | | |
|--|-----------------|----------|
| Who taught you how to use the computer in the first place? | Family | 11 (41%) |
| | Teacher/trainer | 8 (30%) |
| | Yourself | 5 (19%) |
| | Friend | 3 (11%) |
| | Book | 0 (0%) |
| | Magazine | 0 (0%) |
| | Video | 0 (0%) |
| | Other | 0 (0%) |
| How do you find out about new digital technologies? (multiple responses allowed) | Friends | 21 |
| | Websites | 20 |
| | Social networks | 13 |
| | Family | 8 |
| | TVs | 7 |
| | Teachers | 6 |
| | Magazines | 5 |
| | Newspapers | 5 |
| | Email lists | 4 |
| | Blogs | 3 |
| | Books | 2 |
| | Radios | 0 |
| | Other | 0 |

Note. N=27.

Table 4 shows that most participants considered their level of typing skills as “Acceptable” (30%) or “Good” (37%); web search skills as “Acceptable” (30%) or “Good” (52%); computer literacy as “Acceptable” (44%) or “Good” (41%);

Internet literacy as “Acceptable” (41%) or “Good” (44%); and digital literacy as “Acceptable” (48%) or “Good” (26%). These results indicate that their overall level of self-perceived computing skills was at or above the Acceptable level.

Table 4
Self-Assessment of Computing Skills

| | | |
|---|--|--|
| Your own typing skills | Very Poor Poor Acceptable Good Very Good | 0 (0%) 3 (11%) 8 (30%) 10 (37%) 6 (22%) |
| You own web search skills | Very Poor Poor Acceptable Good Very Good | 0 (0%) 3 (11%) 8 (30%) 14 (52%) 2 (7%) |
| Your own computer literacy (the ability to use the computer) | Very Poor Poor Acceptable Good Very Good | 0 (0%) 2 (7%) 12 (44%) 11 (41%) 2 (7%) |
| Your own Internet literacy (the ability to use the Internet) | Very Poor Poor Acceptable Good Very Good | 0 (0%) 1 (4%) 11 (41%) 12 (44%) 3 (11%) |
| Your own digital literacy (the ability to use digital technologies) | Very Poor Poor Acceptable Good Very Good | 1 (4%) 4 (15%) 13 (48%) 7 (26%) 2 (7%) |

Note. N=27.

Table 5 and Table 6 show that the majority of the participants said “No” to the “Do” questions only about the possession of personal homepages and the easiness to learn by reading on the computer screen while most participants said “Yes” to all “Can” questions although a similar number of “Yes” and “No” responses were given to the question about the creation of web pages.

Table 5
Responses to “Do” Questions

| | | Yes | No |
|----|---|------------------|-----------------|
| 1 | Do you understand the basic functions of computer hardware components? | 24 (89%) | 3 (11%) |
| 2 | Do you have a personal homepage or a personal profile on the web? | 12 (44%) | 15 (56%) |
| 3 | Do you use keyboard shortcuts? | 23 (85%) | 4 (15%) |
| 4 | Do you use the computer for learning purposes? | 27 (100%) | 0 (0%) |
| 5 | Do you find it easy to learn something by reading it on the computer screen? | 10 (37%) | 17 (63%) |
| 6 | Do you find it easy to learn something by watching it on the computer screen? | 23 (85%) | 4 (15%) |
| 7 | Do you use social networking services? | 25 (93%) | 2 (7%) |
| 8 | Do you have any online friend you have never met in person? | 19 (70%) | 8 (30%) |
| 9 | Do you feel competent in using digital learning resources? | 17 (63%) | 10 (37%) |
| 10 | Do you have mobile apps you use for language learning purposes? | 24 (89%) | 3 (11%) |

Note. N=27.

Table 6
Responses to “Can” Questions

| | | Yes | No |
|----|---|------------------|----------|
| 1 | Can you change computer screen brightness and contrast? | 27 (100%) | 0 (0%) |
| 2 | Can you minimize, maximize and move windows on the computer screen? | 24 (89%) | 3 (11%) |
| 3 | Can you use a ‘search’ command to locate a file? | 27 (100%) | 0 (0%) |
| 4 | Can you scan disks for viruses? | 23 (85%) | 4 (15%) |
| 5 | Can you write files onto a CD, a DVD or a USB drive? | 23 (85%) | 4 (15%) |
| 6 | Can you create and update web pages? | 14 (52%) | 13 (48%) |
| 7 | Can you take and edit digital photos? | 26 (96%) | 1 (4%) |
| 8 | Can you record and edit digital sounds? | 21 (78%) | 6 (22%) |
| 9 | Can you record and edit digital videos? | 18 (67%) | 9 (33%) |
| 10 | Can you download and use apps on digital devices? | 25 (93%) | 2 (7%) |

Note. N=27.

In relation to the frequency of using computer and Internet applications, as shown in Table 7, many participants indicated that they use word processing programs, email, World Wide Web, text chatting and electronic dictionaries more frequently than other applications. Also, they tended to rate their skills for using word processing applications, presentation applications, learning management systems, social networking services, video sharing sites, web search engines and dictionary apps as “Good” or “Very Good” (see Table 8).

Table 7
Frequency of Using Computer and Internet Applications

| | | Very Frequently | Frequently | Occasionally | Rarely | Very Rarely | Never |
|----|--|--------------------|--------------------|--------------------|-------------------|-------------------|-------------------|
| 1 | Word processor | 9 (33%) | 16 (59%) | 2 (7%) | 0 (0%) | 0 (0%) | 0 (0%) |
| 2 | Email | 15 (56%) | 12 (44%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| 3 | World Wide Web | 20 (74%) | 3 (11%) | 4 (15%) | 0 (0%) | 0 (0%) | 0 (0%) |
| 4 | Graphics software | 0 (0%) | 6 (22%) | 15 (56%) | 6 (22%) | 0 (0%) | 0 (0%) |
| 5 | Database | 3 (11%) | 5 (19%) | 9 (33%) | 7 (26%) | 2 (7%) | 1 (4%) |
| 6 | Spreadsheet (for data organization) | 2 (7%) | 3 (11%) | 9 (33%) | 7 (26%) | 4 (15%) | 2 (7%) |
| 7 | Concordancer (for text analysis) | 0 (0%) | 2 (7%) | 7 (26%) | 7 (26%) | 4 (15%) | 7 (26%) |
| 8 | Language learning software (CD-ROM, DVD) | 0 (0%) | 5 (19%) | 4 (15%) | 8 (30%) | 8 (30%) | 2 (7%) |
| 9 | Language learning website | 3 (11%) | 6 (22%) | 9 (33%) | 6 (22%) | 2 (7%) | 1 (4%) |
| 10 | Language learning mobile app | 6 (22%) | 9 (33%) | 9 (33%) | 1 (4%) | 1 (4%) | 1 (4%) |
| 11 | Blog | 6 (22%) | 5 (19%) | 9 (33%) | 3 (11%) | 3 (11%) | 1 (4%) |

| | | | | | | | |
|----|-----------------------|--------------------|--------------------|-------------------|------------|-------------------|------------|
| 12 | Wiki | 4 (15%) | 15 (56%) | 5 (19%) | 2 (7%) | 0 (0%) | 1 (4%) |
| 13 | Text chatting | 16 (59%) | 8 (30%) | 2 (7%) | 1 (4%) | 0 (0%) | 0 (0%) |
| 14 | Voice chatting | 9 (33%) | 6 (22%) | 5 (19%) | 3 (11%) | 2 (7%) | 2 (7%) |
| 15 | Video conferencing | 3 (11%) | 5 (19%) | 4 (15%) | 5 (19%) | 8 (30%) | 2 (7%) |
| 16 | Computer game | 2 (7%) | 6 (22%) | 7 (26%) | 3 (11%) | 4 (15%) | 5 (19%) |
| 17 | Electronic dictionary | 19 (70%) | 7 (26%) | 1 (4%) | 0 (0%) | 0 (0%) | 0 (0%) |

Note. N=27.

Table 8
Self-Ratings of Skills for Using Computer and Internet Applications

| Working with: | | Very Good | Good | Acceptable | Poor | Very Poor | Do Not Know |
|---------------|---|------------|--------------------|--------------------|------------|------------|-------------|
| 1 | Word processing applications (e.g., MS Word) | 4 (15%) | 18 (67%) | 4 (15%) | 1 (4%) | 0 (0%) | 0 (0%) |
| 2 | Spreadsheet applications (e.g., MS Excel) | 1 (4%) | 6 (22%) | 16 (59%) | 3 (11%) | 1 (4%) | 0 (0%) |
| 3 | Database applications (e.g., MS Access) | 0 (0%) | 2 (7%) | 9 (33%) | 8 (30%) | 4 (15%) | 4 (15%) |
| 4 | Presentation applications (e.g., MS PowerPoint) | 2 (7%) | 15 (56%) | 9 (33%) | 1 (4%) | 0 (0%) | 0 (0%) |
| 5 | Communication applications (e.g., Skype) | 6 (22%) | 8 (30%) | 10 (37%) | 3 (11%) | 0 (0%) | 0 (0%) |
| 6 | Learning management | 6 (22%) | 10 (37%) | 10 (37%) | 1 (4%) | 0 (0%) | 0 (0%) |

| | | | | | | | |
|----|---|--------------------|--------------------|--------------------|-------------------|------------|------------|
| | systems (e.g., Moodle) | | | | | | |
| 7 | Virtual worlds (e.g., Second Life) | 1 (4%) | 4 (15%) | 8 (30%) | 8 (30%) | 1 (4%) | 5 (19%) |
| 8 | Social networking services (e.g., Facebook) | 6 (22%) | 11 (41%) | 8 (30%) | 1 (4%) | 1 (4%) | 0 (0%) |
| 9 | Blogs (e.g., Blogger) | 4 (15%) | 9 (33%) | 10 (37%) | 2 (7%) | 1 (4%) | 1 (4%) |
| 10 | Wikis (e.g., PBworks) | 4 (15%) | 7 (26%) | 7 (26%) | 5 (19%) | 0 (0%) | 4 (15%) |
| 11 | Podcasts (e.g., Apple Podcasts) | 0 (0%) | 9 (33%) | 10 (37%) | 2 (7%) | 1 (4%) | 5 (19%) |
| 12 | File sharing sites (e.g., Dropbox) | 1 (4%) | 9 (33%) | 10 (37%) | 4 (15%) | 0 (0%) | 3 (11%) |
| 13 | Photo sharing sites (e.g., Picasa) | 4 (15%) | 5 (19%) | 11 (41%) | 2 (7%) | 1 (4%) | 4 (15%) |
| 14 | Video sharing sites (e.g., YouTube) | 7 (26%) | 9 (33%) | 8 (30%) | 2 (7%) | 0 (0%) | 1 (4%) |
| 15 | Web design applications (e.g., Dreamweaver) | 0 (0%) | 4 (15%) | 9 (33%) | 5 (19%) | 3 (11%) | 6 (22%) |
| 16 | Web search engines (e.g., Google) | 9 (33%) | 12 (44%) | 5 (19%) | 1 (4%) | 0 (0%) | 0 (0%) |
| 17 | Dictionary apps (e.g., Dictionary.com) | 12 (44%) | 12 (44%) | 2 (7%) | 1 (4%) | 0 (0%) | 0 (0%) |

Note. N=27.

The participants' mean score of the general digital literacy test (Section IV of the DLQ-LL) was 7.22 out of 10. The easiest questions to them (93% correct each) were about video file types and Bluetooth while the most difficult question to them (only 15% correct) was about the process of confirming usernames and passwords on the computer (see Table 9).

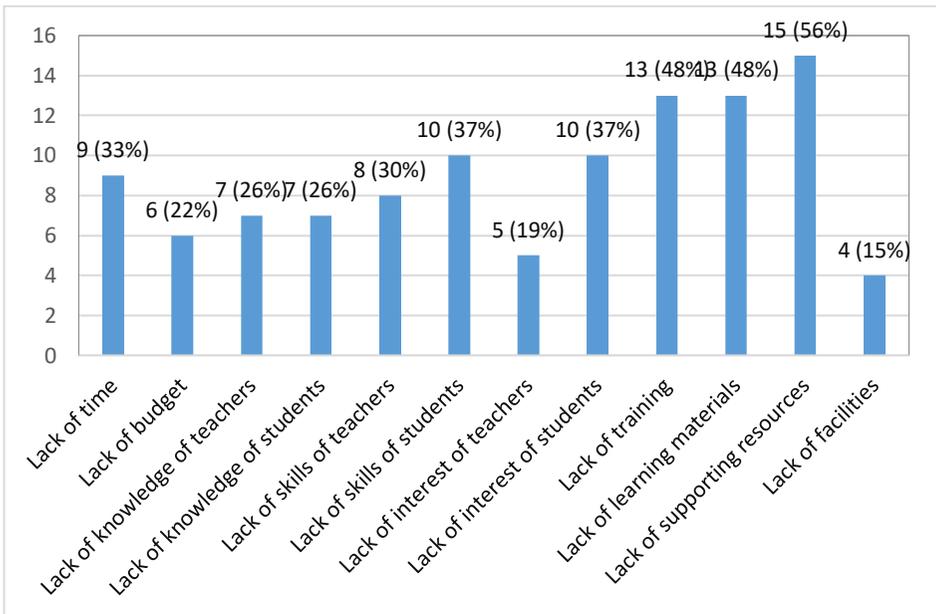
Table 9

Results of the Digital Literacy Test (Section IV)

| | |
|---|---|
| Mean score | 7.22 (out of 10) |
| The easiest question (93% correct) | Q3. What are AVI and MP4 examples of? Q5. What is Bluetooth? |
| The most difficult question (15% correct) | Q8. What is the process of confirming your username and password on the computer? |

Note. N=27.

Figure 1 shows that the most common factors affecting the use of digital technologies for language learning in the participants' context include the lack of supporting resources (56%), lack of training (48%) and lack of learning materials (48%). These results confirm the need for learner training.



Notes. N=27; multiple responses allowed

Figure 1. Factors affecting the use of digital technologies for language learning.

As shown in Table 10, the participants' attitudes toward the use of digital technologies were generally positive. The mean rating of 4.3 (out of 5) in the fifth and eighth statements indicates that they have a willingness to learn more about digital technologies and see the importance of improving their digital fluency.

The mean rating of 4.2 in the first and ninth statements, also, indicates that they enjoy using digital devices and think that their learning can be enhanced by using digital tools and resources. In addition, they supported the inclusion of training for TELL in language education programs (#10) and agreed that they feel comfortable using digital devices (#2) while they tend not to feel threatened when others talk about digital technologies (#6).

Table 10

Mean Self-Ratings of Views and Attitudes toward the Use of Digital Technologies before Training

| | |
|---|-----|
| 1. I enjoy using digital devices. | 4.2 |
| 2. I feel comfortable using digital devices. | 4.0 |
| 3. I am aware of various types of digital devices. | 3.9 |
| 4. I understand what digital literacy is. | 3.4 |
| 5. I am willing to learn more about digital technologies. | 4.3 |
| 6. I feel threatened when others talk about digital technologies. | 2.3 |
| 7. I feel that I am behind my fellow students in using digital technologies. | 2.6 |
| 8. I think that it is important for me to improve my digital fluency. | 4.3 |
| 9. I think that my learning can be enhanced by using digital tools and resources. | 4.2 |
| 10. I think that training in technology-enhanced language learning should be included in language education programs. | 4.1 |

Notes. N=27. 1 Strongly Disagree; 2 Disagree; 3 Uncertain; 4 Agree; 5 Strongly Agree

Post-Training Questionnaire

The post-training questionnaire consisted of two sections: Section I – (1) self-assessment of computing skills and (2) views and attitudes toward the use of digital technologies; and Section II – open-ended questions. The items in Section I were the same as the ones in the DLQ-LL, which was administered before the learner training.

Table 11 shows that most participants considered their level of typing skills as “Acceptable” (36%) or “Good” (36%); web search skills as “Acceptable” (32%) or “Good” (64%); computer literacy as “Acceptable” (40%) or “Good” (48%); Internet literacy as “Acceptable” (28%) or “Good” (64%); and digital literacy as “Acceptable” (56%) or “Good” (40%). These findings are similar to the results of the DLQ-LL while the percentage of the participants who chose the Good level was highly increased, particularly in web search skills, Internet literacy and digital literacy.

Table 11
Self-Assessment of Computing Skills after Training

| | | |
|---|--|---|
| Your own typing skills | Very Poor Poor Acceptable Good Very Good | 0 (0%) 0 (0%) 9 (36%) 9 (36%) 7 (28%) |
| You own web search skills | Very Poor Poor Acceptable Good Very Good | 0 (0%) 0 (0%) 8 (32%) 16 (64%) 1 (4%) |
| Your own computer literacy (the ability to use the computer) | Very Poor Poor Acceptable Good Very Good | 0 (0%) 3 (12%) 10 (40%) 12 (48%) 0 (0%) |
| Your own Internet literacy (the ability to use the Internet) | Very Poor Poor Acceptable Good Very Good | 0 (0%) 2 (8%) 7 (28%) 16 (64%) 0 (0%) |
| Your own digital literacy (the ability to use digital technologies) | Very Poor Poor Acceptable Good Very Good | 0 (0%) 1 (4%) 14 (56%) 10 (40%) 0 (0%) |

Note. N=25.

After the learner training, the participants showed more positive attitudes toward the use of digital technologies. As shown in Table 12, they agreed with all positive statements: the mean rating of 4.4 in #1, #5 and #9; 4.3 in #8 and #10; 4.2 in #2; and 4.0 in #3 and #4. Their responses to the negative statements also showed some improvement: the mean rating of 2.2 in #6 and 2.4 in #7. Overall, the participants agreed that they would like to use and learn more about digital devices, tools and resources and their learning could be enhanced by learner training in CALL. They also felt that their understanding of digital literacy and their confidence in the use of digital technologies for language learning were increased as an outcome of the learner training.

Table 12

Mean Self-Ratings of Views and Attitudes toward the Use of Digital Technologies after Training

| | |
|---|-----|
| 1. I enjoy using digital devices. | 4.4 |
| 2. I feel comfortable using digital devices. | 4.2 |
| 3. I am aware of various types of digital devices. | 4.0 |
| 4. I understand what digital literacy is. | 4.0 |
| 5. I am willing to learn more about digital technologies. | 4.4 |
| 6. I feel threatened when others talk about digital technologies. | 2.2 |
| 7. I feel that I am behind my fellow students in using digital technologies. | 2.4 |
| 8. I think that it is important for me to improve my digital fluency. | 4.3 |
| 9. I think that my learning can be enhanced by using digital tools and resources. | 4.4 |
| 10. I think that training in technology-enhanced language learning should be included in language education programs. | 4.3 |

Notes. N=25. 1 Strongly Disagree; 2 Disagree; 3 Uncertain; 4 Agree; 5 Strongly Agree

Through their responses to the six open-ended questions in Section II, the participants generally expressed the view that they want to improve their digital learning skills themselves further with the digital tools and resources, which were introduced in and learnt from the workshops. All participants appreciated the opportunity to participate in the workshops (lectures and hands-on tutorials) and improve their digital literacy skills. Some common responses to each open-ended question are given below.

Q. This semester you have had special workshops on technology-enhanced language learning (TELL). As a result of participating in the digital technology sessions, do you think that you have developed confidence in using digital tools and resources? If yes, how? If no, why not?

Yes, because the lecturer recommended some good digital tools to us. After using them I found I am benefited a lot from them. (Participant 5)

Yes. I was not used to use digital tools in my study, but after the workshops, I realised that digital tools can help me a lot with my study. All the apps and websites are so convenient. (Participant 9)

Yes, now I know that there are so many resources on the Internet I can use to improve my English. The tools are very helpful for practical use. (Participant 11)

Yes. Heaps of digital tools and resources have been introduced to me, quite a few of which are beyond my expectation. Compared to traditional resources, they arouse interest more easily, and interest is the main motivation for learning. (Participant 13)

Yes. From TELL, I have found lots of useful digital tools and resources. These tools and resources help me improve my personal skills, which I can use in my personal project. (Participant 16)

Q. Do you think that the technology sessions have improved your engagement in TELL activities? If yes, how? If no, why not?

Yes. Before I took this kind of session, I thought software and apps distract me to some degree. Now, I have discovered many tools that can meet my demand. I will keep using what I've learned in the sessions. (Participant 1)

Yes. I learnt various learning websites and tools in the lectures which can contribute to my study. (Participant 7)

Yes, because we had found many websites and shared our ideas during the technology sessions. I had fun in this activity. (Participant 14)

Yes, because I didn't know digital technologies that can be used as a learning tool. After I was introduced various digital technologies, I was amazed by them. I will keep using them for sure. (Participant 22)

Yes. I didn't have much knowledge about digital tools and resources. Now I have intention to know more about them and test and find the ones that can help my language learning. (Participant 25)

Q. Do you think that the technology sessions have motivated you to take greater responsibility for your learning in digital environments? If yes, how? If no, why not?

Yes! Nearly all of my course study & language learning are based on the technical support. These sessions made me realise how the digital tools can be further applied in language learning. (Participant 6)

Yes. After the technology sessions, I'm willing to learn more about digital tools and resources. (Participant 10)

Yes, especially as a future translator, I should use and learn digital technology, and I have learnt the importance and necessity of technology using skills through the sessions. (Participant 11)

Yes. I should make full use of digital resources. (Participant 17)

Yes. I didn't often use digital tools to study because I have never known such useful apps and websites. However, I know them now, therefore, I will get more knowledge in digital environments. (Participant 20)

Q. What did you find were the most helpful/effective aspects of the technology sessions?

How to use online tools and why we need to learn it. (Participant 2)

Through these sessions, I know more apps which could help me learn English. And there are also some apps that I didn't take advantage of before. (Participant 5)

About how the language learning process can be linked with digital technology, because I haven't realized about this link between language learning and the technology. (Participant 11)

The websites and apps which can help me improve my English skills. (Participant 16)

The introduction to computer-assisted language learning and corpora sections. (Participant 19).

Q. What did you find were the least helpful/effective aspects of the technology sessions?

It depends on people's motivation. If you don't want to use it, no matter how excellent they are, they can't help. (Participant 4)

Maybe we learned too much stuff in such a short time. It's hard to absorb all of it. (Participant 10)

The information provided may be too much, so I need more time to digest. (Participant 13)

There are too many resources, thus it is hard to choose the most appropriate one. (Participant 20)

None. (Participants 1, 11, 17, 19 and 25)

Q. If you have any other comments you would like to make, please write them below.

Thank you for your efforts! (Participant 6)

Thank you for your lectures. (Participant 8)

Thank you! It helped a lot. (Participant 11)

I received many advantages from the technology sessions. (Participant 18)

Thank you very much for your time and effort for flying down to Sydney. I received your lectures and tutorials a lot. (Participant 23)

DISCUSSION

The results of the study indicate that the participants seemed to have a relatively high level of digital literacy but little information on digital tools and resources for learning. While they were familiar with word processing programs, email, World Wide Web, text chatting and electronic dictionaries, they had little experience with concordancers, language learning software and video conferencing in particular. Many participants considered the lack of supporting resources, lack of training and lack of learning materials as the most significant factors affecting their use of digital technologies for language learning. This implies that more opportunities to learn about digital tools and resources for language learning need to be offered to them.

