The construction of an English composition MOOC using Google Classroom

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With the rapid development of technology, online writing instruction (OWI) has become an integral part of all writing instruction. However, one of the challenges encountered by OWI instructors has been to select an appropriate online learning platform or learning management system (LMS) aligning with writing pedagogies. This study developed a small-scale fully online writing course – a college-level English composition MOOC using Google Classroom, a free and easy-to-use online learning platform, to (a) explore the potential of using Google Classroom in teaching composition MOOCs and (b) examine students' learning effectiveness in the composition MOOC. Participants were 33 EFL students who learnt knowledge and skills needed to write a literature review assignment in this 6-week, theme-based composition MOOC. Results demonstrated that the composition MOOC was well received by the participants and was effective in teaching writing given that students made improvement on both knowledge of citation practices and final written product. Specifically, features of Google Classroom allowed teachers to create different types of learning materials, assignments, and assessment that make online writing courses engaging and interactive. Most importantly, its collaborative features, such as file sharing and the real-time communication technology, empowered teachers to give timely feedback and create communicative activities that writing pedagogies value, making Google Classroom a good platform for OWI.

Keywords: Composition MOOCs, Second Language Writing, Google Classroom, Online Writing Instruction, Learning Management System

Introduction

Online writing instruction (OWI) refers to "writing instruction that occurs – at least partially if not fully – in a computer-based, Internet, or intranet instructional setting" (CCCC OWI Committee, 2011, p. 2). Despite the fact that OWI theory and practices are not yet fully developed, the rapid development of

technology has had a significant impact on college composition classrooms (Hewett & Depew, 2015). Various forms of college-level OWI, such as hybrid and fully online writing courses, have been widely used and practiced in which writing instruction is provided using digital technologies with students being engaged in a variety of synchronous and asynchronous online writing activities. Digital technology, undoubtedly, has been an integral part of all writing instruction.

One of the most challenging tasks encountered by OWI teachers is to select the most appropriate technology to teach writing in digital settings, particularly to choose an online learning environment that allows teachers to design OWI in accord with writing theories and pedagogies. However, since most writing teachers lack technological skills in creating web-mediated writing courses on their own, learning management systems (LMSs), particularly LMSs provided by institutions, such as Blackboard, SAKAI, Canvas, WebCT, etc., are frequently adopted (Hewett et al., 2011; Pope, 2011). While adopting an institution's LMS seems to be convenient and cost-effective, an increasing number of studies in the field of computers and composition have highlighted problems of using institutions' LMSs in OWI, criticizing specifically the incompatibility between the design of institutions' LMSs and writing pedagogy (Hutchison, 2019; Pope, 2011). In particular, LMSs which are designed to optimize information storage and retrieval (McDaniel, Fanfarelli, & Lindgren, 2017) often fail to account for the communicative, recursive interaction that writing pedagogy values. Some OWI teachers, thus, regard LMSs as "just a tool" to their instruction, adopting them mainly to perform administrative tasks instead of writing-related pedagogical practices. Therefore, many OWI instructors who are not able to start anew on their own may need to resort to openly available technologies or resources, adopting them creatively and effectively to make technology chosen compatible with writing pedagogies and course objectives (Rickert, 2013).

Google Classroom is a cloud-based platform that integrates many of Google's popular applications or productivity tools such as Docs, Sheets, Slides, Calendar, Drive, etc. for educational purposes. Available for free to all educational institutions, Google Classroom has increasingly drawn attention to educators worldwide because of its accessibility, flexibility, and most importantly its continuously evolving and new features aiming at suiting the needs of teachers, schools, and students (Google for Education, 2020). In particular, with its strong emphasis on fostering better communication and collaboration, such as the real-time commenting system, and the sharing and collaborative features, Google Classroom has distinguished itself from other LMSs and may have the potential to solve the aforementioned problems of LMSs in OWI. However, despite of the diverse functionalities that are likely to make teaching and learning more "productive, collaborative, and meaningful" as advertised by Google, there is relatively little research on the pedagogical use of Google Classroom across disciplines in college classrooms; most related studies to date have otherwise focused on examining teachers and students' perceptions of this online learning platform (Iftakhar, 2016; Saeed Al-Maroof & Al-Emran, 2018).

As OWI continues to demand attention, we are in need of more empirical

research that demonstrates how to integrate writing pedagogies and technology, addressing specifically on aligning features of LMSs to writing pedagogies to enhance the efficiency of OWI delivered through LMSs. Seeing the potential of adopting Google Classroom as a lightweight, alternative LMS for OWI instructors, particularly using features of Google Classroom to design activities that make online writing instruction engaging and interactive, this study demonstrates the construction of a type of OWI courses – composition MOOC using Google Classroom, aiming at (a) exploring the adoption of Google Classroom as an LMS in a composition MOOC and (b) examining students' learning effectiveness in the composition MOOC.