The findings support the importance of learner training and the need for more research endeavours that were previously highlighted in Hubbard (2013). For the effective implementation of learner training, it should be necessary to choose and present good contents for the training while considering participants' needs and interests consciously and appropriately. The learner training workshops described in this chapter were organised in the way of providing the participants with technical, strategic, pedagogical and contextual training for the use of digital tools and resources for language learning. Accordingly, the contents of the workshops were delivered to help the participants understand what they can do, why they need to do, where and when they can find and use the tools and resources and how they can use them.

After the workshops, the participants showed more competence in Internet and digital literacy and more positive attitudes toward digital language learning. They also indicated high satisfaction with the workshops that were specifically relevant to their context. They admitted that through the workshops they were able to develop their confidence in using digital tools and resources, improve their engagement in TELL activities and realise greater responsibility for their own learning (as similarly reported in Hubbard & Stockwell, 2014) even though a few participants felt that they received too much information in a short time. This positive experience should be of help to them in improving their language learning and practice with digital technologies.

It was also found that the workshops helped the participants increase their interest and willingness to use digital technologies for language learning and explore a number of digital tools and resources actively for themselves. The participants found online tools, educational websites and mobile apps useful and valued the opportunity to see how the tools, websites and apps can be linked with language learning. These outcomes are encouraging and suggest that it should be meaningful to make more attempts to provide more evidence on the effects of learner training on digital language learning. Further examination of learner training in similar and different contexts is warranted.

Limitations of the study include the small sample size with only one group at one university and a short period of training time with only three three-hour face-to-face workshops. Thus, the number and coverage of the learner training were limited and the findings of the study cannot be generalised. However, it was valuable to see how a context-specific approach to learner training works and find out what pre-service translators and interpreters need in order to enhance their language development in digital learning environments.

CONCLUSION

The study reported in this chapter explored the implementation of learner training in digital language learning in a specific context and investigated the status of the participants' use of digital technologies and the outcomes of the learner training workshops specially designed for digital literacy development in translation and interpreting education. The learner training workshops provided a group of advanced language learners with unique opportunities to learn and practice digital tools and resources and increased the learners' motivation to use the tools and resources although they were offered in a somewhat limited way. They also helped the participants improve their perceived level of digital literacy skills and attitudes toward the use of digital technologies for language learning and development. More studies on the impacts of guided learner training in CALL on

language learners' overall performance are recommended. Those studies will improve our understanding of learner training and ways of implementing learner training programs with more confidence and competence in the use of digital technologies for learning purposes.

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Questions for Further Discussion and Investigation

1. What do you think is the value of learner training in the language classroom?
2. What does digital literacy mean to you? In which way is it related to CALL?
3. Do you think that teachers need to train students to learn differently in CALL environments? If yes, why? If no, why not?
4. Out of the four domains of learner training discussed in this chapter, which domain do you think is the most important one in your context? Why?

Chapter 3

MOOC-Based Learning Environments: A Comparison of Conventional, Synchronous and Flipped Classrooms

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Abstract

One of the significant domains that received special attention in educational research is educational technology. Modern technologies have created new modes of learning and teaching which are provided to obviate learning obstacles. Online learning environments are increasingly important in higher education as they allow learners and instructors to enhance face-to-face interactions. To answer the questionable concerns of the field, this study focused on conducting massive open online courses (MOOCs) in a foreign language context. There are different categories of online environments: namely, xMOOCs, cMOOCs, and flipped classrooms. The current study compared the effectiveness of cMOOC and flipped educational settings with that of conventional settings. Three conversation courses were conducted in these three modes of learning. To elicit teachers' and learners' perceptions of MOOC-based learning environments and possible challenges of these learning environments, the researchers conducted semi-structured interviews with eight learners and two teachers. A researchers-made proficiency test was administered at the end of the course to compare the performance of learners in these three learning environments. The analysis of quantitative data indicated that learners in the flipped classroom outperformed those in conventional and cMOOC classrooms. The analysis of qualitative data showed that both cMOOC and flipped classrooms were well-perceived by the learners. However, there are several challenges as well as implications that can be applied as adequate guidance in teacher education programs and teacher development courses.

Keywords

Massive open online course, flipped classroom, xMOOCs, cMOOCs, online learning, blended learning

INTRODUCTION

Distance education is one of the major concerns of teachers and researchers in higher education. Blended Learning (BL), Massive Open Online Courses (MOOCs), and Flipped Classrooms (FCs) are some of the new modes of teaching environments (Spoelstra, Rosmalen, Houtmans, & Sloep, 2015). With the advent of technology, these technological educational environments have received special attention in language teaching (Hew & Cheung, 2014). There is a growing interest for investigating the effectiveness of MOOCs and FCs as complementary resources in enhancing the quality of teaching and learning. The major objective of MOOCs is unrestricted participation and unlimited access via the Internet (Jung & Lee, 2018). It supports community interaction by providing interactive forums in which teachers and learners can communicate freely (Fridriksdottir, 2017, Nami, Marandi, & Sotoudehnama, 2018). The model of MOOCs was primarily developed by the Open Educational Resources (OER) movement that defined MOOCs as a public domain forum in which participants have free Internet access and they can use, adapt, modify, and change materials with no restriction. The MOOC was coined by Dave Cromier (2008), and Stephon Downes (2008) classified it into two categories: connectivist Massive Open Online Courses (cMOOCs), creative and synchronous learning environments, and eXtended Massive Open Online Courses (xMOOCs), asynchronous settings (Conijn, Van den Beemt & Cuijpers, 2018). xMOOCs mainly uses a teaching model focused on the diffusion of information, with high quality content delivery, computer-based feedback, and computerization of all key transactions between contributors and the learning platform. There is almost no direct interaction between an individual learner and the teacher in the learning environment. In contrast, cMOOCs have a very different educational philosophy from xMOOCs, in that cMOOCs place heavy emphasis on networking and in particular on strong content contributions from the learners themselves. Cromier (2008) and Downes (2008) believed that xMOOCs is very similar to digital textbooks and TV shows. Numerous studies have been conducted to explore the challenges of embedding MOOCs in traditional educational settings. Many of them confirmed the positive impact of MOOCs on enhancing teaching quality and learners' outcomes (Riehemann & Jucks, 2018).

The FC as another newly developed mode of learning might influence teaching classrooms. The central function of this new mode of instruction is time management or a more effective use of classroom time (Abeysekera & Dawson,

2015; Cukurbasi & Kiyici, 2018). In this environment, learners have access to the learning materials prior to the actual classroom; consequently, learners in the class are active participants of classroom activities such as cooperative learning, team-based learning, problem-solving activities, and other learner-centered educational tasks that are the focus of new approaches to language teaching. In other words, flipping the classroom provides instructional materials that can be recordings of lectures, videos, and key readings prior to attending classes, and then expands real classroom time to engage in more active, interactive activities based around the instructional materials (Buitrago & Diaz, 2018). Major modifications of FC against conventional and traditional face-to-face classrooms are: (a) technology-based instruction which means the use of technology in content delivery and other educational activities; (b) modification in time management and the use of time inside and outside of the classroom; (c) modification in classroom activities; traditional homework is now considered as in-class activities; and (d) active and interactive in-class activities (Comber & Brady-Van den Bos, 2018).

Many researchers (e.g., Davis, Chen, Hauff, & Houben, 2017; Hao, 2017; Lai & Hwang, 2016; Yilmaz, 2017) have raised some questions concerning the new role of teachers, materials, curriculum and learning design, and learners' participation in MOOCs and FCs. Although the findings of previous studies on MOOC and FC model of instruction show some advantages, they show some differences between learners' achievements. For effective implementation of MOOCs and FCs, it is necessary to investigate the roots of contrast and difference among the findings. Reviewing the literature, it is revealed that there is a need for more research studies in pinpointing salient factors that might influence learner outcomes in MOOCs and FCs as new modes of instruction. Therefore, the current study compared MOOCs, FCs, and conventional language learning environments to discover the effect of these new modes of learning on language learners' achievement.

LITERATURE REVIEW

The emergence of MOOCs and FCs as new modes of instruction inspired teachers and researchers to focus on how and what questions about the effectiveness of these new environments, how and what questions about new roles of teachers, learners, and materials in educational design and theoretical approaches to teaching. Reviewing the literature revealed that numerous researchers have considered different dimensions of MOOCs such as learners' engagement (Fridriksdottir, 2017; Glassman & Kang, 2016; Riehemann, Hellmann, & Jucks, 2018), intercultural communication and interaction and online exchanges (Mellati & Khademi, 2015, 2018, 2019; Spoelstra, Rosmalen, Houtmans, &

Sloep, 2015), learning design (Bralic & Divjak, 2018; Buhl, Andreasen, & Pushpanadham, 2018), instructional methods (Chen et al., 2016), teacher and learner motivation (Deshpande & Chukhlomin, 2017; Hew & Cheung, 2014; Hockly, 2015), teachers' roles (Gil-Jaurenal & Dominguez, 2018; Greene, Oswald, & Pomerantz, 2015), language styles (Riehemann & Jucks, 2018), online learning strategies (Davis, Chen, Hauff, & Houben, 2017), and other predicted factors in learners' language achievement (Atai & Dashtestani, 2013; Conijn, Van den Beemt, & Cuijpers, 2018; Torres & Beier, 2018). Some of these studies are presented in the next section.

MOOCs

Learners' engagement in MOOC programs is one of the major concerns in conducting such online courses. Riehemann, Hellmann and Jucks (2018) investigated the relevance of individual participation in xMOOCs. They claimed that being a participant of a crowded learning environment might influence learning activities negatively. The findings of this study recommended that telling learners that their participation in an xMOOC is relevant and useful might be an effective way to enhance their engagement in course tasks. In a similar study, Fridriksdottir (2017) explored learners' retention and overall engagement patterns in MOOC and found that understanding the nature of the online environment and new challenges such as learners' performance and their engagement in online activities are significant factors that determine the success of any online program.

Avgousti (2018) explored the role of intercultural communicative competence in online exchanges and found that MOOC and other online learning platforms provide extraordinary opportunities for learners to become familiar with their own culture at the first glance and know other cultures. They can evaluate their understanding about cultural points that were somehow impossible for them in conventional classrooms. Online tools offered them the chance to meet and talk to foreigners and develop their intercultural sensitivity. Bralic and Divjak (2018) investigated integrating MOOCs in traditionally taught courses. The qualitative findings of the study demonstrated that the majority of learners believe that the experience of learning in online settings provide them a new learning experience. The learners found cooperative learning and team working as the major features of online settings by which they can solve their problems in real life situations.

Buhl, Andreasen, and Pushpanadham (2018) focused on different theoretical approaches to learning design and discussed an amalgamation of theoretical perspectives. They concluded that combination of MOOCs with traditional classes leads into the creation of new conditions for learning design. Numerous factors are interrelated in this complex issue. Context, culture, individual

differences, and pedagogical philosophy modify the role of teacher, learner, and content in technological learning environments. There are different learning designs that reflect learners' educational needs from various perspectives. They found that there is a departure from teacher-centered learning approach towards a learner-centered approach. Learners are self-directed and they can manage their learning process. However, they need their teachers' scaffolding to reach their potential in the new learning environment. Focusing on technological developments, without considering teacher scaffolding role and learners' needs, may fail to meet learners' learning developments. Deshpande and Chukhlomin (2017) investigated the factors that affect learners' motivation in MOOCs. They found that different factors including accessibility, content, and interactivity had a significant impact on learner' motivation to learn. Learners' believe that learning resources such as video-based lectures, web-links, and video-based interviews were valuable to support effective learning and increase their motivation. The most interesting feature of MOOCs from learners' point of view was self-controlling which help them to take the control of the process of their own development.

Teachers might play a significant role in these education changes. Gil-Jaurena1 and Dominguez (2018) analyzed main changes that teachers are faced in MOOCs. They found a two-sided argument that the key factor in enrolling effective performance of teachers in MOOCs is their awareness of the new learning environments. In settings in which teachers know about the nature of the program, they can cooperate with learners and support them effectively in online settings. Another side is teachers who do not know about MOOCs and consider it as an obstacle in taking control of learners and program. Greene, Oswald, and Pomerantz (2015), on the other hand, investigated predictors of achievements in a MOOC and demonstrated that factors such as level of commitment, expected number of hours devoted to the MOOC, and prior level of schooling are among the factors that predict achievement in MOOC settings.

Many studies (e.g., Dooly, 2018; Lam, Hew, & Chiu, 2017; Li & Zhu, 2017) have confirmed the effectiveness of MOOCs in higher education while many others (e.g., Alavi, Borzabadi, & Dashtestani, 2016; Comber & Brady-Van den Bos, 2018) raise debatable questions which need more studies to enhance researchers' and teachers' understanding of this mode of instruction. Lam, Hew, and Chiu (2017) investigated the effectiveness of a blended learning approach— involving the thesis, analysis, and synthesis key (TASK) procedural strategy; online Edmodo discussions; online message labels; and writing models—on student argumentative writing in a Hong Kong secondary school. They found a significant improvement in students' writing using the blended learning approach. Li and Zhu (2017) examined dynamic patterns of interaction that two small groups (Group A and Group B) of ESL students exemplified when they

performed two writing tasks. The dynamic interactions within small groups were explained from a sociocultural theory perspective. Participants' emic perspectives from interviews and reflection papers supplemented with wiki discourse revealed that three sociocultural factors help account for the variations of interaction patterns: dynamic goals, flexible agency, and socially constructed emotion. This study reinforced the role of sociocultural theory in exploring and explaining peer interactions in the online writing task environment.

In contrast, some researchers believe that there are many barriers in conducting online learning environments. Alavi, Borzabadi, and Dashtestani (2016) investigated perceptions of Iranian English for Academic Purposes (EAP) students on their computer literacy levels. A total of 641 undergraduate students of civil engineering and 34 EAP instructors participated in the study. Data collection instruments included questionnaires and semi-structured interviews. The results of the study highlighted that computer literacy occupies a significant role in tertiary students' academic and EAP achievement. It appeared that there are several constraints and barriers which would discourage EAP students from promoting their computer literacy and using computers for learning EAP. Araujo, Otten, and Birisci (2017) believe that changing learning environment can change the role of teachers and learners in the new learning environments. Every change is a challenge for teachers, researchers, and even curriculum designers. Comber and Brady-Van den Bos (2018) investigated the factors that make new mode of instruction more effective. They found that new modes of instruction discouraged a significant number of students from attending.

Flipped Classrooms

Just like MOOC studies, there are many studies concerning FCs in the literature that consider different aspects of teaching in this mode of instruction. Teachers' and learners' perceptions of FCs (Adnan, 2017; Lee & Wallace, 2017), teachers' and learners' motivation (Asiksoy, 2017), learner engagement (Burke & Fedorek, 2017; Comber & Brady-Van den Bos, 2018; Davies, Dean, & Ball, 2013; He, Holton, Farkas, & Warschauer, 2016; Hung, 2014), and teachers' and learners' readiness (Hao, 2017; Lai & Hwang, 2016; Yilmaz, 2017) were among them which is summarized in the following studies. Araujo, Otten, and Birisci (2017) explored teachers' motivations, conceptions, and experiences with flipped instruction. They stated that teachers were motivated to flip the teaching content in the classrooms to the benefit of learners; however, they argued that teachers had some challenges in conducting effective FC. They demonstrated that teachers' perceptions of interaction among teachers, learners, and course content shape to a great extent teachers' motivation to flip the teaching content.

Burke and Fedorek (2017) compared self-reported student engagement in three different course modalities: a conventional face-to-face lecture class, a flipped class, and an online class. The findings of the study indicated that learners in the flipped class reported higher responses on learner engagement questions than either the learners in the conventional class or the online one. They argued that learners had a higher engagement because the flipped classroom is based on the foundation that learners arrive to class prepared and ready to learn. The foundation of FCs largely relies on the student participation in active learning and the student must have attempted to learn the material prior to class time. Comber and Brady-Van den Bos (2018) investigated factors which make FCs more effective. They classified these factors into two categories: practical factors and personal factors. Practical factors deal with possibility and practicality issues of FCs that include opportunities for engagement, chances for peer learning, staff awareness, staff understanding of how to create an effective atmosphere, deduction of sufficient time, and the accessibility of the required technology. Personal factors contributing to individual differences include staff perceptions of FCs and learners' characteristics, learners' self-awareness of their own learning, and learners' willingness to participate in activities inside and outside of the classroom.

Hao (2017) explored learners' perspectives of FCs and their readiness to participate in FCs. He surveyed 84 undergraduate learners which their major was education. After the implementation of flipped instruction for a semester, surveys were administered in two FCs that were taught by the same teacher. The findings of the study demonstrated that learners' overall readiness levels and the motivation dimension predict their achievements in the FCs. He argued that learners and teachers should be prepared before initiating a FC program; otherwise, the new learning environment will have a negative impact on their motivation and classroom engagement.

In 2018, Wang, An, and Wright tracked learners in a beginner-level Chinese Foreign Language classroom to see if flipped teaching based on a MOOC made a difference to their oral proficiency development and rate of progress compared to a control group. Learners' investment of time and perceptions of the new method were also investigated. The findings indicated that learners exposed to flipped instruction significantly outperformed the control group in oral proficiency in many measures, especially in speech fluency, though their advantage in complexity and accuracy was less evident. Learners in the flipped group also demonstrated more (out of class) time investment in their learning and more positive attitudes toward the course.

Empirical studies are limited to investigating learners' outcomes in FCs versus MOOCs and many crucial factors such as motivation and attitudes in these new

teaching environments are overlooked. Variabilities such as Internet access, learners' literacy knowledge, and many other interrelated factors can influence learners' performance in FC or MOOC instructions. The current study compared learners' performance within the FC and MOOC modes of instructions and the way in which learners perceive the cooperation and interaction among themselves and teachers in these new learning environments. The study shed light on Iranian English as an additional language (EAL) teachers' and learners' perceptions of these new modes of instruction that can be a leading point for course and program developers and new directions for scholars in future studies.

THE STUDY

Aims

The current study compared MOOCs, FCs, and conventional classrooms to discover the effects of these new modes of learning on language learners' outcomes and the way in which teachers and learners perceive these new modes of instruction. In other words, the study investigated teachers' and learners' attitudes towards applying MOOCs as a learning environment. To achieve this aim, the following research questions were addressed:

RQ1: Is there any statistically significant difference between MOOCs, FCs, and conventional classrooms in Iranian EAL learners' educational outcomes?

RQ2: What are the attitudes of Iranian EAL teachers' and learners' perceptions of applying MOOCs and FCs in the Iranian context?

Participants

Thirty-eight tertiary students from the Iranian EAL context were selected as the participants of the present study. The researchers used available sampling and intact classes; therefore, the design of the study was quasi-experimental. They enrolled in a conversation course (Top Notch 1). All of the participants agreed to participate in the study voluntarily. They all were informed about the nature of the study from the beginning and that they were ensured that their identity to the survey would be held in strict confidence and were allowed to withdraw their contributions at any time without penalty. All participants (N= 38), aged 27 to 45, attended three separated classes taught by two teachers. One class (N= 18) was chosen as the control group (conventional class) and another class (N= 9) as the experimental group 1 (cMOOC), and one class (N= 11) as the experimental group 2 (FC). The results of an Oxford Placement Test (OPT) test at the onset of the study demonstrated that participants in experimental and control groups were similar in language proficiency. In the control group, the teacher taught

conversational models similar to the most conventional language classrooms. The learners in the two experimental groups had participated in their specific classes: one group in a cMOOC and the other group in an FC program.

Description of the Program

cMOOC and FC programs were designed for tertiary educators who wished to develop their language proficiency through computer-mediated communication (CMC) and e-learning. The cMOOC educational program ran using *Moodle* and the Top Notch Series, Top Notch 1. There were nine learners in this program. All were based in Iran in Qom province. All members had access to the Internet both at home and at work. The cMOOC program lasted one and a half month and the learners were taught via the *Moodle* application. The program was divided into two main stages: Stage 1 - Familiarization with the program and its instruction; Stage 2 - Using *Moodle* for learning the language in an ICT learning context. In the experimental groups, learners received their sources that were videos, power points, and other materials related to their course of action via the Internet and *Moodle* setting. Every online session introduced some sources for learners and provided some challenges in the form of forums, comprehension questions, and quizzes. The learners could ask to communicate through the program to work out on specific questions about online course design as well as its contents. This interaction could be between in the form of both teacher-learner interaction and learner-learner interaction. Unstructured collaborative learning began with the learners sharing any difficulties that they were having in getting online and continued through all the stages of the program. The course chair described one of her objectives of the course as creating a learning community. In such a learning community, learners are liable to learn as much from one another as from course materials or from the interjections of a tutor. The main aim of the cMOOC educational program specified in the course guide was that learners should, by the end of the program, produce what they learned in the online training program in their interactions.

The same as the cMOOC educational program, the FC program also ran using the *Moodle* application, but the order of delivering educational content was different. There were 11 learners in this program. All were based in Iran in the Qom province. The same as the experimental group 1, all participants had access to the Internet both at home and at work and the program lasted one and a half month. Similar to the cMOOC, FC participants were taught how to work with new mode of learning (familiarization with the program and its instruction).

Materials

An online platform was used for both cMOOC and FC modes of instruction, but the delivery of content and the way learners interact with the platform were different. *Moodle* is a cross platform that helps users network socially in real time. This online setting provides online users the ability to send and receive a variety of media such as images, videos and audio media messages. Additionally, numerous photos are shared daily, and millions of messages are shared daily. This platform has the following collaborative features:

- Provides online learners with the ability to exchange text messages, images, videos, and voice notes to their social network or group and contacts;
- Provides learners or teachers with the ability to create a group that supports the social interactions. Members can engage in discussion forums;
- MOOC-based educational program provides the ability for learners to send messages without limits;
- Learners using MOOC-based educational program through a variety of mobile devices, such as smart-phones, tablets, and so on can message one another through texts, images, videos, and so on.

A test was developed from Top Notch Series, Top Notch 1, (Saslow & Ascher, 2011) textbook by the researchers to determine the learners' proficiency at the outset and after the treatment of this pretest-posttest study. This researchers-made course-based test contained 30 items; thirty questions similar to the content of the textbook and the English learning program (10 vocabulary items - five blank questions, five matching items, 10 multiple-choice grammar items, nine multiple choice items about social language, and one writing question). This test was reviewed by two experts in the field and then was piloted with 20 learners of similar test-takers. Cronbach's Alpha formula for multiple-choice items was employed; the results showed a reliability index of .786 ($r = .786$).

Due to time limitation, the researchers conducted semi-structured interviews randomly with eight EAL participants and two teachers to investigate in-depth information about their perceptions about cMOOC and FC programs (advantages and disadvantages). In these face-to-face interviews that were conducted for about 30 minutes each, the researchers began with lines of questioning and allowed the instructors to address other related topics if they liked. The lines of questioning were as follows: attitudes toward MOOCs and FCs; life-long learning, and e-learning; challenges of conducting such programs; and teachers' and learners' perceptions of participating in such language environments. The interviews were transcribed by the researchers for further coding and analysis.

Procedures

To check the learners' proficiency at the outset of the study, the researchers administered a researchers-made test as a pretest. The treatment lasted one and half month, three sessions per week for the control group (a semester in language institutes lasted one and half month) and every other day online sessions (cMOOC and FC) for the experimental groups. In the control group, like an ordinary conversation classroom, learners had a topic to speak about as well as other conventional proficiency practices. The control group and the experimental groups were taught Top Notch 1 (A & B) during the program. The experimental groups had the basic requirements of participating in cMOOC and FC educational programs with laptops, PCs, smart phones, and Internet access. Before initiating the program, the teachers in the cMOOC and FC educational programs delivered the learners the required rules about how to work in the *Moodle* setting and how to assess each other and provided feedback through clear examples. They were allowed to check online sources such as online dictionaries and online grammar sources to find examples of new words' synonym and usage. In the experimental group 1 (cMOOC), the participants shared their ideas and sentences in synchronous and asynchronous learning environments. With practice, the learners assessed each other consistently and fairly. They discussed about choosing the right word, or sentence structure in the program. The same contents were presented to the experimental and control groups; that is, the content of all three groups was the same.

After decision making about flipping the course for the experimental group 2 (FC), the topics and chapters which were supposed to be covered in the course were selected. Then, the required materials such as videos and worksheets were prepared for those topics and chapters. The intervention lasted for the period of one semester (16 sessions). The intervention of the experimental group took place in three phases lasting about 75 minutes each session. In Phase 1, the instructor checked the worksheets and asked students some questions about the content of the video to make sure that students had understood most of the covered content. The discussion on the video content would last for 15 minutes. In Phase 2 of the flipped classroom, the instructor formed small groups of students and asked them to collaboratively read the intended sections of the units and do the exercises and activities by applying the learned content (50 minutes).

After the treatment and at the end of semester, as the last phase of the study, the same researchers-made test was administered as a posttest to determine the effect of this study's special treatment. Then, semi-structured interviews were conducted with eight EAL participants and two teachers who were selected randomly to investigate in-depth information about their perceptions of MOOC and FC educational programs (advantages and disadvantages). The last phase of

the study was data analysis and the interpretation of the results. The researchers entered the obtained quantitative data into SPSS version 24. To answer the first research question, they used One-Way ANOVA. Content analysis was employed to analyze the qualitative data. To analyze it, the researchers transcribed the interviews. They read it several times and identified new concepts and their frequencies in the interviews. Core concepts and the most frequent ideas were selected as the finding of the interviews. The researchers paid special attention to the literature to name new codes and concepts.

RESULTS

Quantitative Results

The results of quantitative results are represented in Table 1. Table 1 shows that the mean and standard deviation of the control group (conventional classroom) ($M= 14.56$; $SD= 1.370$) and the experimental groups ($M= 14.33$; $SD= 1.581$ for the experimental group 1 (cMOOC), and $M= 14.73$; $SD= 1.272$ for the experimental group 2 (FC)) are very similar. A one-way between-groups analysis of variance was conducted to compare the impact of the cMOOC and FC educational programs on Iranian EAL learners' achievement, as measured by the researchers-made proficiency test. The participants were divided into three groups randomly. There was no statistically significant difference at the $p < .05$ level in proficiency test scores for the three groups: $F(2, 35) = .196$, $p = .823$ (see Table 2).

Table 1

Descriptive Statistics of One-Way ANOVA for Pretest

| Pretest Scores | | | | |
|----------------|----|-------|----------------|------------|
| | N | Mean | Std. Deviation | Std. Error |
| cMOOC | 9 | 14.33 | 1.581 | .527 |
| FC | 11 | 14.73 | 1.272 | .384 |
| Control Group | 18 | 14.56 | 1.381 | .326 |
| Total | 38 | 14.55 | 1.370 | .222 |

Table 2
Results of One-Way ANOVA for Pretest

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|------|------|
| Between Groups | .768 | 2 | .384 | .196 | .823 |
| Within Groups | 68.626 | 35 | 1.961 | | |
| Total | 69.395 | 37 | | | |

Table 3 shows that the mean and standard deviation of the control group ($M=14.61$; $SD=1.037$) and the experimental groups ($M=16.67$; $SD=1.581$ for the experimental group 1 (cMOOC), and $M=17.82$; $SD=1.168$ for the experimental group 2 (FC)) are different. A one-way between-groups analysis of variance was conducted to compare the impact of the cMOOC and FC educational programs on Iranian EAL learners' achievement, as measured by the researchers-made proficiency test. The participants were divided into three groups randomly. There was a statistically significant difference at the $p < .05$ level in proficiency test scores for the three groups: $F(2, 35) = 25.302$, $p = .000$ (see Table 4).

Table 3
Descriptive Statistics of One-Way ANOVA for Posttest

| Posttest Scores | | | | | |
|-----------------|----|-------|----------------|------------|--|
| | N | Mean | Std. Deviation | Std. Error | |
| cMOOC | 9 | 16.67 | 1.581 | .527 | |
| FC | 11 | 17.82 | 1.168 | .352 | |
| Control Group | 18 | 14.61 | 1.037 | .244 | |
| Total | 38 | 16.03 | 1.852 | .301 | |

Table 4
Results of One-Way ANOVA for Posttest

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|--------|------|
| Between Groups | 75.060 | 2 | 37.530 | 25.302 | .000 |
| Within Groups | 51.914 | 35 | 1.483 | | |
| Total | 126.974 | 37 | | | |

Post-hoc comparisons using the Least Significant Difference (LSD) test indicated that the mean score for the experimental group 1 (M= 16.67; SD= 1.581) was significantly different from the control group (conventional classroom) (M= 14.61; SD= 1.037). The experimental group 2 (FC) (M= 17.82; SD= 1.168) was different significantly from the experimental group 1 (cMOOC) and from the control group (see Table 5).

Table 5
Results of Post-hoc Comparisons for Posttest

| LSD | | | | |
|---------------|---------------|-----------------------|------------|------|
| (I) Groups | (J) Groups | Mean Difference (I-J) | Std. Error | Sig. |
| cMOOC | FC | -1.152* | .547 | .043 |
| | Control Group | 2.056* | .497 | .000 |
| FC | cMOOC | 1.152* | .547 | .043 |
| | Control Group | 3.207* | .466 | .000 |
| Control Group | cMOOC | -2.056* | .497 | .000 |
| | FC | -3.207* | .466 | .000 |

Qualitative Results

The content analysis of the transcripts revealed both positive and negative perceptions of the participants towards the FC and MOOC instruction. The researchers analyzed the content and identified new concepts and their frequencies in the interviews. Main codes and concepts out of the transcripts of the interviews are as follow:

Main ideas and concepts about the MOOC

Positive ideas

Unlimited access to sources of language learning: Access to the Internet provides learners with a platform to find everything they want. There is no limitation in input and learning resources. In some situations, this feature can show adverse results in which learners do not know exactly what they want to learn and maintain them in a state of confusion. (This notion was mentioned three times in the interviews.)

Immediate feedback: Synchronous and asynchronous learning environments provide great chances of immediate feedback where especially beginner and

intermediate learners can fix their inadequate language performance. (Six times in the interviews)

More confidence: Learners can produce their language more confidently where they do not ashamed of language errors in online learning environments. One of the major challenges of the conventional classroom is the presence of ego in learners and performance. Eye contacts and the presence of learners provide an obstacle for learners to express themselves freely. This drawback is obviated in the MOOC setting. (Four times in the interviews)

Meet individual differences: Teachers have different sources of materials that they can deliver to learners based on their individual differences. Scaffolding by online settings and teaching applications, teachers can meet learners' different learning styles and they are free to set appropriate activities based on adequate learning strategies. (Six times in the interviews)

Negative ideas

Expensive infrastructures: Many teachers and principals criticize the high cost of these learning environments. Many language schools and institutes cannot cover the cost of required infrastructures of online learning environments. (Three times in the interviews)

Established and organizational framework: There is no established and organizational framework of how to teach in these settings effectively. These new modes of instruction lack theoretical approaches that act as a roadmap for teachers and learners to use the advantages of them. While many teachers perform similarly or use similar classroom activities and educational tasks in their classroom, they have different attitudes toward the nature of language teaching in these online settings. (Five times in the interviews)

Cultural differences: Teachers' and learners' perceptions of the MOOC are highly dependent on their specific cultures. Teachers and learners from different cultures and backgrounds perceive it differently. Consequently, their beliefs as a source of action will lead them into various ways to approach the new settings and therefore learners will reach the understanding of MOOC which would be different from culture to culture. (Twice in the interviews)

Privacy and confidentiality of information: One of the main concerns of online learning environments, which is extremely context specific, is privacy. Teachers and learners do not want that their information and their activities be accessible to anyone in anytime and protection of their privacy is very important for them.

Many parents also worry about learners' privacy and confidentiality in this mode of instruction. (Six times in the interviews)

Knowledgeable teachers and learners: Technology literacy is one of the fundamental considerations in conducting online learning environments. Both teachers and learners should be able to work and act in the online setting. Lack of literacy would be the main source of many failures in these new educational environments. Obviously, technology literacy is the central ability in active engagement of both teachers and learners in class and will shape their attitudes toward MOOCs and any other online learning contexts. (Six times in the interviews)

Main ideas and concepts about the flipped classroom

The content analysis of the transcripts revealed both positive and negative perceptions of the participants towards the flipped instruction. Main codes and concepts out of the transcripts of the interviews are as follow:

Positive ideas

Time management: Both teachers and learners specified that in flipped instruction they had more time in doing their tasks in the class. As learning content was delivered before the actual classroom time, they had enough time to obviate their problem doing their educational assignments. (Seven times in the interviews)

Active engagement: Two teachers said, "Allocated more time to practice and exercise in the class will enhance active participation of the learners' in classroom activities". Learners could understand the relevance of the materials and consequent activities when they dedicated a large amount of class time to working on their drawbacks in the learning process. (Four times in the interviews)

Practical feedback: All students worked on the content when they entered the class; therefore, they could provide their peer with feedback in the time of doing assignments. Immediate teacher and peer feedback in the flipped instruction was more effective than teacher feedback at the end of the class in conventional classrooms. (Eight times in the interviews)

Collaborative nature of the FC: Team work and cooperative learning gained a new definition in the flipped instruction - three students stated in their interviews. Group work, effective brainstorming and peer editing were among adequate learning strategies which learners could employ in the flipped instruction. (Five times in the interviews)

Self and peer evaluation: Flipped instruction provides an extraordinary setting for delivering peer assessment when learners are doing their assignments in the class. In addition, learners can monitor their individual progress in the flipped instruction. (Five times in the interviews)

Responsibility in and outside the class: One of the main ideas that almost all learners claimed in the interviews was the responsibility which they had before the class and prepared for the class time. A teacher argued in the interview stating, “This responsibility will lead into more engagement and active involvement in the learning assignments in the class”. (Six times in the interviews)

Negative ideas

Increasing learners’ responsibility: Seventeen learners believe that flipped instruction is more demanding for students where they have to prepare the content before the class and teachers will present what learners already know. Seven learners criticize the FC for the responsibility that put on learners’ shoulders and give more freedom to teachers.

Understanding learning materials: In some cases, learners had a difficulty in understanding the content of the course with no guidance on the part of teachers and this would be a source of stress and anxiety for their participation in classroom activities. (Three times in the interviews)

Attending the class without enough preparation. One of the main challenges of flipped instruction is that some learners do not work on the course content before entering the class. This factor can destroy the nature of the instruction. (Three times in the interviews)

Learners’ awareness of flipped instruction: Learners who know about the nature of the instruction and relevance of content to their future success participate more actively in classroom assignments. One of the main responsibilities of teachers in new learning environments is preparing learners theoretically and practically for the new demands that are expected from them in the learning contexts. (Four times in the interviews)

DISCUSSION

The findings of the quantitative data demonstrated that the learners in flipped instruction outperformed those in MOOC instruction. They confirmed the findings of Burke and Fedorek’s (2017) study, which indicated that learners in the flipped class reported higher responses on learners’ engagement questions

than either the learners in the conventional class or the online one. Burke and Fedorek argued that learners had a higher engagement because the flipped classroom was based on the foundation that learner attend the class prepared and ready to learn. The foundation of FC largely relies on the student participation in active learning and the student must have attempted to learn the material prior to class time.

It was found that flipped and MOOC instructions enhanced learners' motivation that is indicated by their active engagement in classroom assignments. This finding is in line with the findings obtained by and Deshpande and Chukhlomin (2017), who demonstrated that learners' own preparation and active engagement accompanied by frequent teacher and peer feedback might have contributed to enhancing motivation among language learners. Araujo, Otten, and Birisci (2017) stated that several factors such as content, accessibility, and interactivity, significantly impact learners' motivation to participate actively in educational tasks and learn the content effectively.

The findings of the current study verified that active interaction among teachers and learners in both FC and MOOC modes of learning enhanced individual confidence to communicate with learners with different backgrounds. They confirmed the findings of Avgousti (2018) who explored the role of intercultural communicative competence in online exchanges and found that MOOCs and other online learning platforms provide an extraordinary opportunity for learners to become familiar with their own culture at the first glance and know other cultures. Learners can evaluate their understanding about cultural points that were somehow impossible for them in conventional classrooms. Online tools offered them with the chance to meet and talk to foreigners and develop their intercultural sensitivity.

The findings of qualitative data revealed that one of the major challenges of both teachers and learners in the FC and MOOC settings is technology literacy, which is considered as the main source of stress and anxiety in the class and act as an obstacle which prevents learners from reaching their potential in learning contexts. This finding verifies what Hao (2017) found when he explored learners' perspectives of FCs and their readiness to participate in FCs. He demonstrated that learners' overall readiness levels and the motivation dimension predict their achievements in the FCs. He argued that learners and teachers should be prepared before initiating a FC program; otherwise, new learning environments will have a negative impact on their motivation and classroom engagement.

While learners in the FC outperformed those in the MOOC, both of them had positive and negative attitudes towards these two new modes of instruction. Common constructive features of these learning contexts were learners' active

engagement in learning process, immediate feedback, collaborative nature of learning contexts, and time management. On the other hand, the common destructive features of these contexts were lack of established and organizational framework of how to teach content more integrated and lack of technologically literate teachers and learners in these new learning contexts. Yilmaz (2017) stated e-learning readiness or learners' and teachers' technological literacy plays a significant role in enhancing their motivation and engagement in educational tasks. Familiarity with a new environment and easy-to-use instruction are factors that can shape learners' awareness of these new modes of teaching.

CONCLUSION

The current study compared MOOCs, FCs, and conventional classrooms to discover the effect of these new modes of learning on learners' outcomes and the way in which Iranian EAL learners and teachers perceived these new learning contexts. The findings demonstrated that both FC and MOOC learners outperformed those in the conventional classroom. While both of them had better performance than the traditional classroom, the learners in the flipped class outperformed those in the MOOC class.

Both the flipped class and the MOOC class well-perceived the new learning context; however, both of the classes had positive and negative attitudes towards their language settings. Main positive attitudes towards the MOOC class were about unlimited access to sources of language learning, immediate feedback, more confidence, and meeting individual differences; negative attitudes were mainly about expensive infrastructures, lack of established and organizational framework, challenge of cultural differences, challenges of privacy and confidentiality of information, and lack of technologically literate teachers and learners.

On the other hand, main positive attitudes towards the flipped classroom were about time management, learners' active engagement, providing practical feedback, collaborative nature of FC, presence of self and peer evaluation, and effective responsibility on the part of learners both inside and outside the class; negative attitudes were about increasing learners' responsibility especially before the class time, difficulty of materials and problem of understanding learning materials, attending the class without enough preparation, and unfamiliarity of learners with flipped instruction.

The findings revealed that, while new teaching contexts are highly applicable in higher education, their effective and adequate organization requires careful consideration of various factors that might influence the context simultaneously.

Required infrastructures, technologically literate teachers and learners, and teachers' and learners' readiness and awareness of learning context are among the most salient factors that teacher educators, policy makers, curriculum designers, and researchers should specify in their subsequent teaching programs. While the results of this study are encouraging, more in-depth studies are required to shed light on different aspects of flipped classroom and MOOC modes of instruction involve learners from diverse perspectives. Further studies are recommended to investigate teachers' and learners' perceptions of these two learning environments in different contexts. To extend the range of the study and develop the reliability of the findings of the study, more studies are also recommended to investigate teacher education programs that have already implemented the flipped classroom and MOOC in their instructions.

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Questions for Further Discussion and Investigation

1. How does engagement in a MOOC change the roles of teachers and learners?
2. What are interactions among teaching approach, design, teachers' and learners' attitudes, and learning outcomes in MOOC design?
3. What factors affect students' motivation to learn in a MOOC environment?
4. What are context-related attitudes towards MOOCs in different cultures?

[Research]

Chapter 4

Promoting Student Autonomy, Engagement and Interaction through Mobile-Assisted Language Learning

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Abstract

The purposes of this study were to investigate whether and how the social networking site Edmodo can help Japanese university students improve their multi-literacy skills in English, namely informal English used in social situations, and their engagement towards learning English; and to examine whether it could facilitate student interaction and promote autonomy in learning English. The respondents were Japanese university students who interacted and exchanged information with a class of Chilean university learners using Edmodo. A reactive form of autonomous learning was initially promoted (Littlewood, 1999), with evidence suggesting that the participants acted in a manner that allowed them to act independently and to take charge of their own learning through social networking site interactions. In addition, this study explored and collected data on three theoretical aspects of learner engagement in education based on Fredricks, Blumenfeld, and Paris' (2004) framework as it pertains to language learning in an English as a foreign language (EFL) context: students' emotional, behavioral and cognitive engagement. The results of the study indicate that Edmodo encouraged reactive and proactive types of autonomous learning in a social networking setting among the Japanese students; moreover, it facilitated their improvement in reading, writing, and listening habits and skills.

Keywords

Social networking site, English as a foreign language (EFL), mobile-assisted language learning (MALL), engagement, autonomy

INTRODUCTION

An issue of particular concern for many East Asian learners, and particularly for Japanese English as a foreign language (EFL) university students, is the problem that these learners are not always active on social networking services (SNSs) with English as the medium for communication. As Hamada (2012) found in her study using the SNS site Facebook, her students were disinclined to make foreign friends and participate in English communication activities. Arguably, this is part of a general observation with respect to language students in East Asian contexts, including Japan. Learners in these contexts have been characterized as lacking in autonomy, passive, and more reluctant to participate in communicative activities, in part due to differences in cultural values and beliefs, when compared to their Western counterparts (Littlewood, 1999). For instance, Japanese students may experience a contradiction with their cultural values and teachers' expectations to be active participants in communication since the education system is largely influenced by Confucian beliefs that results in classroom environments where students may be more accustomed to playing passive roles as knowledge recipients (Tanaka, 2009). The use of emerging technologies as a pedagogical tool can potentially address some of the perceptions of East Asian learners. For example, in a recent study of Japanese learners in tertiary education, the use of Line, an SNS communication tool, was viewed positively by participants and was found to increase learners' language competence and enhance students' motivation, communication, and active participation (McCarty, Sato, & Obari, 2017).

Current and emerging trends in language education support the use of technologies in the classroom for a variety of pedagogical aims. Within this context, educators are attempting to promote and equip their students with a range of English multi-literacy skills required for successful interaction in social media contexts. This study investigated how the SNS site Edmodo (<https://www.edmodo.com/>) can be used by educators to help improve Japanese university students' emotional, behavioral, and cognitive engagement (Fredricks, Blumenfeld, & Paris, 2004) towards using English, and to examine whether it could facilitate student interaction with the underlying objective of promoting and supporting autonomy for learning English.

LITERATURE REVIEW

The use of web-based technologies in educational contexts continues to grow in popularity and is now widely endorsed by many teachers as an alternative or complement to traditional classroom instruction. Integrating current and emerging technologies into the language classroom is an extension of the

movement from teacher-centered to student-centered instruction in language education (Brandl, 2002), where student autonomy and collaboration can be encouraged among learners (Benson, 2007). SNSs provide users with the means to connect with other users, make profiles, and exchange a range of content and information using a web-based system (Boyd & Ellison, 2007). Facebook (<https://www.facebook.com>), for instance, can be incorporated into regular instruction and has the potential to increase learners' motivation, while promoting collaboration and engaging students' interests (Karpati, 2009; Shih, 2011). Despite the advantages of using SNSs in an educational setting, related empirical research has sometimes been slow to support some of these positive claims, with other issues persisting, including that studies have often been limited to self-reported data and content analysis (Tess, 2013).

Many studies in the field of second language acquisition (SLA) using SNSs, including Edmodo, have been limited to exploring student motivation (e.g., Al-Kathiri, 2015; Hamada, 2013; Okumura 2017; Sandu, 2015), which has been analyzed primarily through post-treatment questionnaires. The multifaceted form of engagement is, as Stroud (2015) suggests, a more empirical and objective form of data collection and data analysis. Examining this form of students' responses extends previous research and examines the topic of EFL students' reactions regarding SNSs more thoroughly. Student engagement can be measured with reliability and validity, through emotional, behavioral and cognitive forms of engagement. In this way, Edmodo posts can be categorized into varying forms of engagement, and researchers can code these social network posts to gather more reliable data on students' affective responses pertaining to SNSs and in doing so, generate more thorough and conclusive findings. A limitation in the research to date is that there have only been a limited number of recent studies including this vital element of collecting data on student engagement.

An advantage that Edmodo possesses over other SNS platforms is the ability to retrieve students' posting history, thereby allowing researchers to see a whole inventory of an individual student's posts. This function allows researchers to easily code student data in the varying forms of their posts (i.e., questions asked, opinions offered, clarifications, etc.) and to analyze student data (i.e., emotional, behavioral or cognitive forms of engagement). To fully test and make claims about student autonomy, studies need to collect pre-test and post-test questionnaires to determine if participants have increased their usage of SNSs in English as a result of the treatment sessions. Few studies (e.g., Al-Kathiri, 2015; Dowlings, 2011; Okumura, 2017) have included this crucial element in the research methodology.

Edmodo, which was created to ensure security and ease of monitoring, is an appropriate tool to enhance the learning experience for students by providing a

convenient research tool that records all the members' posts (Dowlings, 2011). Whereas most studies have used Facebook (Börekci, & Selami, 2019; Ghazali, Sahuri, & Abdulrab, 2018; Hamada, 2012; Lin, Kang, Liu & Lin, 2015; Naghdipour, & Eldridge, 2016; Saeed, Selami, 2017), perhaps in part due to the researchers' familiarity with this medium, Edmodo is a dedicated educational site that allows researchers to view a student's complete posting catalogue which makes it ideal for data analysis. The current study attempts to add to this emerging field of knowledge by including Edmodo as a data collection tool.

Although research pertaining to Edmodo is limited, available studies seem to support the use of Edmodo in the context of language learning and teaching, pointing to a range of potential benefits. For instance, Dowlings (2011) suggests that using Edmodo as part of a course can promote social interaction and enables students to improve their language skills. In a study by Thongmak (2013), drawing from 183 college learners in Thailand, Edmodo was acknowledged to be potentially more beneficial than other SNSs since, for instance, it can effectively be used as a classroom collaboration tool and for distance learning. Other studies suggest that Edmodo increases learner motivation and leads to positive attitudes. In a recent study of 42 Saudi Arabian university students, Al-Kathiri (2015) found that Edmodo is an effective means of improving English language skills, broadening the type and amount of communication opportunities, leading to positive perceptions towards EFL learning, and increasing students' confidence and motivation. Further, she suggests that Edmodo facilitates uploading, storing and sharing of learning resources which, in turn, complements students' in-class learning.

Table 1 provides an illustration of six recent and relevant studies pertaining to online learning - Al-Kathiri (2015); Hamada, (2013); Lin, Kang, Liu & Lin. (2015); Miyazoe & Anderson (2009); Okumura (2017); Sandu (2015) - that were all completed in an EFL context examining an online form of communication. In all the studies, positive effects for student involvement were reported. These studies represent a map and visual summary of the research that has been conducted by others, which according to Creswell (2014), can typically be illustrated in a figure with the objective being that the reader begins to build a visual picture of existing research on a given topic.

Table 1

Comparison of Recent and Relevant Studies in the Field of Social Networking Sites Use and Second Language Acquisition

| Article | Purpose / argument | Sample characteristics / Methods | Strengths / Limitations | Findings significance / implications |
|------------------------------|--|--|--|--|
| Hamada (2012) | Facebook facilitated student interaction and self-motivation for learning English. | Weekly writing tasks assigned to 22 (n=22) students. Post treatment questionnaire. | Strengths - Close relationship between motivation and language learning success found. Limitation - Lack of pre-treatment questionnaire. | Improved learner autonomy, motivation, habitual English writing, and voluntary English use on FB. |
| Miyazoe & Anderson (2009) | Comparison of forums, blogs, and wikis. | Mixed-method approach applied with 61 (n=61) students. Text analysis used for triangulation. | Strengths - Textalyser analysis applied to students' forum and blog posts - analyzed lexical density of students' posts. | Forum provided platform for intercultural exchange. Textalyser program could quantifiably examine / analyze student data. |
| Lin, Kang, Liu & Lin. (2015) | (1) Analyze patterns of interaction in FB EFL course. (2) Explore students' and teacher's experiences about SNS use. | Content analysis produced relationships among interaction types, initiation types, and response types for posts. Semi- | Strengths - Coding of student content verified with intercoder agreement. Limitation- Only seven interviewees | English learning posts did not lead to significant interaction. Social presence evident in student-student interaction but lacking on group page |

| | | | | |
|-------------------|--|--|---|---|
| | | structured interviews added insight into 22(n=22) students' FB usage. | | among class members. Findings attributed to cultural tendencies of Asian collectivist culture. |
| Al-Kathiri (2015) | Integrating Edmodo into EFL instruction. Exploring students' perceptions and challenges regarding Edmodo use and its effect on their attitudes towards EFL learning. | The 42 (n=42) participants were divided into two groups. Control group received traditional instruction only. Experimental group received a six-week daily interaction via Edmodo. | Strengths - Positive views towards EFL learning become significantly stronger after Edmodo use. | Edmodo broadened type and amount communication - increased confidence and motivation. Edmodo found to be helpful in acquiring English vocabulary, improving spelling / grammar, developing listening skills, etc. |
| Okumura (2017) | How Japanese university English learners perceive connections with US students through Edmodo. | 62 (n=62) Japanese and 53 (n=53) American students completed post-treatment questionnaire. | Limitation- Students assigned partner, restricting socializing aspect of activity. | Authentic communication found to be fun, valuable and interesting. Ability to communicate and connection with foreign students found to be valuable. |
| Sandu (2015) | Examining students' comprehension of independent learning and | 76 (n=76) Japanese EFL university students completed | Strengths - Longitudinal study spanning 2 semesters. | Some students not comfortable using SALC or Edmodo. |

| | | | | |
|--|---|---|--|---|
| | views on whether using online tools combined with use of self-access learning center (SALC) helps learning process. | post-treatment questionnaires over two semesters. | | Students not accustomed to autonomous learning with preference for traditional learning styles. |
|--|---|---|--|---|

The studies listed in Table 1 provide insight regarding student involvement on SNSs. Collectively, they provide evidence that SNSs, under certain conditions, can facilitate student involvement and help students improve their social activity online, particularly in a classroom-based program. However, these studies have their limitations methodologically, since they tend to only measure student involvement and attribute success to students' positive characteristics, namely motivation. In considering the findings of these studies, issues of more practical methodological applicability arise. By utilizing the multifaceted forms of engagement, the topic of student involvement in SNS activities can be expanded upon.

Although university students support the use of SNSs, and they consider their usage to be commonplace for social purposes, there appears to be some reluctance in using social media for educational purposes. In a study using interviews and questionnaires from four universities, Jones, Blackey, Fitzgibbon, and Chew (2010) found that while 70% of the participants have a social networking account, social media is rarely used by students for educational purposes. The reasons for any reluctance in embracing social media are complex but can be partially explained with reference to teachers' values and beliefs. Teachers recognize the potential value of web-based technologies in increasing student engagement, yet they are not always sure in how to effectively implement their pedagogical use (Sadaf, Newby, & Ertmer, 2012). Ajjan and Hartshorne (2008) investigated faculty perceptions in a large university in the United States and found that, although 56% of faculty believed that SNSs could be used as an effective tool for increasing student-to-student interaction, only 24% used SNSs in their courses. Educators' reluctance in embracing SNS use for educational purposes can often be attributed to a lack of familiarity in using web-based technologies or with privacy and safety concerns (Schwartz, 2009).

Within the Japanese context, Okumura (2017) examined 62 (n=62) Japanese learners' experiences using Edmodo in an exchange with American students. Edmodo was found to facilitate communication that was fun, valuable, and interesting, enabling students to experience a sense of connection with foreign

students. A potential concern, however, for Japanese learners is that Edmodo may require varying levels of autonomy. In a related study, Sandu (2015) explored students' views and comprehension of independent learning. The results indicate that some students are not comfortable using Edmodo for a variety of reasons and are not accustomed to taking responsibility for their own learning, believing that teachers should maintain their authority and take on this responsibility. This suggests that although Edmodo is likely to be beneficial for some students in a variety of ways and may promote communication, the need to act autonomously may cause difficulties for some Japanese learners. As such, implementing Edmodo and promoting autonomous learning among Japanese students should be undertaken in a culturally-sensitive manner.

The current study was a partial replication of Hamada's (2012) study which examined Japanese learners' motivation in using the SNS site Facebook as a tool of intercultural communication. Conversely, this study was not concerned with motivation, but rather focused on the various forms of learner engagement in the context of using Edmodo for pedagogical purposes. Exploring EFL students' types of engagement and analyzing their SNS usage whilst using Edmodo was an original research design. At the time that this study was conducted, other studies have not attempted to use these two research elements together.

THE STUDY

Aims

From a pedagogical standpoint, the general goal of this study was to familiarize Japanese EFL students with using Edmodo as an educational tool to facilitate language learning. More specifically, the main objectives were to explore learners' levels of engagement and interaction using this form of social media, as well as examining how Edmodo affects learner autonomy. The specific aims of this study were to increase the habitual English usage of the students in a social media setting and to increase the frequency of EFL student interaction in English on Edmodo and other English SNS platforms independently. To do this, the current study investigated the following research questions:

1. How does the Edmodo program affect student engagement to learn and use English?
2. How does the Edmodo program affect student interaction in an SNS setting?
3. How does the Edmodo program affect the promotion and development of learner autonomy for studying English?

Participants

This study was conducted in the spring semester of 2016 over a 14-week period with a collaboration between a Chilean public university and a Japanese private university. The Japanese participants consisted of 18 ($n = 18$) third- and fourth-year students, with an average Test of English for International Communication (TOEIC) score of 420. The Japanese participants were the primary focus of the current study and as such, questionnaires (see Appendix 1) were administered to these students only. The Chilean participants consisted of 31 ($n = 31$) first- and second-year students. Both groups were from non-English speaking countries and accordingly, were both learning English in an EFL environment. Students were given a choice to participate in alternative activities to fulfill course requirements in case any of them did not want to participate for any reason in the Edmodo study. All students chose to participate. The Chilean university students completed similar in-class activities to the Japanese students as assigned by their instructor. Student privacy was respected through the creation of a password-restricted Edmodo group, ensuring only invited members had access. The course was used to encourage regular English use in an SNS setting that included active interaction as a key component.

Instruments

The questionnaire format was adapted from Hamada's (2012) data collection tool since it was found to be reliable and received a high response and completion rate. Accordingly, Hamada's study effectively produced results about students' motivation to use Facebook in an EFL environment. The development of the questionnaire (see Appendix) for this study had similar items and frequency scales, which establishes validity and reliability of the instruments and its' data collection tool (Gravetter & Forzano, 2018), thereby rendering it suitable for this study. Given that there were 18 participants in this study, administering a researcher-produced questionnaire was deemed appropriate. A questionnaire is an efficient means of collecting data from this number of respondents (Somekh & Lewin, 2011). This study was solely interested in collecting data on students' frequency and extracurricular involvement on Edmodo. It was not concerned with students' perceptions of using Edmodo. Therefore, the questionnaire was closed-ended in terms of set questions with a predetermined choice of answers that seek to gather numerical data, making it suitable as a quantitative collection method (Somekh & Lewin, 2011).

In capturing and providing evidence of the multifaceted forms of engagement, a complete record of the students' postings on Edmodo can be seen in Table 2. In addition to the student questionnaire, Edmodo was used as a data collection instrument to provide information about the multifaceted forms of engagement.

Emotional engagement was measured through Question 1 (see Appendix), ‘The Edmodo exchange program was interesting’, which helped in establishing the relationship that students had with respect to the course (Seirup, 2008). Furthermore, emotional engagement was also assessed through Question 6 (see Appendix), ‘Do you want to continue this program next semester?’ This question directly addressed the participants’ personal feelings about being part of the exchange program, thereby also fulfilling Seirup’s criteria for an emotional form of engagement. ‘Questions asked’, ‘responses to questions’, ‘videos uploaded’, and ‘photos uploaded’ provided data which measured behavioral engagement (see Table 2). As Finn, Pannozzo, and Voelkl (1995) state, behavioral engagement is observable through actions. In this study, it was collected and assessed with reference to the amount of posts the students made on Edmodo. Finally, indications of cognitive engagement were ‘opinions offered’, ‘clarification requests’, and ‘clarifications offered’. Cognitive thought processes and engagement in education can refer to students using various forms of concentration and focus where one or more of deep thinking, mastering difficult skills, or using sophisticated learning strategies occurs (Fredricks, 2004; Green et al., 2004; Reeve & Tseng, 2014). Edmodo’s data collection tool makes viewing of data easily accessible to administrators and was used in this study for this purpose. In addition, a number of similar recent studies (e.g., Al-Kathiri, 2015; Okumura, 2017; Sandu, 2015) used Edmodo for data collection and analysis purposes.

Table 2

Edmodo Content Type, Engagement Form and Postings

| Content Type | Form of Engagement | Total Postings | Average |
|------------------------|--------------------|----------------|---------|
| Questions asked | Behavioral | 453 | 25.2 |
| Responses to questions | Behavioral | 434 | 24.1 |
| Videos uploaded | Behavioral | 72 | 4.0 |
| Photos uploaded | Behavioral | 267 | 14.8 |
| Opinions offered | Cognitive | 320 | 17.8 |
| Clarifications (total) | Cognitive | 178 | 9.9 |

Students today are considered digital natives, which seems to indicate that the participants were familiar with various online and SNS forms of interaction and it is likely that they often prefer using multimedia services to interact with others than in person (Frاند, 2000). Digital natives are in fact extremely social on social media sites and are capable of multitasking in social settings. They have grown up surrounded by digital devices, and as Prensky (2001) observes, they are always attached to a digital device. This digital fluency, in part, leads to the rationale for using Edmodo as the primary teaching and learning platform.

The classes provided Japanese university students with an opportunity to exchange cultural concepts and other information, such as opinions, with the Chilean university students about a wide range of topics likely to be relevant to learners of this age, and to broaden their worldviews. Exchanging cultural information between foreign students presents learners with the opportunity to develop Intercultural Communicative Competence (ICC), which refers to the ability to understand cultures, including their own, and to use this understanding to communicate with people from other cultures successfully (British Council). The Chilean university students have considerably diverse cultural and linguistic backgrounds, thereby providing opportunities to develop the Japanese students' ICC. Teaching materials were based on general topics of discussion, such as hometowns, food, music, movies, travel and family, and were used to generate the sharing of cultural information.

Procedures

A structured questionnaire was administered at the start of the semester to record students' SNS usage. Another questionnaire was administered at the end of the course to collect the participants' feedback and investigate their views. These results were compared. A Likert scale was used in the questionnaires. A survey design was chosen and considered to be appropriate since, as Creswell (2014) suggests, surveys provide a quantitative or numeric description of attitudes and opinions of a sample. Google docs was used to administer the questionnaire and as a data collection tool. Using an Internet survey and administering it online has been discussed extensively and is supported widely in the literature (Nesbary, 2000; Sue & Ritter, 2012). This survey was assembled utilizing components of several instruments. One source was Hamada's (2012) study, surveying motivation in her EFL class use of Facebook and another was from Stroud's (2015) assertion to include varying forms of engagement in surveying tools. Furthermore, as is the recommended practice when conducting a survey in EFL settings, the questionnaire was constructed in both English and Japanese, with a back translation being performed to ensure accuracy (Dornyei & Taguchi, 2010). Table 3 provides an overview of the data collection procedure.

Table 3
Research Design

| Week | Stage | Data type | Data collection tool |
|-------------|---------------------------|--|----------------------|
| Week 1 | Pre course questionnaire | SNS usage frequency in English before course | Pre questionnaire |
| Weeks 2 -13 | Edmodo course | Students post comments, upload photos and videos on Edmodo | Edmodo user profile |
| Week 14 | Post course questionnaire | SNS usage frequency in English before course | Post questionnaire |

The current study followed a course that consisted of a 14-week class syllabus (see Table 2). The Japanese and Chilean students were asked to post and upload photos and videos weekly on Edmodo, as part of the course requirements. The students were asked to make posts on set topics. As well, they were asked to watch other students' videos and read their posts on their own outside of class time. In addition to providing feedback, class time was utilized to construct responses and prepare for their videos and posts. The rearrangement of in-class activities and homework represents a 'flipped classroom'. A flipped classroom can be described as a setting whereby that which is traditionally done in class is now done at home, and that which is traditionally done as homework is now completed in class (Basal, 2015; Bergmann & Sams, 2012). Conversely, viewing videos in class and completing homework at home is what could be described as a traditional classroom. As one measure of promoting autonomous learning and encouraging a non-traditional classroom, the students watched videos and read posts prior to attending class. As such, class time was devoted to promoting higher order thinking tasks such as writing 'clarifications' and 'opinions offered' posts. According to Schmidt and Ralph (2016), in a flipped classroom, class time can be used effectively for engaging in higher order activities, such as how to express opinions, clarifying or making clarification requests.

Due to the low number of the participants in this study, a descriptive statistical analysis was performed to analyze the data. According to Creswell (2017), in these types of studies a descriptive analysis is usually sufficient, particularly if the number of the participants is too low for a more advanced, inferential analysis.

Further, to achieve an acceptable level of statistical significance, which is desirable for an inferential analysis, 30-40 participants is recommended (Lipsey, 1990). The past use of descriptive analyses in other similar research (Miyazoe & Anderson, 2009; Okumura, 2017; Sandu, 2015) establishes reliability for the current study.

Autonomous learning was promoted with reference to a conceptualized framework of autonomy that is appropriate in a Japanese EFL learning environment. Specifically, self-regulation was encouraged and supported with reference to a model of reactive and proactive autonomy (Littlewood, 1999), with the participants being asked to take on various aspects of their learning in an independent manner. Whereas proactive autonomy is a stronger form of autonomy and tends to be endorsed in Western educational contexts, promoting reactive autonomy is seen as more appropriate in East Asian educational settings. Proactive autonomy consists of a high degree of choice and discretion, requiring learners to take charge of their learning in a manner that affirms individuality and sets directions in a way that learners have themselves (partially) created, as opposed to those created solely by the instructor (Littlewood, 1999). Conversely, reactive autonomy can be seen as a preliminary step towards the proactive form, or a goal in its own right. Although this type of autonomy does not create its own directions, “once a direction has been initiated, it enables learners to organize their resources autonomously in order to reach their goal” (Littlewood 1999, p. 75). In this way, autonomy can be conceptualized as lying along a continuum ranging from the weaker form of reactive autonomy to the stronger version of proactive autonomy where learners are largely engaged in learning independently, free from any external requirements to act in a particular manner.

At the outset, to ensure cultural sensitivity, a reactive form of autonomy was promoted whereby most activities and course requirements were initially set by and initiated by the instructor. It was also hoped and anticipated that the participants would eventually transition to and engage in some forms of proactive autonomy. For example, students were encouraged, but not required to participate in other types of English SNS interaction on their own, thereby necessitating a capacity to act more independently of the instructor, taking charge of their own learning, and this served as an indication of the participants’ proactive autonomy. Collecting data on the frequency of students’ posting and reading captured a form of proactive autonomy. Likewise, privately befriending and staying in contact with the Chilean students outside of course requirements was used as a measure and indication of this kind of autonomous learning.

RESULTS

The results of the student questionnaire were generally positive suggesting that using Edmodo can be a potentially beneficial tool in the language classroom. Questions one and two employed a five-point Likert scale ranging from strongly disagree to strongly agree to statements about the program, measuring affective components of attitudes. A clear majority of the students felt that the Edmodo exchange project was interesting, with a total of 78% of the participants agreeing, including 44% of the students strongly agreeing on this point (see Figure 1). Furthermore, the participants' overall comments were positive with many students indicating that they particularly enjoyed the cultural aspects of the exchange. This included describing their own culture and learning about cultural similarities and differences of the Chilean students.

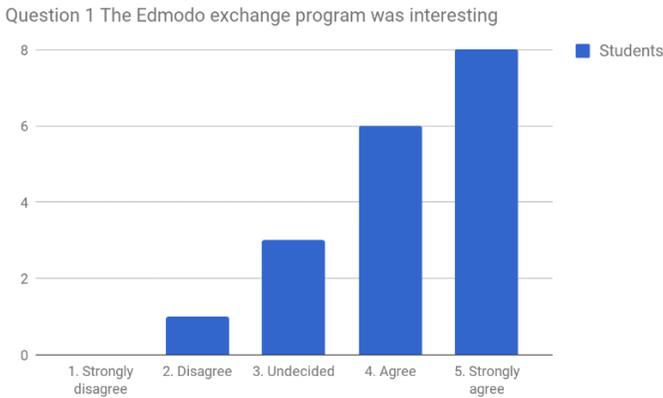


Figure 1. Was the Edmodo exchange program interesting? (n=18)

With respect to Question 2, the results indicate that less than half of the students saw a clear benefit in the course in terms of helping to improve their language skills, with 16.6% of the participants strongly agreeing and 11.1% agreeing that this course helped improve their English. Somewhat surprisingly, 55.5% of the participants stated they were undecided whether the program improved their English. These results could be due to a lack of clearly defined English objectives pertaining to the course in the questionnaire or perhaps a misunderstanding by students of the connection between Edmodo activities and language instructional goals and principles covered during class that were intended to assist students in acquiring and using the necessary language skills to communicate with the Chilean students. Conversely, this could also be partially explained by Japanese students' learning styles and expectations regarding the roles of a teacher.

According to Katayama (2007), Japanese EFL learners tend to express a preference for having a more structured style of learning and classroom, compared to their Western counterparts. Specifically, Japanese learners show a preference for a teacher-centered instructional style with specific and explicit grammatical and language objectives (Schulz, 2001). The current study promoted a learner-centered classroom environment with more broad language learning targets. As well, the nature of the flipped course meant that most interaction on Edmodo, and arguably, English learning by the students, was done independently outside of the class. This factor may also partially explain why the students in this study were undecided about their English improvements during the Edmodo exchange program.

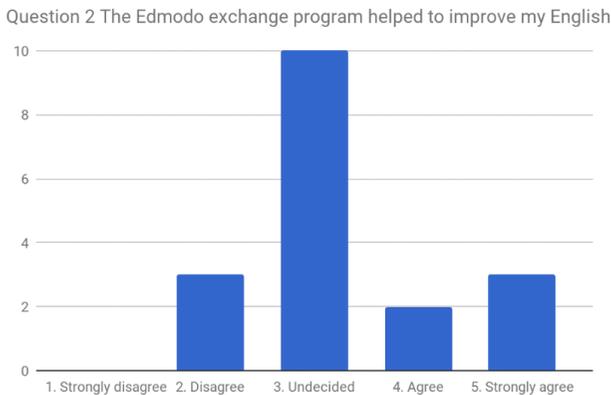


Figure 2. The Edmodo exchange program helped to improve my English. (n=18)

Findings pertaining to posts made on Edmodo display a pattern of increased independent action by the participants with the students increasing their frequency of posting (see Figure 3). An observable trend that can be noticed from the pre and post-test results indicates that students increased their English SNS frequency by the end of the course. These results also served as an indication of the participants' capacity to act in a reactively autonomous manner since the instructor required students to make postings on Edmodo as part of course requirements, rather than students taking charge in a largely independent manner. As such, with the instructor largely initiating posting, the students were not required to act in a proactively autonomous way.

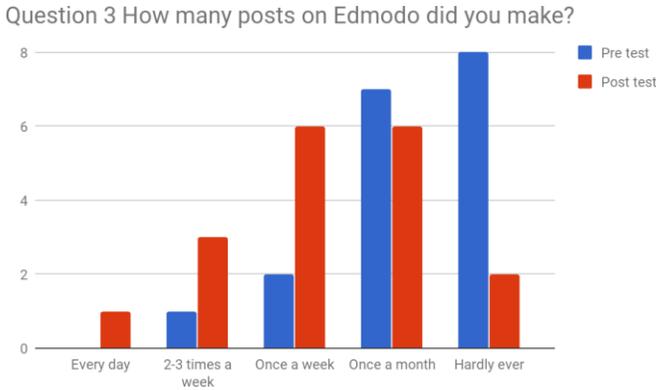


Figure 3. How many posts on Edmodo did you make? (n=18)

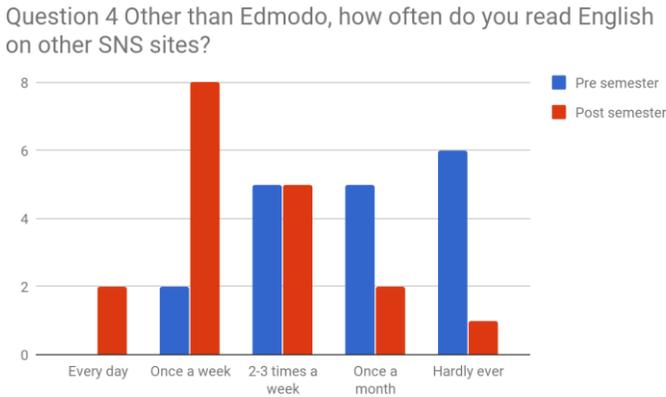


Figure 4. Other than Edmodo, how often do you read English on other SNS sites? (n=18)

Question 4 was given to the participants to determine their reading habits in English on SNS sites other than Edmodo (see Figure 4). This question was used to gauge the students' ability to act in a proactively autonomous manner. Here, the students acted independently of the instructor since this was not a course requirement and as such, they arguably displayed their capacity to act in a proactively autonomous manner. The results clearly show an increase in the participants' tendency to read English on other SNS sites by the end of the semester, indicating their ability to act proactively on their own by doing additional reading outside of the instructor's expectations.

Question 5 was administered to provide insight about the participants' willingness to make friends outside of the course using English (see Figure 5). Although the instructor encouraged students to make English-speaking friends as part of an overall language learning strategy, this was not a course requirement and did not affect overall course assessment. Here, the participants can be said to have acted in a fairly independent manner since they largely used their own discretion to befriend the Chilean students, independent of teacher initiation. Taking on a greater degree of responsibility for their own learning in this manner is another indication of students engaging in a form of proactive autonomy.

Question 5 How many ULL students have you made friends with privately outside the Edmodo group?

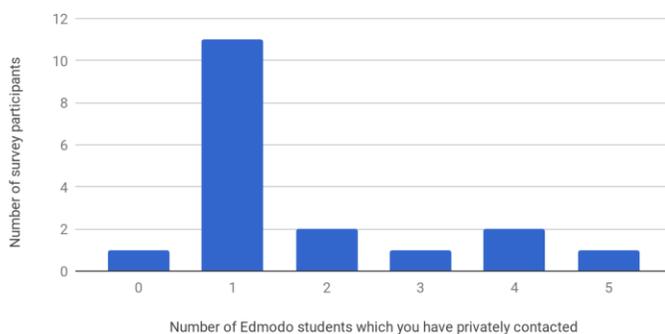


Figure 5. How many ULL students have you made friends with privately outside of the Edmodo group? (n=18)

Question 6 was concerned with students' future intentions regarding their wishes to continue Edmodo in the following semester. This was used to determine the feasibility of using Edmodo with future students. Most of the participants indicated their preference to continue a similar style of curriculum in the fall semester suggesting that students preferred learning English in this manner, with 88.9% wishing to do so (see Figure 6). As such, the participants' views of Edmodo as an instructional tool are positive.

Regarding specific course requirements, the students were asked to shoot a minimum of 4 videos and take 12 photos, and subsequently upload these on Edmodo. In addition to this, the students were required to view corresponding students' content and comment on it. On this point, the students' Edmodo participation greatly exceeded the program's minimum requirements both in terms of the amount and the varying types of participation.

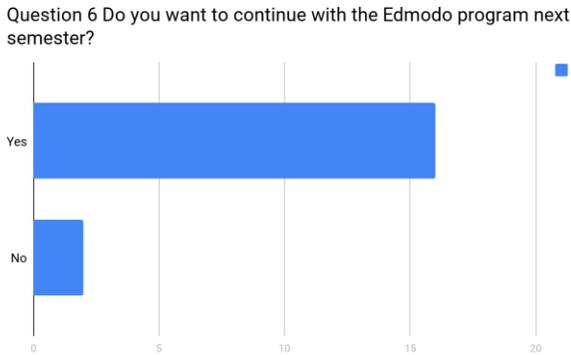


Figure 6. Do you want to continue with the Edmodo program next semester? (n=18)

DISCUSSION

The positive response findings from Question 5 suggest that the students were emotionally engaged in the program and in their learning. Finn et al. (1995) broadly define emotional engagement in an educational setting as the relationships between students and their teachers, school, and learning practices. The participants seemed to enjoy exchanging information and opinions with the foreign students and enjoyed the SNS mode of delivery. Seirup (2008) suggests that emotional student engagement consists of the relationship that a student has to a teacher or course. In the current study, it would seem that emotional engagement is derived from the course and ability to make foreign English-speaking friends. Figure 5 displays emotional engagement with 94% of the participants making at least one personal contact from the course. Furthermore, 33% of the participants made 2 or more personal contacts, which further supports the notion that the participants were emotionally engaged in this program.

Emotional engagement was also measured through Question 6. This question measured students' wishes to continue the Edmodo program which broadly and directly addressed the students' personal feelings about being part of the exchange program and their desire to continue this style of course in the next semester. A clear majority of students showed their preference to continue this course for the autumn semester, which is another indication of emotional engagement. The evidence, based on these findings, suggests that emotional engagement amongst the students in this course was reached. However, the current questionnaire failed to provide insight regarding the specific reasons for the students' emotional engagement. To address this, it is possible to include more specific parameters in a potential future study, including follow-up

questions and a section to determine reasons for engagement in future questionnaires.

‘Questions asked’, ‘responses to questions’, ‘videos uploaded’, and ‘photos uploaded’ provided data pertaining to behavioral engagement. As Finn et al. (1995) state, behavioral engagement can be measured through observable actions. In this study, it was measured through the amount of posts the students made on Edmodo. Behavioral engagement is attentiveness and effort put into something and as Finn et al. (1995) add, this type of engagement is linked to learner achievement. However, in large part due to minimum course requirements for every student, which include having to upload, comment on, and view a certain amount of content to pass the course, it is difficult to ascertain any conclusive behavioral engagement findings from these results. Although no definitive behavioral engagement findings were revealed in this study through ‘questions asked’ and ‘responses to questions’, according to Finn et al. (1995), these types of questions can be a precursor to and beneficial for successful cognitive engagement to occur as it ensures students are physically ready and willing to learn.

Cognitive thought processes and engagement in education can refer to students using various forms of concentration and focus where deep thinking, mastering difficult skills, or using sophisticated learning strategies occurs (Fredricks, 2004; Green et al., 2004; Reeve & Tseng, 2014). In this study, ‘opinions offered’, ‘clarification requests’, and ‘clarifications offered’ on Edmodo were used as indications of cognitive engagement. Other types of participation, including ‘photos uploaded’, ‘videos uploaded’, ‘questions asked’, and ‘responses to questions’ were recorded as behavioral engagement since these don’t require the same degree of deep thinking. For instance, closed-ended questions requiring binary answers (i.e., yes / no) were recorded as ‘questions asked’ since the level of cognitive engagement was relatively low when compared to behavioral engagement. Conversely, ‘clarification requests’, for instance, cannot be answered with a simple yes / no response. These probing questions are in nature designed to prompt the respondents to think more deeply about a given topic and likewise, ‘clarifications offered’ can be categorized as the same type of engagement. Similarly, ‘opinions offered’ represent an example of deep thinking since presenting an opinion usually requires an evaluative value judgment based on an interpretation of relevant information. In a language learning context, this is particularly important since deep thinking is correlated with higher achievement (Green et al., 2004). Given its pedagogical benefits, it seems that cognitive engagement is what educators are particularly interested in promoting.

The response to Question 5 lends support to the notion that students belong to the digital native demographic, in the sense that they social network using SNS with

63.3% (see figure 5) of the participants making at least one friend as a result of the exchange program. However, it could also be argued that making only one friend on social media is hardly prescribing to the extremely social label that Prensky attributes to digital natives. Only four participants responded that they made five friends from this exchange program which would be considered extremely social.

The use of Web 2.0 technologies in the language classroom has had a fundamental impact on how autonomous learning is perceived (Benson & Chik, 2010). These technologies have had an immediate impact on the opportunities for learners to access a target language. Although there is a link between educational technologies and autonomy, skeptics have been critical of this link since it often presupposes autonomy, rather than fosters it (Benson, 2011). In the East Asian context, educators should be particularly cautious in assuming that learners are easily capable of exercising autonomy in language learning, and in fact these students often possess a different degree of autonomy when compared to other learners (Littlewood, 1999). As such, it was necessary to promote forms of autonomy that were appropriate for the Japanese learners in this study – namely reactive autonomy at the outset.

Student responses suggest that the Edmodo program promoted and helped the participants in developing autonomy towards studying English. Initially, promoting a strong form of autonomy (i.e. proactive) would have been inappropriate given the students' cultural background. Accordingly, students were encouraged to act in a reactively autonomous manner with the instructor initiating this form of autonomy. As was hoped, students showed that they are capable of learning autonomously and by the end of the Edmodo course, responses indicated that students showed signs of proactive autonomy. The positive participant responses to Questions 3, 4, and 5 suggest that students were initially able to be autonomous in a reactive way and later developed an ability to learn in a proactively autonomous manner, without any instructor initiation.

Ethics and limitations

Using SNS in research presents an ethical issue in terms of maintaining students' personal privacy (Israel & Hay, 2006). Furthermore, the network nature of Edmodo is more than just a networked environment, rather it is a collaborative knowledge space and a collaborative moral space (Burbules, 2009). The network cannot be defined simply as media for carrying information or communicating content. Instead, it is a space with specific features that transform the very terms of ethical analysis. Accessing Edmodo via a mobile device, which is considered a ubiquitous technology, continuously situates the research participants in a data-gathering environment. This educational setting is similar to Jeremy Bentham's

“panopticon” since all of their contributions are easily seen and traceable by a profile search (Burbules, 2009). Prior to conducting research, the consent forms were written in Japanese and English which allowed the participants to be fully informed about the research and fully understand the consent forms. A professional English/Japanese translator was consulted to translate the questionnaire from English into Japanese. As is the suggested practice in these cases (Somekh & Lewis, 2011), the consent forms and questionnaire were backwards translated in both English and Japanese. These Japanese translations were translated back into English by an English major university student who lived in an English-speaking country for comparison. The deviations between the translations were examined with the differences not adversely affecting the meaning. In addition to the consent forms being available in the participants’ first language, Edmodo also has Japanese and English language settings, therefore the participants understood the SNS site’s conditions in relation to the research conducted.

Although the questionnaire provided some useful preliminary data, a more comprehensive questionnaire using a mixed methods approach could yield more complete and conclusive findings. For instance, including a comments section and / or open-ended / follow-up questions could have provided a greater understanding of the context and setting in which the data was collected (Creswell, 2014). Including a qualitative questionnaire would have potentially added a rich data source because it may have allowed for the exploration pertaining to the processes of interaction among individuals, as well as providing additional insights regarding the participants’ responses. For example, it may have facilitated a greater understanding of the cultural aspects that the participants in Chile and Japan brought to the Edmodo exchange. Furthermore, following the participants after the course ends could perhaps be useful in better understanding the participants’ motives for their choices.

CONCLUSION

Behavioral and emotional engagement were both necessary and beneficial in developing cognitive engagement. The students in this cross-cultural program responded positively, strongly suggesting that they enjoyed it and were engaged enough to regularly post and respond to comments on Edmodo. The major finding from this study and of potential interest to researchers of engagement was that deep thinking, mastering difficult skills, and using sophisticated learning strategies in English could be implemented in an SNS program. The opinions offered, clarification requests, and clarifications offered both captured and displayed examples of cognitive engagement. An implication from this study with potential interest to EFL teachers is that such a program can be used to

promote autonomous learning in an EFL setting. The program facilitated learner autonomy, motivating the students to spend more time voluntarily using English on Edmodo and other SNS sites. Behavioral and emotional engagement were both necessary and beneficial in developing cognitive engagement. The students in this cross-cultural program responded and viewed their Edmodo experience positively, suggesting that they enjoyed it and were engaged sufficiently to regularly post and respond to comments on Edmodo. Another implication that can be drawn from these findings is that researchers can effectively isolate various forms of engagement through the same or a similar framework utilized in this study. Additionally, this framework could potentially be replicated by researchers interested in using the SNS program Edmodo.

The program also seemed to facilitate learner autonomy, motivating the students to spend more time voluntarily using English on Edmodo. As such, for EFL instructors wishing to facilitate autonomy among learners, Edmodo can be used to promote autonomous learning in an EFL setting. It was also found that students' English ability was improved, especially in the areas of grammar and vocabulary related to personal interest in a social setting, thereby having a positive impact on learners' linguistic competence. The reluctance of the participants to make foreign friends online using English SNS sites in this and Hamada's (2012) study is somewhat concerning, which allows the possibility for similar studies to be conducted and contrasted with other East Asians learners.

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Appendix 1

Closed-ended student questionnaire

Question 1. The Edmodo exchange program was interesting

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree

Question 2. The Edmodo exchange program helped to improve my English ability

1. Strongly disagree

2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree

Question 3. How many posts on Edmodo did you make weekly?

1 / 2 / 3 / 4 / 5+

Question 4. Other than Edmodo, how often do you read English on other SNS sites?

every day/ 2-3 times a week/ once a week / once a month / hardly never

Question 5. How many ULL students have you made friends with privately outside the Edmodo group?

1 / 2 / 3 / 4 / 5+

Question 6. Do you want to continue the Edmodo exchange program next semester?

Yes/ No

Questions for Further Discussion and Investigation

1. What are other research methods that could be used to measure students' self-confidence in using Edmodo in English?
2. What could we discover by conducting a longitudinal study using Edmodo?
3. What translanguaging aspects might we discover if foreign exchange students were paired and completed communicative tasks prescribing to Willis' task cycle?
4. How can we explore using qualitative interviews about students' and teachers' perceptions regarding completing foreign exchange classes using Edmodo?

Chapter 5

Using Different Types of Computer-Supported Signaling in Explicit Online Grammar Instruction

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Abstract

Much has been written about the influence of various factors that affect learners' retention of course contents in various contexts and at various levels. However, few studies have focused on the factors that may both affect and indicate the organization of materials or contents presented to learners. This study aims to determine the effects of using different types of signaling on learners' retention in the post and delayed tests on the reduction of adverb clauses in an instructed online English grammar class. The quasi-experimental design recruited three groups, each of which included 20 pre-service language teachers. The control group was instructed on reducing adverb clauses with no use of signaling. However, visual signaling such as using texts in bold type was introduced into the materials for the Experimental Group 1, while the Experimental Group 2 used the materials supported with visual signaling in the form of graphic organizers as flowcharts. The scores from a researcher-developed assessment for the three groups were analyzed with a one-way ANOVA. The results of the study indicate that the participants in both experimental groups scored higher than the control group in the post and delayed retention tests; and the Experimental Group 2 scored relatively higher than the Experimental Group 1. Semi-structured interviews uncovered several advantages of using verbal and visual signaling in the materials used for grammar instruction.

Keywords

Visual signaling, verbal signaling, graphic organizers, grammar instruction, retention tests

INTRODUCTION

Signaling, a well-known principle of cognitive multimedia learning, entails that students can learn easily when provided with several cues which show the organization of the material presented to them (Mayer, 2009). The rationale behind this principle is that when learners' attention is directed towards the main points in the large context of a lesson, learners tend to build connections between these main points without dwelling on unnecessary details, which helps reduce extraneous processing (Jiang, Renandya, & Zhang, 2017). Signaling can be integrated into learning and teaching materials in two ways: verbal and visual signaling. Verbal signaling benefits from "underlining", "bolded words", and "vocal emphasis", while visual signaling includes "visual cues such as arrows, distinctive colors, and flashing" (Mayer, 2009, p. 110).

Regarding the use of signaling in research on teaching and learning languages, it is seen that input or textual enhancement is the concept frequently noted down in various studies (e.g., Izumi, 2002; Kian & Gorjian, 2018; Leow et al., 2003; Winke, 2013). Input enhancement is a concept coined by Sharwood Smith (1993) to refer to the techniques that make language provided to learners more salient, which helps teachers draw learners' attention to language features so that learners can consciously be aware of these features. In other words, when the input is enhanced through textual techniques such as using bolded or underlined words, it is more likely for learners to notice the form and to keep it in the long-term memory. Likewise, textual enhancement, considered one of the various approaches to enable learners to notice and pay attention to linguistic forms, aims:

to raise learners' attention to linguistic forms by rendering input perceptually more salient. Textual enhancement aims to achieve this by highlighting certain aspects of input by means of various typographic devices, such as bolding, underlining, and italicizing in written input, or acoustic devices such as added stress or repetition in oral input. (Nassaji & Fotos, 2011, p. 36)

Much has been written about the influence of various factors that affect learners' retention of course contents in various contexts and at various levels. It is acknowledged that the studies conducted on the use of signaling and textual enhancement underscore overall positive effects on using verbal and visual techniques. However, despite these positive overall effects, most fail to provide any evidence that shows improvement in learning. Moreover, few studies have focused on comparing the effects of using different types of signaling while presenting materials to learners, especially courses such as English Grammar in language teaching and learning contexts.

LITERATURE REVIEW

Research on the use of signaling principles has indicated the crucial role in benefiting students on transfer tests conducted in content courses (e.g., Mautone & Mayer, 2001; Mayen, 2013) and transfer performance when multimedia representations support the content in textbooks (e.g., Cheng, Chou, Wang, & Lin, 2015). There are a variety of studies examining the effectiveness or ineffectiveness of enhancements introduced to teaching and learning contexts and showing varying results. The studies to be reviewed in this section are organized and discussed based on the effects of verbal and visual signaling on learner performance (see Table 1).

Table 1

Previous Research on Verbal and Visual Signaling and Learner Performance

| Author(s) | Verbal signaling used | Target language structure / component | Major finding(s) / effect of signaling |
|---|--|---|--|
| <i>Verbal signaling and learner performance</i> | | | |
| Shook (1994) | font size and bolding | Present perfect tense and relative pronouns | Leading to higher scores |
| Lee (2007) | larger, boldfaced letters in different fonts | English passive construction and topic familiarity | beneficial for the intake of target forms |
| Kian & Gorjian (2018) | choice and underlining | English connectors | Increasing learners' noticing and intake |
| Izumi (2002) | bolding, different fonts and font sizes | Acquiring English relative clauses | No significant gains; use of tasks becoming more important |
| Leow et al. (2003) | underlining, bolding, and larger fonts | Present perfect and subjective mood in Spanish | No significant improvement in scores |
| Winke (2013) | Underlining and font | Modified replication of the study conducted by Lee (2007) | No improvement in gain scores; learner's noticing of passive structures increasing |

Visual signaling and learner performance

| | | | |
|-------------------------------------|--|---|--|
| Robinson et al. (2006) | Partially complete graphic organizers | Retention of course content | Scoring higher on the examination. |
| Lust (2014) | Graphic organizers | Learner gains based on course content | statistically significant gains |
| Mann (2014) | Concept/event maps and sequence chains | Comprehension of classroom discussions and readings | an increase in students' scores. |
| Evmenova et al. (2016) | Computer-based graphic organizer | Writing (quality and quantity of writing essays) | Improvement in writing |
| Casteleyn, Mottart, & Valcke (2013) | Concept and mind maps | Lectures provided with concepts and mind maps | Participants' preferring lectures based on maps, but no significant difference in knowledge gain |

Verbal Signaling and Learner Performance

Shook (1994) investigated the effects of textual (verbal) enhancement on present perfect tense and relative pronouns in Spanish in a study conducted with 125 university students. The findings of the study indicate that experimental groups provided with reading passages with enhancements obtained higher scores than control groups. Likewise, Lee (2007) reported similar results in a study that investigated the effects of textual enhancement (larger and boldfaced letters in different fonts) on English passive construction in addition to topic familiarity. The study included 259 Korean participants learning English passives, who were divided into several groups with existing and non-existing textual enhancement. The results of the study indicate that textual enhancement proved to be beneficial for the intake of target forms in English. Using two different attention drawing techniques, choice and underlining, Kian and Gorjian (2018) have investigated the effects of these two techniques on 69 pre-intermediate students of English learning English connectors, who were divided into two experimental groups,

and a control group. The experimental groups were exposed to two techniques, while the control group was exposed only to drills of grammar provided in the reading texts. The study found that both the underlining and choice techniques were effective in the participants' noticing and the intake of English connectors.

Unlike the aforementioned studies that found positive and promising results in integrating textual enhancement using different techniques into grammar instruction, several other studies resulted in non-significant gains regarding learner performance. The study conducted by Izumi (2002), for example, compared the effects of textual enhancement (bolding, different fonts, and font sizes) and output on acquiring relative clauses in English. The participants in the study were 61 adults with different mother tongues. The results of the study indicate that the participants who were exposed to instruction with textual enhancement did not perform significantly, while the ones exposed to output-input tasks showed significant gains in acquiring relative clause forms. Similarly, the study conducted by Leow et al. (2003), who investigated the effects of textual enhancement on present perfect and subjective mood in Spanish on 72 university learners' performance, found that textual enhancement did not lead the participants to perform better than other participants who were not exposed to enhanced reading passages that included the target forms. In a recent work that replicated Lee's study, Winke (2013) reported that enhancement did not lead to an increase in gain scores. However, it has been noted that, based on the data obtained from the participants' eye movements, enhancement introduced to readings positively affected learners' noticing of passive structures.

Visual Signaling and Learner Performance

The studies reviewed so far focus on verbal enhancements introduced to target grammatical forms. However, to the best knowledge of the author, there is no study conducted on the use of visual signaling in learners' noticing of language structures. As previous research on using graphic organizers as visual signaling indicates that graphic organizers can be utilized as effective signals that might promote learners' noticing and retention of course content (Stull & Mayer, 2007), it is believed that the review of these studies might also indicate the possible use of graphic organizers in other language skills and components. For example, the study conducted by Robinson et al. (2006) investigated how graphic organizers affected exam performance in an undergraduate educational psychology course. The participants included 114 students enrolled in two sections of the course. The participants in the study completed graphic organizers partially or studied complete graphic organizers based on the course content in three quasi-experiments. The results of the study indicate that the partial tasks led the students to score higher on examination and that, in all experimental conditions, the participants' note-taking increased. In another study, Lusk (2014) investigated

the effect of using graphic organizers in a special education classroom and compared this effect with the effectiveness of lecture-style teaching. The study benefited from pre- and post-test measures to analyze the effects. The participants in the study included two classrooms of tenth-grade students and were divided into two groups: special education classroom and general education classroom. The results of the study indicate that using graphic organizers benefited both groups, leading to statistically significant differences. They also indicate that using graphic organizers was more effective in the special education classroom.

Mann's (2014) study, on the other hand, focused on the effectiveness of concept/event maps and sequence chains as graphic organizers that were used during classroom discussions, reading, and assignments in social studies content. The study involved 92 students in eighth-grade West Virginia Social Studies classes, and data were collected from pre and post-test assessments to determine student improvement in comprehension. The study found that scores of the students with and without disabilities increased due to the use of graphic organizers. Evmenova et al. (2016) investigated the effects of a computer-based graphic organizer (Microsoft Word) on the quantity and quality of essay writing by ten seventh- and eighth-grade students with disabilities such as emotional and attention deficit. The results of the study revealed in their visual analysis that all participants in the study improved their performances in writing, leading to improvements in the quantity and quality of their essays.

While the studies reviewed so far have indicated the relative improvements in learning through graphic organizers, the study conducted by Casteleyn, Mottart, and Valcke (2013) did not report any gains. Their study aimed to determine how graphic organizers such as concept maps and mind maps affected learning outcomes and a variety of variables such as cognitive load and appreciation of e-materials prepared by the lecturer cognitive theory of multimedia learning. One group was exposed to audio-recorded lectures, while the experimental one received lectures based on graphic organizers. The results of the study indicate that, although the participants preferred the lectures based on graphic organizers, there was no statistically significant difference in knowledge gain, cognitive load, or self-efficacy.

In summary, previous studies, which investigated the effectiveness and ineffectiveness of verbal and visual enhancements introduced to teaching and learning contexts, have provided varying results, from positive effects that lead to improvements in learners' performance to no significant results. It is well noticed that most of the studies suggest an overall positive effect for both verbal and visual signaling or enhancements and indicate that these enhancements, at least, lead learners to notice target grammatical forms and in various contexts, result in student improvement in comprehension and retention of course content.

In other words, the verbal and visual signaling is found to increase noticing, which is considered necessary but not sufficient for acquisition of grammatical forms (Nassaji & Fotos, 2004). Based on the findings of the studies reviewed in this section, it also appears that these enhancements are viewed as effective techniques to make target forms more salient, thereby leading learners to notice the target forms.

THE STUDY

Aims

This pilot study aims to determine the effects of using different types of signaling on learners' retention in post-tests on reducing adverb clauses in an instructed grammar class. Different types of signaling included no signaling, verbal signaling through using texts in bold type, underlined, italicized and written in capital letters, and visual signaling using graphic organizers such as flowcharts supported with colorful and blinking texts. In line with the aim of the study, the following research questions were stated:

1. Does the type of signaling affect the production of the target L2 form (reducing adverb clause), as measured by the participants' performance on a re-write task that included sentences of adverb clauses?
2. Does the type of signaling affect the target L2 form (reducing adverb clauses) recognition, as indicated by the participants during interviews?

Participants

The participants in the study included 60 senior pre-service language teachers in three groups (Control, Experimental 1, and Experimental 2) enrolled in an elective course titled 'Advanced English Grammar II' offered by the Department of Foreign Language Education at a state university in Turkey. The participants (40 female and 20 male) were assigned to groups based on the diagnostic test scores of a pre-test at the beginning of the semester. Each group consisted of 20 participants. The participants' age ranged from 22 to 27, with an average of 23.5. Most of the participants were graduates of high schools, while some of them were also graduates of a 4-year program. Convenience sampling was used in the study since resources as well as the logistical network were not available and sufficient to randomly select the participants from an entire population. Another reason was that the potential source of participants was easily accessible to the researcher.

Materials

The researcher benefited from explanations and exercises on Unit 16 Reducing Adverb Clauses of the book by Frodesen and Eyring (2007), which was the main textbook of the Advanced English Grammar II class. This class was offered during 2017-2018 Spring semester and aimed to refresh students' linguistic competence in English covered in previous courses such as Contextual Grammar and Advanced English Grammar I to review basic and advanced linguistic structures, to create an awareness of the relationship between the linguistic structures and lexical items and meanings, and to analyze the language structures within the framework of a context. The researcher first created explanations and exercises based on the unit materials on reducing adverb clauses of time and reducing adverb clauses that show cause. The same materials were created; however, the following changes were made to those materials:

Control Group: No signaling introduced to explicit instruction and exercises in terms of enhancement.

Experimental Group 1: Verbal signaling such as bold type, underlined, italicized, and written in capital letters was introduced to explicit instruction and exercises.

The following is the exemplary material provided to the Experimental Group 1:

(a) While we were hiking, we admired the scenery around us.

We can only reduce adverbial clauses of time including words such as “While”, “before”, and “after” when the subjects in each clause are the same. That is, the subject of the main clauses and the adverbial clause are must be the same.

(b) **While we were hiking**, we admired the scenery around us.

In order to reduce or write an adverb clause, we must first consider the subjects and then the voice of tense: active or passive.

(c) **While hiking**, we admired the scenery around us.
The reduced clauses use “**verb + ing**”.

(d) **Hiking**, we admired the scenery around us.

It is also possible to omit “While”.

The sentences in (a), (b), and (c) have the same meaning.

Experimental Group 2: The grammar instruction included graphic organizers in the form of flow charts to provide explanation and examples (see Figure 1).

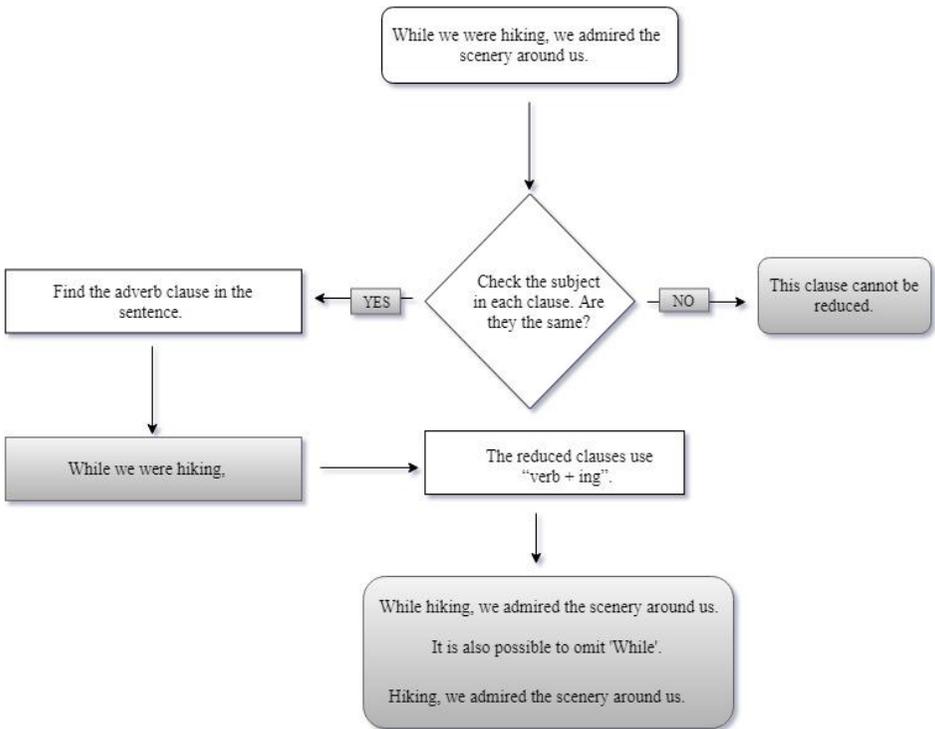


Figure 1. The flowchart explaining the reduction of an adverbial clause.

For all groups, the materials also included explicit instruction and contained 15 examples of the targeted structures for adverb clauses of time and cause. While the control group did not benefit from verbal or visual signaling, the experimental groups benefited from explicit instruction and examples enhanced verbally and visually in order to make the reduced adverb clauses more salient.

To investigate whether the type of signaling affects the participants' recognition of the target grammatical form, reducing adverb clauses, semi-structured interviews were conducted with the participants in the experimental groups. To measure the effect of the type of signaling on the production of the target L2 form, the participants' performance was assessed through a re-write task that included sentences of adverb clauses, which included 25 items and two sections. The first section included 15 items that required rewriting the given sentences by reducing

the adverb clauses if it was possible to do so. The second section of the task included 10 items that required writing the complete adverbial clauses of the reduced adverb clauses. The verbal signaling features were introduced to the explicit explanations and exercises by using *Microsoft Word*, while the visual signaling was created using draw.io, available at <https://www.draw.io/>.

Procedures

A mixed-methods design for data collection was adopted. The quantitative data collected included a quasi-experimental (pre-test, post-test and delayed test). The unit Reducing Adverb Clauses was selected from the coursebook, Grammar Dimensions 4, and the materials were redesigned based on the groups. In the Control Group, no signaling was introduced in the materials. However, in the Experimental Group 1, the materials included verbal signaling through using grammar instruction in bold type, underlined, italicized, and written in capital letters, while in the Experimental Group 2, the grammar instruction included graphic organizers in the form of flowcharts to provide explanation and examples on reducing adverb clauses. The flow charts also included colorful and blinking texts, which were inserted into PDF documents as Flash content and converted to a format that can be played by *Adobe Reader*, the free version of which allow users to view the flash content without additional software.

During the first week of the semester, the participants were informed about the course policy, the coursebook to be used, and requirements. They were also informed that a study would be conducted with *Unit 16 Reducing Adverb Clauses* on the seventh week, and their consent was obtained. A pre-test including 25 items on reducing adverb clauses was given as a diagnostic test to the participants, and, based on the results of the pre-test, they were divided into three groups.

Two weeks before discussing reducing adverb clauses, an online class on *Edmodo* has been activated, and necessary explanations and exercises have been uploaded. As different groups would be exposed to different signaling, three classes were created. As the study included online grammar instruction on *Edmodo*, the participants were provided with hands-on experience on how to use the website and access the materials. The study lasted only for a week, during which the participants practiced reducing adverb clauses of time and reducing adverb clauses that show cause without any time limitation. They were free to do the activities without being limited to any time or place.

One week after the study was completed, the participants were given the post-test that included the same questions in the pre-test that required reducing the adverb clauses and writing the complete adverb clauses in reduced adverb clauses. The delayed test was administered at the end of the semester as part of the final

exam. The pre-test was used as the post-test and the delayed test that included the same 25 questions. Example items are shown below:

Writing reduced adverb clauses if possible

- While I was trying to help my brother with his math, I got impatient because he would not pay attention to what I was saying.
- As the door was locked, it could not be opened.
- Because we took the bus, we saved a lot of money.
- Because I arrived at my first class late, I waited outside the classroom and missed the entire lecture.

Writing the complete adverbial clauses of reduced adverb clauses

- Having hiked around the park, we were exhausted.
- Never having gone to skating, I want to take lessons.
- Not being watched by the police, he is free to move.

In order to address the first research question, one-way between-groups analysis of variance (ANOVA) was used to determine whether there were any statistically significant differences between the means of three groups regarding the post-test and delayed test. For the second research question, qualitative data collection included semi-structured interviews conducted with five students selected from each experimental group (10 participants in total) regarding the use of different types of signaling. The semi-structured interviews took place in the researcher's office in the participants' L1 (Turkish) and lasted 8 minutes on average. The participants were directed the following questions regarding their views on how the verbal and visual signaling affected their recognition of the target L2 form. However, in order not to limit the participants' responses, they were also reminded that they could also bring up the issues that they thought were important or relevant:

1. Was your attention directed towards the target forms in the explanations/exercises?
2. How was your attention directed in the explanations and exercises?
3. Do you think that directing attention in this way affected your recognition of the target L2 form (reduced adverb clauses)?

RESULTS

As previously mentioned, the participants were divided into three groups according to the type of signaling (Control Group: no signaling; Experimental Group 1: verbal signaling; Experimental Group 2: visual signaling). There was a

statistically significant difference at the $p < .05$ level in post-test results for the three groups: $F(2, 57) = 20.136$, $p = .00$ (see Table 2). The effect size was calculated using eta squared and determined as .41, which suggests a very large effect size.

Table 2

One-Way Between-Groups Analysis of Variance (ANOVA) Post-Test Results

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|--------|------|
| Between Groups | 412.433 | 2 | 206.217 | 20.136 | .000 |
| Within Groups | 583.750 | 57 | 10.241 | | |
| Total | 996.183 | 59 | | | |

Table 3 indicates the post-test results that reveal the differences between the control and experimental groups. The results show that the participants in the experimental groups outperformed the ones in the control group. In other words, the participants exposed to verbal or visual signaling in explicit online grammar instruction obtained higher scores in the re-write task. The post-test results also indicated that no statistically significant difference existed between the Experimental Groups 1 and 2.

Table 3

Post-Test Results Showing Differences between the Control and the Experimental Groups

| (I) group | (J) group | Mean Difference (I-J) | Std. Error | Sig. |
|------------------|------------------|-----------------------|------------|------|
| no_signaling | verbal_signaling | -4.550* | 1.012 | .000 |
| | visual_signaling | -6.200* | 1.012 | .000 |
| verbal_signaling | no_signaling | 4.550* | 1.012 | .000 |
| | visual_signaling | -1.650 | 1.012 | .241 |
| visual_signaling | no_signaling | 6.200* | 1.012 | .000 |
| | verbal_signaling | 1.650 | 1.012 | .241 |

Regarding the delayed test results, there was a statistically significant difference at the $p < .05$ for the three groups: $F(2, 57) = 30.195$, $p = .00$ (see Table 4). The effect size, which was calculated using eta squared, was .51, indicating a very large effect size.

Table 4

One-Way Between-Groups Analysis of Variance (ANOVA) Post-Test Results

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|----|-------------|--------|------|
| Between Groups | 510.833 | 2 | 255.417 | 30.195 | .000 |
| Within Groups | 482.150 | 57 | 8.459 | | |
| Total | 992.983 | 59 | | | |

The post-hoc comparisons using the Tukey HSD test indicated the mean scores for the Experimental Group 1 ($M = 16.15$, $SD = 3.31$) and Experimental Group 2 ($M = 18.40$, $SD = 2.47$) were significantly different from the Control Group ($M = 11.40$, $SD = 2.87$). Moreover, although in the post-test, there was no statistically significant difference between the experimental groups, in the delayed tests results, the Experimental Group 2 differ significantly at the $p < .05$ level ($p = .04$) from the Experimental Group 1 (see Table 5).

Table 5

Delayed Post-Test results Showing Differences between the Control and the Experimental Groups

| (I) group | (J) group | Mean Difference (I-J) | Std. Error | Sig. |
|------------------|-------------------|-----------------------|------------|------|
| no_signaling | verbal_signaling | -4.750* | .920 | .000 |
| | visual_signaling | -7.000* | .920 | .000 |
| verbal_signaling | no_signaling | 4.750* | .920 | .000 |
| | visual_signaling | -2.250* | .920 | .046 |
| visual_signaling | no_signaling | 7.000* | .920 | .000 |
| | verbal_signalling | 2.250* | .920 | .046 |

The semi-structured interviews were conducted with five participants from each experimental group. The responses provided to the interview questions indicated that the participants viewed signaling positively. A great majority of the participants ($n=8$) in the Experimental Group 1 indicated that the explanations and examples provided in underlined and written in capital letters in the lecture notes helped them pay attention to the forms. In other words, they noticed the target grammatical forms presented in contexts. One of the participants expressed this point as follows:

The texts underlined or written in capital letters drew my attention to how adverb clauses could be reduced. These changes provided me with the

opportunity to focus more on the forms in the given explanations and examples without dealing with unnecessary details.

This finding is in line with one of the findings proposed by Jiang, Renandya, and Zhang (2017), indicating that learners learn better when their attention is drawn towards important points, which reduces extraneous processing. Five participants also indicated that they started benefiting from text modifications such as underlining or writing in capitals while they were studying the other course contents since they found it very useful. One of the participants expressed this:

I started writing capital letters or underlining in different courses while I was studying to indicate the main points. This helps me a lot, as I do not have to deal with minor details.

Similar responses were provided by the participants in the Experimental Group 2 regarding the use of flowcharts. However, eighteen participants (90%) acknowledged that the graphic organizers helped them learn better as the charts made easier to understand reducing the relative clauses. This group of participants differed significantly in the results of the delayed tests as one of the participants pointed out:

The flow charts summarized how the adverb clauses can be reduced on a single page. I think it greatly helped me, as I did not have to read pages of explanation. The main points were summarized briefly.

As this participant pointed out, flowcharts seem to have an advantage over the verbal signaling as the learners' attention are drawn to the main points or grammatical forms on a single page, which makes reviewing and learning easier.

DISCUSSION

Statistically significant differences were obtained among the groups, favoring the participants in the experimental groups that were exposed to verbal and visual signaling. Regarding these results, one might suggest that these significant differences might be attributed to the initial group differences. However, the groups were divided into control and experimental groups based on the pre-test results. Moreover, no significant differences were found between the groups based on the pre-test results. Hence, the statistically significant differences obtained both on the post-test and delayed test results can be attributed to the type of signaling that the participants were exposed to, rather than the initial group differences.

In this study, the type of signaling (verbal and visual) was only used on reducing adverb clauses in English, and the results of the study indicated that when the participants were supported with verbal and visual signaling, they obtained higher scores compared to the participants who were not provided with any kind of signaling. In other words, the results suggest that when the participants' attention was drawn to specific structures and explanations, this can be more beneficial for the production of the target language forms. This finding can be attributed to the fact that when the participants are presented with verbal or visual cues, their attention is easily directed towards the main points without dealing with unnecessary details, which also decreases the cognitive load. This finding was in consistent with the findings of the studies conducted by Shook (1994), Lee (2007), and Kian and Gorjian (2018), which indicated that when their participants were provided with enhanced texts or explanations, they obtained higher scores than those who were not.

Different from the findings of these studies, this study also found that there was a slightly significant difference between the participants who were exposed to verbal and those who were exposed to visual signaling. The results of the study favored the participants who were exposed to visual signaling. This might be attributed to the fact that the use of flowcharts as visual signaling might provide a better organization of the explanations and examples and learners' attention is drawn to the main points and grammatical structures easily as they can be provided on a single page. As the students did not dwell on unnecessary details, it is possible that it reduced extraneous processing of unnecessary details, sparing more cognitive resources for the main points in the explicit grammar instruction (Jiang, Renandya, & Zhang 2017). However, the finding favoring verbal or visual signaling is not in line with the findings of several other studies such as Izumi (2002), Leow et al. (2003), and Winke (2013), which revealed that the enhancements or signaling introduced to the target forms or the texts did not lead to an increase in learners' performance, especially in gain scores. However, as has been noted by Winke (2013), although no better performance was observed compared to other participants who were not exposed to enhancements, the participants' eye movements indicated that enhancements positively contributed to the learners' noticing of passive target forms.

The second research question aimed to investigate whether the type of signaling would be more beneficial in participants' recognition of the target L2 form based on the participants' responses during the semi-structured interviews. The results of the study indicate that the hypothesis for this question was supported, with the participants' responses indicating that they could easily notice or, in participants' words, 'pay attention to' the target forms and explanations with the help of visual signaling as flowcharts and the use of blinking text and colorful arrows. This finding corroborates the finding of the study conducted by Winke (2013),

indicating that verbal and visual enhancements contribute to the participants' recognition of the targeted linguistic forms.

As aforementioned, the delayed test results indicate that the participants exposed to visual signaling including flowcharts supported with colorful and blinking texts led the participants in the experimental group to obtain higher scores in the production test. This finding is consistent with those of the studies (Mautone & Mayer 2001; Stull & Mayer 2007), indicating that visual signaling such as graphic organizers help learners understand the organization better. Supporting these quantitative data, the participants' responses have also revealed that visual enhancements not only affect their production of the target forms but also notice them easily.

Overall, the findings from the current study suggest that computer-supported verbal and visual signaling leads learners to perform better on re-write task that included sentences of adverb clauses when the instruction is provided online explicitly. However, the findings also reveal that visual enhancements prove to be more beneficial as the participants in the second experimental group obtained higher scores, which might also reveal that visual enhancements help learners recall content more than the types of signaling. Contrary to the findings of previous studies that found no statistically significant results in learners' performance when they are exposed to enhancements, the current study favored signaling, especially, when provided with visual enhancements such the use of flowcharts.

However, some limitations of the study must also be addressed. First, the study was conducted only for a week, which suggests that further research might include data collection in a longer period. Moreover, the quasi-experimental design included groups that included twenty participants each. Therefore, the statistically significant results obtained based on the data might change if a larger number of participants were included in each group and in a longer period. Second, this study included and investigated the use of no signaling, verbal signaling through using texts in bold type, underlined, italicized and written in capital letters, and visual signaling using graphic organizers as flowcharts supported with colorful and blinking texts. Verbal signaling included the changes in the explanations and examples by using a combination of bold type, underlining, italicizing, and writing in capital letters. Further research, hence, can also focus on the effects of the individual use of bold type or underlying, rather than combining them and check whether this would lead to an increase in learners' performance on the tests.

Additionally, this study investigated the effect of signaling on teaching reducing adverb clauses that show time and clause. This specific targeted linguistic

structure itself, rather than the type of signaling introduced to explanations and example, might have contributed to the effectiveness or ineffectiveness of the signaling on the production and recognition of this targeted linguistic item. Therefore, further research should also consider teaching and learning new linguistic items. Finally, regarding the effects of type of signaling on recognition, this study only benefited from the participants' responses to the interview questions, which might be misleading as the findings are based on the participants' perceptions. Further research can also consider analyzing learners' eye movements when they are reading the texts enhanced with different types of signaling.

CONCLUSION

This study aimed to determine the effects of various types of signaling on learners' performance in retention tests on reducing adverb clauses. The results of the study indicate that verbal and visual signaling used in teaching materials improved the learners' retention compared to the no-signaling classroom context. They also indicate that, when learners are provided with graphic organizers such as flowcharts, their performance increases more compared to other types of signaling. Considering that the study was conducted in an instructed grammar class with a limited number of students in the Turkish context, it is well acknowledged that the findings may not be generalizable to a larger population but transferable to similar contents.

The findings of the study have some pedagogical and practical implications for introducing signaling in similar contexts. They suggest that verbal and visual signaling is beneficial for drawing learners' attention to explanations and examples on a specific linguistic item and can be beneficial for L2 form recognition and production. As such, teachers, as well as instructors, might consider introducing various forms of signaling while using materials. Using signaling is believed to benefit learners when, especially, coursebooks used in the classroom lack sufficient verbal or visual signaling that draw learners' attention to main details. Moreover, as indicated by Son (2018), teacher training programs can also provide pre-service language teachers with training on tools that would enhance language learning and teaching practices, including the ones that will pave the way for different enhancement techniques.

Note

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Questions for Further Discussion and Investigation

1. Do you think that verbal signaling or visual signaling draws learners' attention to specific linguistic forms? If yes, in which way? If no, why not?
2. Why is noticing or recognizing a linguistic item insufficient for producing it?
3. Several studies reviewed in this study have indicated that while verbal or visual enhancements lead learners to become aware of the target linguistic forms, they are not sufficient to lead them to learn these forms. What might be possible reasons for this and how can these enhancements lead learners not only to notice the structures but also to learn them?
4. How can teachers benefit from technology so that verbal and visual signaling can be of more beneficial to language learners?

Chapter 6

Instructional Design of Technology-Enhanced Process Writing for Secondary EFL Learners in Hong Kong

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Abstract

With an increased prevalence of information and communication technology (ICT), English as a second/foreign language (ESL/EFL) writing has become an important skill not only in the L2 classroom, but also in our daily lives. It has been over decades since the process writing approach was introduced into Hong Kong EFL contexts as an educational innovation for EFL writing. However, despite the numerous advantages of the approach, recent empirical studies reveal negative attitudes or skepticism toward process writing with the excuse of it generating an examination-centered culture, being dependent on large class size, resulting in inadequate teacher preparation, and limiting class hours. Revisiting the list of cited drawbacks provides great impetus for this chapter, as the most recent technological innovations in education are believed to make a meaningful difference in the traditional practice of process writing. The purpose of the current chapter is to demonstrate the instructional design of technology-enhanced collaborative process writing for secondary EFL learners in Hong Kong and to provide sample technology-enhanced process writing activities. The instructional design of the activities is based on the ADDIE model, which consists of five phases (analysis, design, development, implementation, and evaluation). For ICT, tools and resources involving *YouTube*, *TED-Ed*, *Quizlet*, *Mind Map*, *Google Docs*, and *Grammar Checkers* are adopted and adapted for technology-enhanced process writing. The outcome of the study provides EFL practitioners with insights into the significance of the potential of CALL for teaching EFL writing and practical implications for promoting learner autonomy, empowerment, and learning strategies as well as EFL writing skills.

Keywords

Process writing, computer-assisted language learning, ADDIE model, technology-enhanced language learning, English as a foreign language (EFL) writing

INTRODUCTION

Only in the last few decades second language (L2) writing has been recognized as an important skill for language learning (Harmer, 1998). L2 writing is becoming necessary not only in English classrooms in ESL/EFL contexts, but also in our daily lives, due to the pervasiveness of information technology, including e-mails and social service networks (SNSs). Moreover, the integration of English writing assessment in standardized tests of English proficiency (Reid, 1993), such as TOEIC writing tests, TOEFL iBT writing section, and IELTS writing tasks, has been a sign of the recognition of the importance of L2 writing.

During the last decade, a number of L2 writing approaches and techniques have been introduced to L2 classrooms. The process writing approach has particularly received attention in ESL contexts since the 1980s (Jones, 2011) and has become a mainstream L2 writing technique in first language as well as ESL/EFL contexts (Boscolo, 2008; Zhou, 2015). In contrast to the product approach to writing, based on studying and replicating textual models, the process writing approach involves multiple and repeated steps that compel the writer to closely consider the topic, language, and purpose for the writing, and the social reality of an audience (Boas, 2011). In general, process writing consists of the following five stages: prewriting, drafting, reviewing (incorporating feedback), revising, and publishing. Process writing is effective in raising students' autonomy by enhancing the writing ownership and the responsibility awareness (Jones, 2011; Wakabayashi, 2008). Compared with traditional approaches focusing on format and sentence patterns, process writing approach enhances learners' independent writing ability (White & Arndt, 1991). Even after classes, students are able to develop conceptual tools for their own independent writing (Camhi & Ebsworth, 2008).

However, in spite of numerous advantages of the approach, recent empirical studies (e.g., Lee, 2010; O'Brien, 2004; Pennington & Cheung, 1995) reveal negative attitudes or skepticism towards process writing, noting the approach promotes an examination-centered culture, large class sizes, inadequate teacher preparation, and limited classroom hours. Revisiting the list of justifications for not employing the approach provides great impetus for the current chapter, as the most recent technological innovations in education are believed to make a meaningful difference in the traditional practice of process writing. Through the use of technology such as word processing software, computer-mediated communication (CMC) tools, and authentic online resources, L2 writing can be a more socially interactive process, expanding L2 learning opportunities outside the classroom (Roger, 2008) and facilitating negotiation of meaning (Chapelle, 2001).

The purpose of this chapter is to demonstrate the instructional design of technology-enhanced collaborative process writing for secondary EFL learners and to provide sample technology-enhanced process writing activities. The instructional design of the activities is based on the ADDIE model (Molena, Reigeluth, & Nelson, 2003), which consists of five phases (analysis, design, development, implementation, and evaluation). Although the process writing approach itself presents a writing model and a series of steps to follow in producing a finished piece of writing, it is necessary for EFL teachers to incorporate a systematic process and the foundational tenets of instructional design, so that teachers may consider student engagement, learning, and assessment more intentionally and generate better practices in process writing with ICT tools and online resources.

CONTEXT

The specific teaching context of the technology-enhanced process writing activities could potentially involve lower secondary students in an EFL context, such as Secondary 1 level (Year 7) in Hong Kong secondary schools. Students are aged between 12 and 13, with an average English proficiency level approximately equating a Level B2 (Vantage) on the Common European Framework Reference scale (Mak & Coniam, 2008). The class size could be around 20 to 30 students. The students will work collaboratively in mixed ability and gender groups of four to five students in the writing classroom. English writing in some secondary schools is integrated with reading lessons, while other schools deliver comprehensive English lessons without separating the lessons into different language skills. Nonetheless, students are normally expected to produce an average of 10-14 compositions during the school year (Lee, 2011; Lee & Coniam, 2013). At the Secondary 1 level, a piece of writing of approximately 150 words could be set as a homework each month. In the sample lesson, students are asked to write a biography of a famous person for the class magazine.

The technology-enhanced process writing module is planned for mainly online learning outside the traditional face-to-face environment. All students have an Internet-accessible computer at home and permission needs to be obtained from parents to allow their children to use computers for completing the homework writing tasks. Since the process writing lesson plan requires various types of computer knowledge and skills, English teachers need to discuss and negotiate with ICT experts, so that students have the computer literacy required for accomplishing the technology-enhanced process writing lessons.

Many process writing experts have agreed that there are stages EFL learners should undergo in the writing process but have not agreed on naming each stage nor on how many stages there should be (Bae, 2011). Yet, a review of previous empirical studies on the classroom-based EFL process writing practice exhibits five distinct states: *prewriting*, *drafting*, *reviewing*, *rewriting*, and *sharing*. The commonly identified features of conventional process writing practice are provided in Table 1.

Table 1

Conventional Practice of Process Writing in EFL Contexts (Harmer, 2004; Lee, 2007)

| Stage | Conventional Process Writing (e.g., Topic: Biography) |
|-------------------|---|
| <i>Prewriting</i> | <p>Identify purpose, audience, structure, and language</p> <ul style="list-style-type: none"> ▪ Familiarize students with the topic and genre (e.g., structure, grammatical features, and vocabulary) used in a biography by sharing related materials in class. ▪ Engage students in analyzing samples of a biography (e.g., from previous students). Teacher provides a list of questions to help students with text analysis, asking them to find out the purpose of writing a biography, the audience of the biography, the functions of different paragraphs, and the typical language features they can identify, such as vocabulary, tense, and sentence pattern, etc. <p>Generate ideas</p> <ul style="list-style-type: none"> ▪ Ask students to work in pairs or groups to decide a famous or infamous person for their biography and brainstorm the content by making mind maps, lists of ordered points and freewriting. <p>Make a plan</p> <ul style="list-style-type: none"> ▪ Students select main points and organize them into an outline. |
| <i>Drafting</i> | <p>First draft</p> <ul style="list-style-type: none"> ▪ Students compose the first draft according to an outline. |

| | |
|------------------|--|
| Reviewing | <p>Peer evaluation</p> <ul style="list-style-type: none"> ▪ Engage students in peer evaluation. The teacher needs to guide and train students to do peer evaluation (review), providing them specific assessment criteria (e.g., corresponding to the purpose, structure, and language of a biography) and offering them opportunities to practice through evaluating previous students' sample texts. During peer feedback sessions, encourage students to comment on strengths and weaknesses and give suggestions. ▪ The teacher can provide oral or written feedback on the draft as a whole class or to individuals through conferencing. ▪ The teacher can design follow-up activities targeted at common issues in the draft (e.g., vocabulary building and grammar enhancement tasks). |
| Rewriting | <p>Editing & Rewriting</p> <ul style="list-style-type: none"> ▪ Students revise according to teacher feedback and what they learned in the follow-up activities on challenging vocabulary and grammar. ▪ Students edit the draft, correcting grammar, spelling, and punctuation mistakes. |
| Sharing | <p>Publishing</p> <ul style="list-style-type: none"> ▪ Students print the final drafts and display them on the classroom board. |

ACTIVITY DESCRIPTION

ADDIE Framework for Technology-Enhanced Process Writing

In this section, the authors demonstrate how the ADDIE instructional design framework can be adopted to build a process writing module. Through this intentional and iterative process, the EFL writing content, instructional methods, and EFL learners' language learning are critically reviewed.

Analysis Phase

The analysis phase of the ADDIE model is initiated by creating an overall picture of the instructional design integrity for process writing. At this stage, it is critical to set up a series of questions dealing with process writing module design, target student groups, learning objectives, content identification, content presentation, teaching and learning strategies, and other possible pedagogical challenges (Hess & Greer, 2016). Some common tasks related to this state are:

- Identifying students' overall background (e.g., age, educational information, previous experience, and interests);
- Establishing learning outcomes (referring to the curriculum) and learning needs (through a mini-needs analysis or an informal interview);
- Determining learners' L2 knowledge (e.g., vocabulary level, genre knowledge) and digital/computer literacy required for technology-enhanced process writing;
- Conducting self-reflection as a teacher regarding previous teaching experience with (technology-enhanced) process writing and any further training needs for computer/digital literacy.

Design Phase

In the design phase, the teacher will create detailed learning objectives, principles, assessments, and activities based on the findings from the analysis phase (Wang & Hsu, 2009). Learning objective design naturally takes place in the analysis phase; however, in the design phase, additional objectives can be developed (e.g., academic writing using certain groups of vocabulary or certain grammar sentence structures). In particular, assessment design is one of the most important aspects in the design phase. The teacher needs to determine how to assess students' process writing practice, such as rating criteria for final drafts and peer feedback criteria. Some common tasks related to this state are:

- Determining learning objectives and process writing content;
- Selecting assessment methods and frequency of implementation;
- Defining a timeframe for process writing activities;
- Establishing ICT tools and online resources for EFL writing and peer/teacher feedback;
- Identifying evaluation methods for the entire process writing module (e.g., a questionnaire, informal interviews).

Development Phase

In this phase, the final structure and content of the process writing module are created to correspond to the elements defined in the previous two phases. This phase is very important for the successful implementation of technology-enhanced process writing. The teacher should obtain and prepare the required ICT tools and resources as well as plan specific activities for each step of process writing. Some common tasks related to this state are:

- Preparing process writing content, ICT tools, and online resources;
- Preparing actual teaching materials and prompts for each step of process writing;
- Preparing the timeframe for each step of process writing;

- Preparing technology-enhanced process writing module evaluation plans.

Implementation Phase

The implementation phase is where the teacher will try out the newly developed process writing module with a test group (e.g., advanced learners, other English teachers, etc.) by asking them for their feedback on the writing topics, integrated ICT tools and online resources, and assessment criteria. Some common tasks related to this state are:

- Evaluating the feedback from other teachers and a test learner group;
- Preparing backup plans for any possible delay or issue during the actual technology-enhanced process writing implementation;
- Double-checking that the process writing module can be laid out in a way that allows L2 learners to improve L2 writing as intended.

Evaluation Phase

In this last phase of the ADDIE model, the teacher needs to conduct a final evaluation of the technology-enhanced process writing module. Two types of evaluation – a formative evaluation and a summative evaluation – can be adopted during the process writing module and after the module is complete, respectively. Through the formative evaluation, the teacher can identify how the EFL learners feel and learn while performing the technology-enhanced process writing and can make some adjustments based on the findings. In the summative evaluation, the teacher can ask about the overall experience of learning, learning materials, learning aids, and areas for improvement, and usually this is accomplished through a distributed survey. By performing the two evaluations, the technology-enhanced process writing module can be more effective and better meet the EFL learners' needs. Some common tasks related to this state are:

- Ensuring analysis of feedback from the EFL learners about the technology-enhanced process writing module;
- Establishing quality assurance tools for clarity of writing instruction, affordance of ICT tools, and online resources for EFL writing.

Technology-Enhanced Process Writing

Based on the ADDIE instructional framework and the conventional practice of process writing, a technology-enhanced process writing module is proposed as follows.

Prewriting Stage

The prewriting stage begins by establishing a technology-enhanced process writing platform. Teachers share learning materials, assign writing tasks and

collect students' drafts on a Learning Management System (LMS) such as *Blackboard* (<https://www.blackboard.com/>), *Moodle* (<https://moodle.com/>), and *Schoology* (<https://www.schoology.com/>). In *Schoology*, for example, teachers can sign up for an instructor account and create an online course using free services including file sharing, tests and quizzes, assignment drop boxes, attendance records, and online gradebooks. In addition to the LMS, teachers can also create a process writing module space on cloud storage such as *Google Drive* (<https://www.google.com/drive/>), *Dropbox* (<https://www.dropbox.com/>), *MS OneDrive* (<https://onedrive.live.com/>), and *Baidu Cloud* (<https://yun.baidu.com/>), etc. The module space could be organized into five main folders: individual space, group space, whole class space, materials and resources space, and teaching space (Slavkov, 2015).

Next, when helping students to identify purpose, audience, structure, and language, teachers familiarize students with the topic and genre by sharing pre-class learning materials (e.g., *YouTube* (<https://www.youtube.com/>) videos about celebrities and biography writing samples) and designing quizzes on the LMS. *TED-Ed* (<https://ed.ted.com/>) can also be used to create customized lessons simply by searching *YouTube* or *TED-Ed* videos and adding questions as well as discussion prompts online. *TED-Ed* lessons can then be shared with students through a unique URL and teachers could track students' progress and view their answers and discussions online. Moreover, teachers can engage students in analyzing samples of a biography by sharing previous students' work on the LMS or cloud storage platforms. In *Schoology*, teachers share a *Google Docs* (<https://docs.google.com/>) link of a sample biography and ask students to analyze the function of different paragraphs by using different colors to highlight information such as dates, education, achievement, personality, and reason for fame. After analysis, students change the setting of the file to "Everyone with the link can view" and share the *Google Docs*' link back to *Schoology*, so that teachers are able to check their answers and students can look at peers' work. If a course space is created on cloud storage, teachers can ask students to save their *Google Docs* in the individual folder on *Google Drive*.

When generating ideas, students work in pairs or groups to brainstorm the content of the biography using free online mind maps tools such as *Popplet* (<https://popplet.com/>) or *SimpleMind* (<https://simplemind.eu/>). Mind maps in both tools can be exported as PDFs and shared on the LMS or the group space on cloud storage. Additionally, *Mindmeister* (<https://www.mindmeister.com/>) and *Mindomo* (<https://www.mindomo.com/>) offer a collaborative online mind mapping service that allows students to share mind maps with groupmates and collaborate with them synchronously. To make a plan for their writing, students transform mind maps to outlines through the online tools mentioned above. Students revise their mind maps, discarding unimportant points, selecting main

teacher can design follow-up activities targeting such issues by sharing online learning materials (e.g., reference documents and video lectures) and online quizzes on the LMS, *TED-Ed* or cloud storage. Online learning tools such as *Quizlet* (<https://quizlet.com/>) and *Kahoot!* (<https://kahoot.com/>) can be used to create games or quizzes to motivate students and check their uptake.

Rewriting Stage

When students revise using *Google Docs*, they can accept, reject, or reply to the suggestions in the “suggesting” mode. After finishing their rewriting stage, students click “All changes saved in Drive” on the navigation menu. A page of their revision history will then show up, organized by author names and dates. Students can name the versions as a first draft or second draft, and then click “Only show named versions,” which makes it easy for teachers to compare two or more drafts. If students use *Word Online*, they can revise first or second drafts by choosing either to “Edit in Browser” or “Edit in Word”. In both versions, students can go to the “Review” ribbon to view and work through comments. Teachers can provide feedback by using the function of “Compare major versions on the server” under the “Review” tab to see the differences between the first draft and the revised one. Students rewrite their final draft in *Google Docs* or *Word Online* according to the peer and teacher feedback and reflect on what they have learned from the teacher-generated follow-up activities. Students can also make use of the grammar checker introduced in the previous phase.

Sharing Stage

Students publish their final draft on the LMS or in the whole class’s space on cloud storage. Visual wall websites, such as *Padlet* (<https://padlet.com/>), are also perfect places for exhibiting students’ work. The teacher can first create a course account and change the privacy mode to be password protected, allowing students to freely write. Students show their writing process by displaying related videos and pictures of the famous person, their mind maps and outlines, and then their final version of the biography. With the “Comment” and “Attribution” functions open, peers can comment on each other’s work.

FEATURES AND ISSUES

Since the current technology-enhanced process writing module depends highly on technology, L2 learners’ and the teacher’s computer and digital literacy is critical for the successful implementation of online process writing as well as in achieving the learning objectives. Thus, the teacher will need to prepare for a systematic diagnosis of and training in L2 learners’ computer and digital literacy skills, so that potential online technologies can be fully integrated into the L2 classroom at a normalized level (Bax, 2003). Otherwise, selected technologies

could create an obstacle in process writing. In this regard, a preliminary session to enhance L2 learners' computer and digital literacy skills is strongly recommended. Teachers will also need professional development in computer and internet skills to comfortably design and facilitate technology-enhanced process writing. Thus, teachers' sufficient ICT knowledge and skills are essential in fulfilling the potential of ICT in process writing.

Potential issues pertaining to the instability of *Google Docs*, such as periodic missing text and accidental lag during online writing, may prolong the time students spend on collaborative writing and the time teachers spend on giving feedback (Lin & Yang, 2013). Future online writing practice may employ other online systems, such as wikis (e.g., *PBworks*), though it should be noted that many of these wiki platforms are not totally free. Obviously, each online application software or platform has certain constraints and limitations in terms of reliability, accessibility, affordance, price, and usability. Therefore, the teacher should pay more attention to the formative and summative evaluation results and make every effort to maintain the ideal online software and platform to best facilitate the technology-enhanced process writing.

FUTURE DIRECTIONS

L2 writing is a complex cognitive process that consists of a series of stages before the final product is completed (Rogers, 2008). Endeavors to integrate technology in L2 process writing do not simply aim to reduce the classroom teacher's teaching and testing burden or to motivate L2 learners to write better, but instead strive to encourage L2 learners to write differently in terms of learner autonomy, learning strategies, and learner empowerment. As presented in previous sections, process writing involves various stages, including planning, organizing, revising, and evaluating; throughout these stages L2 learners must autonomously select, reject, and rewrite their own written text, which in fact promotes taking charge of the writer's own L2 learning and learning strategies (Benson, 2001; Konishi, 2003). Moreover, through online collaboration with peers and the teacher, learner empowerment can also be developed (Rogers, 2008). Future directions of the technology-enhanced process writing should encompass considerations for how to enhance learner autonomy, learning strategies, and learner empowerment as well as how to improve L2 writing skills.

SUMMARY

This chapter has demonstrated how technology-enhanced process writing can be designed based on the ADDIE instructional design framework and various online

applications. Although a great deal of technological and pedagogical preparation and training is needed for both EFL learners and the teacher, technology-enhanced process writing can promote learner autonomy, empowerment, and learning strategies as well as EFL writing skills.

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Appendix 1

Online Tools for Technology-Enhanced L2 Process Writing

1. Learning Management Systems

- Schoology <https://www.schoology.com/>
- Blackboard <http://www.blackboard.com/>
- Moodle <http://moodle.org/>

2. Resource Sharing

- Google Docs <https://docs.google.com/>
- Google Drive <https://www.google.com/drive/>
- MS Word Online <https://office.live.com/start/Word.aspx/>
- MS OneDrive <https://onedrive.live.com/>
- Dropbox Paper <https://www.dropbox.com/paper/>
- Dropbox <https://www.dropbox.com/>
- Baidu Cloud <https://yun.baidu.com/>
- Tencent Docs <https://docs.qq.com/>
- TED-Ed <https://ed.ted.com/>

3. Mind Mapping

- Mindmeister <https://www.mindmeister.com/>
- Mindomo <https://www.mindomo.com/>
- Popplet <https://popplet.com/>
- SimpleMind <https://simplemind.eu/>

4. Online Games and Quizzes

- Kahoot! <https://kahoot.com/>
- Quizlet <https://quizlet.com/>

5. Dictionaries and Corpora

- Thesaurus <http://www.thesaurus.com/>
- Merriam-Webster Online <https://www.merriam-webster.com/>
- British National Corpus <http://www.natcorp.ox.ac.uk/>
- Collins Word Banks Online <https://www.collinsdictionary.com/wordbanks/>
- The Corpus of Contemporary American English <https://corpus.byu.edu/coca/>

6. Grammar Checker

- Grammarly <https://grammarly.org/>
- Grammarly <https://www.grammarly.com/>
- Ginger <http://www.gingersoftware.com/grammarcheck/>
- SpellCheckPlus <http://spellcheckplus.com/>

Questions for Further Discussion and Investigation

1. What functions and features of the suggested online learning platforms or applications in Appendix 1 have you adopted and applied for your teaching or research?
2. What should teachers do if students pay less attention to language accuracy (e.g., grammar) in L2 process writing once they know that they can rely on an automated online grammar checker to edit their drafts?
3. What revision behaviour patterns could be identified in the target L2 learners' online English writing in terms of text-production processes, linguistic units, purpose, and action types?
4. What peer feedback patterns could be identified in the target L2 learners' online peer evaluation phase?

[Practice]

Chapter 7

Implementing a Mobile Peer-Evaluation System for In-Class Student Presentations

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Abstract

Simultaneous in-class presentations are becoming popular, particularly for larger language classes. This kind of presentation necessitates the use of peer evaluation, which also promotes greater involvement of the student audience. Paper and learning management system (LMS)-based forms of peer evaluation have a number of drawbacks which include: considerable paperwork for the instructor; reluctance of students to fairly evaluate their peers or give critical comments; and the asynchronous nature of using LMS for grading, thus affecting the reliability of the ratings and usefulness of the comments. The PeerEval system was designed to overcome these rating problems. PeerEval is a mobile application that allows students to anonymously evaluate presentations in real time using a Likert scale rubric and individual peer comments. Peer evaluation results are compiled in a database which is available to the teacher and the students. It was hoped that with the introduction of a synchronous and anonymous evaluation system, the peer evaluations would help students improve in future presentations. This chapter focuses on using this app in Japanese university classrooms where paper-based rubrics and Moodle forums were commonly used. Student attitudes towards the PeerEval system were measured using a twelve-item questionnaire concerning usability of the software, their attitudes towards the system both as a presenter and as an audience member. Results are discussed regarding student perceptions of the evaluation system, overall feedback quality, and the perceived effect of feedback speed and peer comments. Further uses for a mobile peer-evaluation system are also discussed.

Keywords

Peer evaluation, peer assessment, higher education, mobile assisted language learning

INTRODUCTION

PeerEval (<https://peereval.mobi/>) is an application developed to meet the needs of courses employing simultaneous in-class presentations. These kinds of presentations, since they are given to a small group of people rather than in front of a whole class, reduce the stress involved in addressing a group, while the peer evaluation promotes greater involvement of the students in the presentations to which they are listening (Cote, 2013). Common forms of peer evaluation have a number of drawbacks. For example, paper-based evaluation creates considerable paperwork for the instructor. In addition, students are often reluctant to fairly evaluate their peers or give critical comments on paper-based rubrics. Using the forum function of a learning management system (LMS), such as Moodle, poses different problems, with many students reluctant to grade or comment critically. In addition, evaluation on Moodle is often asynchronous, thus affecting the reliability of the ratings and comments. The PeerEval system was designed with these problems in mind. Japanese students have been called “mobile natives” (Gobel & Kano, 2014; Kano & Gobel, 2013; Lockely, 2011) who are more at home using mobile devices than desktops and laptops, and this was another reason to employ a mobile-based evaluation system.

This chapter will first cover the context of various kinds of in-class presentations, and the benefits and reliability of peer assessment. Following this, an explanation of the development of the PeerEval system and a description of the use of the app will then be given. An explanation of how the app development meets a number of criteria for good CALL software will be explained, and following this, an evaluation by the users of the software, comparing both the app and standard paper-based peer evaluation procedures. Student attitudes towards the PeerEval system were measured using a twelve-item questionnaire concerning usability of the software and their attitudes towards the system as a presenter and as an audience member.

CONTEXT

Modern teaching practices such as small-group presentations, poster presentations, carousel-style presentations, and flipping the classroom have allowed for more active learning in the classroom and have given students more performance time and speaking opportunities in language classrooms. In all of these presentation styles, students are asked to present on a given topic, to an audience of their peers. These audiences are usually not the entire class, but a subset of the students. By speaking to smaller groups of students, speaking and presentation anxiety can be reduced and the possibilities for interaction with the audience may be increased.

One of the drawbacks with such activities is that the teacher, who is often thought of as both judge and jury, must, by the very nature of the activity, play a smaller role. It is almost impossible for the teacher to evaluate all students in such an activity. In fact, it may be argued that having the teacher as the only evaluator in such activities is counterproductive. If the teacher is the only judge, then what is the audience there for? This question leads to the implementation of some sort of peer evaluation. With proper planning and careful execution, peer evaluation can have a positive effect on both performance and L2 acquisition (Gobel & Kano, 2017; Hansen & Liu, 2005).

Peer assessment has been used as an alternative evaluation method for a variety of oral presentation activities (Boud, Cohen & Sampson, 1999; Patri, 2002; Shimura, 2006). Through peer evaluation, educators hope to encourage active involvement of the students, which in turn will give them insights into how students evaluate their peers. Viewed from a constructivist viewpoint, peer evaluation is essential to promote interaction between learners, which can lead to a higher level of learning (Rust, Price, & O'Donovan, 2003). In addition to promoting interaction, peer assessment can also foster motivation, autonomy and self-efficacy, help students understand the objectives of an activity, and help teachers better understand how the students perceive the grading rubrics (Tseng & Tsai, 2010).

As an emphasis on communication in English as a foreign language (EFL) classes has increased, peer evaluation has become a popular method of assessment (Cheng & Warren, 2005; Finch, 2003; Shimura, 2006). Most students, particularly those in business fields, understand the importance of presentation and the impact those presentations make on an audience. One of the espoused benefits of peer assessment is autonomy, as students take responsibility for their own learning, understanding exactly what they are learning through the process of assessing others (Cheng & Warren, 2005; Patri, 2002). By being part of the evaluation process, students are learning from their peers, while being actively involved in their classmates' work. This process helps the audience notice errors, and highlights areas for improvement for the presenter. In addition, through this process of evaluation, students are developing skills necessary in academic life and enhancing interpersonal relationships within the class (Ahangari, Rassekh-Alqol, & Hamed, 2013).

One common argument against peer evaluation is the issue of rater reliability. However, having just a single rater (the teacher) is statistically questionable (Bachman & Palmer, 1989), and Patri (2002) found that peer-assessment was in high agreement with the teacher-assessment. If learners clearly understand the criteria (often a rubric) used to evaluate, they will have a better grasp of what is required of both presenter and audience, thereby benefiting their own learning

(Panadero & Jonsson, 2013; Rust et al., 2003). In this respect, the development of the criteria may be just as important as the activity itself, and the criteria may change from activity to activity. A second argument against peer assessment has been the social effects that are inherent in the process, namely peer pressure and fear of disapproval. These effects can be effectively alleviated using anonymity in the evaluation process (Vanderhoven, Raes, Montrieux, Rotsaert, & Schellens, 2015).

One other point to consider is that teacher feedback can be inconsistent and vague to students. Peer evaluations often focus more on content and organization, whereas teachers often focus more on form and accuracy (Hedgcock & Leftkowitz, 1992). Although teachers often feel a need to focus on form, having a teacher-centered evaluation system may encourage students to take a more passive attitude towards assessment, since they are all being rated by a single person of authority. This is not to say that teachers should not assess students, but rather that a balance should be found between teacher assessment and peer evaluation. One possible way to create such a balance is by having learners involved in the creation of the evaluation rubric (Patri, 2002). The use of rubrics has been found to positively increase transparency of the activity, reduce performance anxiety, and help learners regulate their learning (Panadero & Jonsson, 2013)

With the above benefits and caveats of peer evaluation in mind, many teachers and textbooks have created paper-based rubrics for peer evaluation. While these paper-based assessment forms are useful, they pose a number of problems. One problem is the issue of anonymity. Although Likert scale items may be anonymous, handwritten comments frequently are not. Simply tabulating scoring rubric averages is simple enough, but what about feedback and comments, and individual grades for individual presenters? Without some privacy and anonymity, the effect of social influence may increase (Panadero, Romero, & Strjbos, 2013; Tseng, et al., 2010). In addition to this, collating all of the evaluations is a time-consuming task that usually falls on the teacher. In the end, cutting and pasting, or reformatting assessments is the only way for teachers to create individual summaries.

Some of these problems can be alleviated by using LMS such as Moodle or Blackboard. In this way, students can input their scores online, making it easier for the teacher to tabulate final scores. Indeed, computerized peer assessment has been used to great effect in the peer assessment of writing (see Davies, 2000, for an overview). The problem with LMS and spoken presentations are twofold: first, it may be difficult to ensure total anonymity of feedback and comments on a Moodle forum, for example. Although some research has been done with a variety of web forums and classroom response technologies (CRT) and

anonymity (Bojinova and Oigara, 2011, 2013; Raes, Vanderhoven., & Schellens, 2013), most of the CRT explored dealt with simple assessment scores, as opposed to written feedback; second, in many cases the assessment must be done asynchronously. Students without access to the Moodle forum on their mobile device would have to input evaluations at a later time.

To solve these problems, the developer of PeerEval, Thomas Robb, sought to create an application with a simple interface, which was both flexible and anonymous in nature. The application sought to use a series of steps to create evaluation rubrics that could be used quickly and anonymously to give quick and accurate impressions to their peers, and with the users having immediate access to their scores and feedback. The following section describes the PeerEval system and how it has been used for in-class presentations and peer assessment.

PRACTICE DESCRIPTION

The system consists of two components: a browser-based system for the instructor to create the evaluation criteria, to upload the student name list, and to download the results; and the iOS app that the students use for their assessments. In addition, from 2018 students can access the PeerEval student system (the same as the app) on any web browser.

The Browser-Based System

At present, any teacher can use PeerEval with their students without charge. Teachers need to go to <http://peereval.mobi>, where there are two choices. Teachers may use the system without registration, but they must configure their session, conduct their class and download their results within a set time period (at present 72 hours). Teachers with login-access, however, can create multiple rubrics, sessions and classes that remain in the system until the teacher elects to delete them.

Figure 1 shows part of the teachers' page that allows them to create or reuse rubrics, set up multiple sessions (a "session" is a combination of a class list with a rubric set that can be used for one activity in the class), and view or download the results. Teachers create a session by naming the session, inputting student information (a "handle" or nickname for each student, first and last names, and an email address) and choosing or creating a rubric. Each session name should be descriptive and unique. Student information can be input on the webpage itself or by uploading a .csv file with all the relevant information.

Session Set-up

Previous Sessions

| O/C | Session name | Access Code | Class | Date | Rubric |
|-----|-----------------|-------------|----------|--------------|------------------------------|
| ● | Presentation E1 | | Kumi_1E1 | 16 May 2017 | View results Download Delete |
| ● | e3books | | Kumi_1E3 | 24 May 2017 | View results Download Delete |
| ● | Magic! | | Kumi_1E1 | 8 June 2017 | View results Download Delete |
| ● | E3books2 | | Kumi_1E3 | 21 June 2017 | View results Download Delete |

Unused Sessions

| Session name | Access Code | Class | Date | Rubric |
|----------------------|-------------|----------|-------------|----------|
| Edit Presentation E3 | 1c3pres | Kumi_1E3 | 01 Jan 1970 | 1 Delete |

New Session

Create Session name: Class: / New Rubric: / New

Figure 1. Teacher’s control panel.



PeerEval

Technology for Better and More Frequent Presentations

<http://peereval.mobi>

Making peer evaluations accurate and fun!

Rubric Creating and Editing

| Short label | Explanation | Order |
|---------------|---|-------|
| Introduction | The student gives a clear introduction to the topic. | 1 |
| Content | The speaker sticks to the topic. | 2 |
| Media Support | Use of handouts and visuals to aid understanding. | 3 |
| Organization | The message is overtly organized. There is a clear sequence and relationships of ideas. | 4 |
| Creativity | Very original presentation of material; captures the audience's attention. | 5 |
| Nonverbal | Clear eye contact with the audience. Good use of gestures. | 6 |

Allow other teachers in my school to use this rubric.

Figure 2. Rubric set up.

The key to the peer evaluation process is the rubric system. For teachers new to this kind of evaluation system, default rubrics are essential. Making a good instructional rubric takes time and having models at hand to assist in the choosing of criteria and articulating levels of quality is very helpful. Within PeerEval, teachers can choose one of the default rubrics or create their own. A set of up to

six rubrics can be set up for one session, with a choice of four-point or five-point Likert scales. By offering default rubrics, the system allows teachers to customize the evaluation based on their needs. Once rubrics have been created, they can be saved for later use and even shared with the PeerEval community. Each rubric consists of a title for the item, a description of the item, and a 4-5 point Likert scale (see Figure 2).

Once a session has been fully set up, an access code is created. This access code will be used by the students, along with their handle to access the session via the app. Red and green clickable icons allow a session to be closed so that students cannot continue to submit evaluations after the activity is complete. In cases where the activity takes two or more classes to complete, the session may be opened and closed as needed.

Once a session has been completed, the teacher can view or download the results. The teacher can show the results instantly on the class screen if s/he is not concerned about student privacy, or print them out and supply the students with their own scores, which also show the class averages (Figure 3). Having the class average next to a student's individual grades is useful for the student, should they wish to see how they are doing in reference to the whole class. In addition to individual and average scores, the student's result also contains any comments that their peers have written.

| Student Scores | | | | | | |
|----------------|---|---------------|-----------|--------------|----------------|---------|
| Name | Ending? | English only? | Good job? | Interesting? | Well-Prepared? | Average |
| | 3.8 | 3.9 | 3.3 | 3.5 | 3.4 | 3.6 |
| Average | 3.9 | 3.9 | 3.5 | 3.8 | 3.2 | 3.7 |
| | interesting Very clear speech. I like love romance too!! love is interesting I like love story. love story is good I want to read this book I want to try to read. | | | | | |

Figure 3. Individual score report.

The scores can also be output as a standard .csv file which allows the instructor to manipulate the results as needed (for example, weighting certain items and adding teacher scores) and create grades for the students. A future improvement will allow the instructor to stipulate a weighting for each rubric. For example, in a low-level English class, an important aspect of the presentations is the students' preparation so that they speak from memory rather than simply reading their talk from notes or from sentences that appear on the slides. Thus, that aspect can be given more weight in the final grade determination.

Using the PeerEval App

The iOS app is available from the Apple Store free of charge. When students activate the app, they log in with an access code provided by their instructor and their first name (or handle). Android users and people who want to use their PCs to evaluate can use a web browser to log in by accessing the PeerEval website (<http://peereval.mobi>) and choosing the “Students” link. Once logged in, a screen such as that in Figure 4 then appears with the rubric constructed by the teacher. Above each item is a small question mark icon which, when activated, shows the description of that item. When the screen is slid to the right (or the icon in the upper left is activated), the names of all of the students appear. Touching the name of a student then sets the main screen to evaluate that particular student, with the presenter’s name appearing at the top of the screen. All evaluations are on a Likert scale. Students are also encouraged to enter a comment in the box provided at the bottom of the screen. Each student then submits their evaluation to the server. It is possible, however, for a student to return to a previous evaluation during the same session, revise the scores and re-submit. Once a student has finished presenting and the peers have input their scores and comments, students can view their scores for each rubric, the total score for the presentation, and the class average (Figure 5). Having this information so soon after the presentations is of great value to the students, who can judge their performance against their received grades and comments.

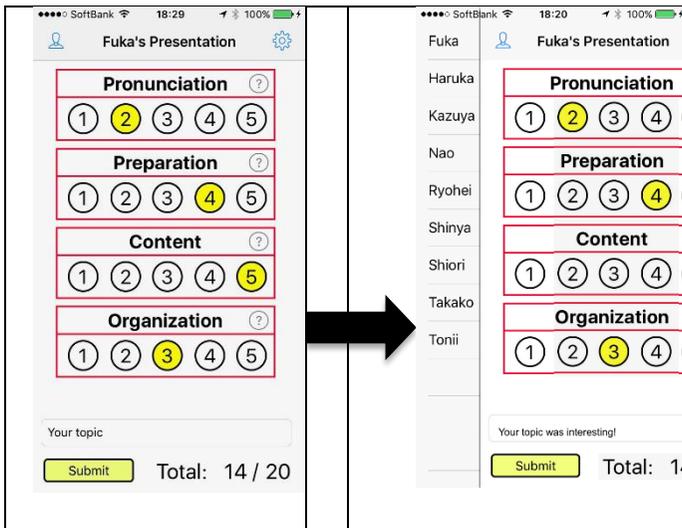
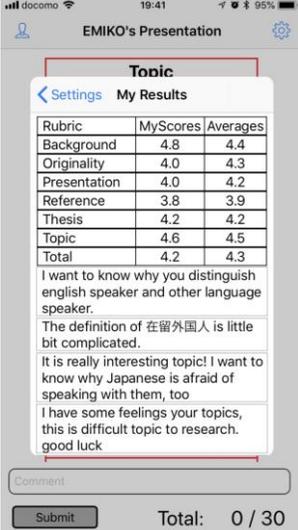


Figure 4. Main screen with name list of students when slid to the right.



EMIKO's Presentation

Topic

< Settings My Results

| Rubric | MyScores | Averages |
|--------------|----------|----------|
| Background | 4.8 | 4.4 |
| Originality | 4.0 | 4.3 |
| Presentation | 4.0 | 4.2 |
| Reference | 3.8 | 3.9 |
| Thesis | 4.2 | 4.2 |
| Topic | 4.6 | 4.5 |
| Total | 4.2 | 4.3 |

I want to know why you distinguish english speaker and other language speaker.

The definition of 在留外国人 is little bit complicated.

It is really interesting topic! I want to know why Japanese is afraid of speaking with them, too

I have some feelings your topics, this is difficult topic to research. good luck

Comment

Submit

Total: 0 / 30

Figure 5. Individual student result.

FEATURES AND ISSUES

A quick evaluation of the app will help uncover features and issues with the app and how it is used. An evaluation framework was used to objectively evaluate the app, and a survey of users was created to compare student preferences between paper-based evaluation and app-based evaluation, both of which are described below.

The evaluation framework outlined by Reinders and Pegrum (2015) was adapted. They break their evaluation framework down into five categories: educational affordances (in what learning environments the resource may be used), general pedagogical approaches (e.g., collaborative learning or informal learning), L2 pedagogical approaches (e.g., communicative learning or task-based learning), SLA principles (e.g., comprehensible input, feedback, or negotiation of meaning), and affective principles (engagement and reduction of anxiety). Following their definition, PeerEval comes under the heading of dedicated, app-based mobile materials.

Regarding educational affordances, the app has potential for personal learning, since the rubric itself is a key to how students should approach their own performance. There is also great potential for situated and social learning, as the app can be used to encourage interaction between students, audience members, and presenters. Finally, the mobile nature of the app allows for close alignment with the goal of feedback.

From a general pedagogical approach, the app encourages social constructivist learning in a specific situation, since the feedback offers a chance for negotiation of meaning and social interaction. The evaluation system is clearly student-centred and can be viewed as collaborative, since constructive comments are an integral part of the process. Having the students take part in evaluation (and possibly construction of the rubric) fosters autonomy and encourages students to take responsibility for their own performance. The app is also well-suited to current L2 pedagogical theory as it promotes communicative learning. Presentations necessitate the communication of an idea to one or more interlocutors. This type of communication is one of the most important goals of communicative language teaching. In addition, the use of the app along with presentation tasks helps tasks become more meaning-based.

Regarding current SLA principles, the app promotes comprehensible output from the presenters, since this is crucial to high scores from their peers. In addition, the comments section could allow for greater negotiation of meaning. Finally, the amount of feedback presenters receive in terms of both rubric scores and comments is designed to help them improve their presentation and communication skills. Depending on the rubric created, different aspects of language learning could be emphasised for different situations and groups.

Finally, the design of the app makes it easy to use and encourages frank rating of peers. The interface is intuitive enough that all students are able to use it within minutes of downloading it, and the anonymity of the app encourages them to make constructive comments. Weighing the benefits of adoption against possible investment of time and resources, it seems that the app improves access to learning opportunities by promoting autonomy and interaction.

Student Attitudes towards the PeerEval App

To informally measure student attitudes towards PeerEval, a twelve-item questionnaire was created and administered to students who had experience with both paper-based and PeerEval peer evaluation procedures. The rubrics for both procedures were similar. The questionnaire was divided into five questions about the PeerEval app itself, three questions comparing paper-based and app-based evaluation from the presenter's point of view, and four questions comparing paper and app-based evaluation from the point of view of the audience (see Appendix 1). The questionnaire was administered to a total of 39 students, enrolled in four separate classes. In all four classes, the students first gave short presentations and were graded using a paper-based rubric. In the following month, they gave a separate presentation and were evaluated on a similar rubric via PeerEval. Cronbach's alpha for the results was .73, indicating acceptable but weak internal consistency.

Table 1 shows the result of the questionnaire. As for Items 1-5, a 4-point Likert scale was used, 1 being “Agree,” and 5 being “Don’t agree.” As for Items 6-12, a 4-point Likert scale was used, 1 being the strong preference to paper-based evaluation, and 4 being strong preference to the app-based evaluation. In general, students felt that the app was easy to install and use (Items 1-5). They felt that the evaluation system was clear and that the comments and feedback would help them prepare more for subsequent presentations. From the presenters’ standpoint, the feedback speed was a major plus, and the ability to quickly read peer comments was viewed as helpful (Items 6-7). Item 8 was a bit confusing, as the mean suggests that presenters felt the audience was paying more attention in the app mode, but the mode suggests otherwise. Upon further examination, it was found that some presenters felt that students might be paying more attention to the app (or their phones) than the presenter, which might explain the low mode for this item. From the point of view of the audience, everyone preferred the privacy and feedback speed of the app and felt that the app gave them the feeling that the presentations were more interactive (Item 12). The students also felt that the app allowed them to evaluate more accurately than using paper-based methods (Items 9-11).

Table 1

Questionnaire Results

| | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 |
|------|------|------|------|------|------|-----|------|------|------|------|------|------|
| Mean | 1.76 | 1.72 | 1.92 | 2.00 | 1.75 | 3.6 | 2.96 | 2.48 | 3.64 | 3.48 | 3.12 | 2.96 |
| Mode | 1 | 1 | 1 | 1 | 1 | 4 | 4 | 1 | 4 | 4 | 4 | 3 |

Table 2 shows a sample of comments from the students. Since the comments are anonymous, they tended to be quite direct and on point.

Table 2

Selected Student Comments

| Session | Comment |
|---------|--|
| 44 | It is generally good presentation, but I couldn’t understand a little about the content so if you prepared little more, that would be great. |
| | Hard to follow. too many characters on the slides. |
| | Good job. Overall good, but some explanation was not totally accurate. |
| | Slide and organization was good but if you speak more slowly and clearly, that would be better. |

| | |
|----|--|
| | The presentation was slightly long. Maybe you should tell us why you choose this topic more. |
| 68 | Thesis is little bit unclear and not really enough. I am curious how do you broaden your idea. |
| | References are not enough. You should look for reference of books. |

The preliminary results of comparing PeerEval with paper-based forms of peer evaluation allowed us to consider student preferences. Students generally had a favorable impression of the system, but presenters felt audience members were paying less attention to presentations and more attention to their phones. This preliminary result suggests that rules and/or procedures should be put into place regarding when students are allowed to input their evaluations.

Finally, since the initial review of the app, the developer has added a student peer evaluation section to the PeerEval website, allowing students to evaluate from browsers as well as the iOS app. Browser-based peer evaluation functions in exactly the same way as the PeerEval app. This addition helps alleviate the problem of having a peer evaluation system on one single platform; however, the students seem to favor the app over web browser. For one thing, access to the browser proved more difficult than downloading the app, which frustrated some of the students.

FUTURE DIRECTIONS

This chapter has briefly described a peer assessment mobile app, how it is used in context, and student attitudes towards the use of the app in reference to a paper-based rubric. There is still much more to investigate regarding this form of peer assessment. Areas warranting further explanation include the reliability of peer assessment in a presentation context. For example, it would be beneficial to closely evaluate interrater reliability and teacher/student reliability. Clearer measurement of averages, standard deviations and correlations would be of help in this area. Using such data one could start to explore the effect of peer assessment on performance over time (positive or negative).

Although PeerEval was designed to overcome rating problems with paper and LMS-based forms of peer evaluation, the present study only compared students' perceptions of paper-based and PeerEval peer evaluation procedures, without collecting data about LMS-based peer evaluation. Future studies should quantitatively investigate possible benefits of PeerEval over LMS-based peer evaluation.

A second area of possible research would be to investigate which group of students benefits most from the peer evaluation system. Researchers could look at a variety of different groups (based on L2 proficiency, or performance score, or improvement in scores, for example) to see whether the comments and scores, or indeed, the entire process of peer evaluation was more beneficial to one group over others.

Finally, how the area and scope of application for PeerEval could be widened, and features of the app could be added to meet these future needs might be investigated. For example, a feature could be added that would allow for the evaluation of groups, rather than individuals. PeerEval could also be used for purposes of self-reflection, having students evaluate themselves and then compare their attitudes over time. Finally, using the evaluation system for lecture or course feedback might be a tertiary use of the app, particularly if students are already familiar with its use. This immediate feedback would allow teachers to adjust their lessons and activities rapidly, to meet student and educational needs.

SUMMARY

The use of PeerEval for short presentations can be judged as successful. The students appreciate that it is not just a method of marking but has benefited them in the learning process. The anonymous nature of the app has also been successful in allowing critical comments. The PeerEval system has a number of advantages over paper-based or LMS-based evaluation. Firstly, the interface is simple and easy to use for mobile natives, allowing for faster evaluation and display of results. In addition, privacy of the evaluations is greater than Moodle forum or paper-based systems, hopefully resulting in more accurate grading and more salient comments. From the teacher's side, there is far less work inputting the data and summarizing the results.

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Appendix 1

PeerEval Survey (English version)

>> For the following questions, think about your experience with the PeerEval app.

| | Agree | | Don't agree | |
|--|-------|---|-------------|---|
| 1. The app was easy to upload and install | 1 | 2 | 3 | 4 |
| 2. The app was easy to use | 1 | 2 | 3 | 4 |
| 3. The evaluation system was clear | 1 | 2 | 3 | 4 |
| 4. I enjoyed using the app | 1 | 2 | 3 | 4 |
| 5. The comments and feedback will help me prepare more for the next presentation | 1 | 2 | 3 | 4 |

>> For the following questions, think about your preference for paper or app.

As a presenter

| | paper | | app | |
|---|-------|---|-----|---|
| 6. I like the feedback speed. | 1 | 2 | 3 | 4 |
| 7. I prefer the comments | 1 | 2 | 3 | 4 |
| 8. I feel the audience is paying more attention | 1 | 2 | 3 | 4 |

As an audience member

| | paper | | app | |
|--|-------|---|-----|---|
| 9. I like the feedback speed | 1 | 2 | 3 | 4 |
| 10. This method gives me more privacy with my evaluation | 1 | 2 | 3 | 4 |
| 11. This method lets me evaluate more accurately | 1 | 2 | 3 | 4 |
| 12. This method makes being in the audience more interactive | 1 | 2 | 3 | 4 |

Questions for Further Discussion and Investigation

1. What disadvantages can you envision with peer evaluation, and how can they be overcome?
2. How can classes deal with the problem of split attention when using a synchronous mode of evaluation?
3. Could such a peer evaluation app be used for purposes other than peer evaluation?
4. Do you think the issue of reliability of peer evaluation is a problem? Specifically, how should teachers deal with teacher/student assessment reliability issues?

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