Composition MOOCs

Massive Open Online Courses (MOOCs) have gained significant attention since their first emergence in 2008. With unlimited participation, open access, and interactive forums that support learner-centered pedagogy, MOOCs are considered to be the future of higher education by its proponents despite of many concerns raised about the low completion rate, the quality of learning, and limited options for assessing learning outcomes (Daniel, 2012; Davidson, 2013). Given the irreversible trend of incorporating digital technology in writing instruction, many composition scholars and teachers feel compelled to take the lead in exploring the possibilities and efficacy of using MOOCs in teaching writing (Bloch, 2016; Comer & White, 2016; Grabill, 2014; Moxley, 2012; Porter, 2014). Three composition MOOCs constructed by writing specialists at Duke, Georgia Institute of Technology (GT), and Ohio State University (OSU) were thus launched in 2013 on Coursera. With a large number of student enrollments (up to 82,820 in the case of English Composition I with Duke University), these composition MOOCs were designed as a learning community in which participants developed writing skills through meaningful engagement, interaction, and collaboration with peers. Just like other MOOC learners, participants were expected to take responsibility for their own learning or set their own deadlines in which they watched more than 70 videos, drafted and revised major writing projects, participated in discussion forums, provided both formative and evaluative peer feedback, wrote self-reflections and compiled a portfolio of their work in 12 weeks (Bloch, 2016; Comer & White, 2016). Students who managed to complete these composition MOOCs expressed general satisfaction in post-course surveys, including peer assessment (Vu, 2017), post-course self-efficacy, overall experience with the MOOCs, post-course survey comments and so forth (Comer & White, 2016; Vu, 2017). While it is uncertain to what extent MOOCs are likely to transform writing pedagogy, critiques have been perceived particularly from disciplinary colleagues who enrolled in the three composition MOOCs as observers (Krause & Lowe, 2013; Rice, 2013). They were concerned about (1) course materials aggregated without a clear connection among video lectures, online discussions and assignments (Rice, 2013), and (2) the very limited interaction with peers or instructors resulting from unclear guidelines (Gilliland, Oyama, & Stacey, 2018) and, in particular, unavailable

functionalities of the platforms chosen. For instance, although peer review was required both in the Duke and OSU composition MOOCs for fostering community-based learning, the peer review process could only be conducted through asynchronous forum exchange rather than in real-time, meaningful negotiation because platforms chosen were unable to support synchronous interaction. Therefore, choosing platforms with comprehensive functionalities becomes crucial since it prevents OWI teachers from compromising their course design to "unavailable design" (Wysocki, 2004), thus enhancing the compatibility between writing pedagogies and technology.

Google Classroom

Google Classroom was first launched in 2014 and is one of many products that Google For Education creates to support technology use in digital learning environments. Through transforming and integrating a number of core Google productivity tools, Google Classroom was developed in conjunction with educators, tailored specifically for the needs of onsite educators to build an online learning environment that attempts to mimic a traditional classroom setting. With Google Classroom, educators are capable of creating classes, distributing materials, receiving/ grading assignments as well as giving feedback all in one place. It not only aims at helping instructors manage the complexity of online coursework but keeping students connected with its communication and collaboration features. Most importantly, its simple setup and free services offer school officials an easy-to-use and money-saving option (Crane, 2016; Google for Education, 2020; Iftakhar, 2016).

With a strong emphasis on fostering better communication and collaboration, Google Classroom has not only distinguished itself from other LMS, but it also has great potential to empower writing teachers to design courses that align with writing pedagogies and theories. Particularly, the sharing and collaborating functionalities across various Google apps such as Google Drive, Docs, Sheets, Slides, and Jamboard have brought collaboration to the next level. With these collaborative features, multiple participants are able to view, edit or comment on the same file that is shared anytime, anywhere or on any device. These features not only enhance the communication and interaction needed in the OWI environments but make diverse online interactive writing activities possible, such as group brainstorming or collaborative writing. Other than that, the new real-time commenting system inside Google apps enables users to post and reply to comments like a chat tool (Google for Education, 2020). The synchronous communication is particularly effective in supporting synchronous peer review in OWI, which not only helps improve students' engagement through a real-time dialogue about their writing, but allows teachers to model or troubleshoot the peer review process (Chang, 2012; Min, 2005). All of the aforementioned functionalities of Google Classroom, if appropriately designed, may have great potential in empowering OWI instructors to realize writing theories and pedagogy in the digital learning environment, harmonizing the tension between technology and pedagogy in OWI.

Despite an increasing number of educators starting to adopt Google Classroom as their preferred online learning platform, there is considerably less literature exploring the specific use of Google Classroom than many other alternatives, particularly in terms of its pedagogical design and its efficacy (Chinnery, 2008; Heggart & Yoo, 2018). The majority of related research to date has focused on addressing the perception or acceptance of using Google Classroom from instructors' and students' perspectives, suggesting that it is in general well perceived by users (Iftakhar, 2016; Saeed Al-Maroof & Al-Emran, 2018; Ventayen *et al.,* 2018). However, we know little about how to better align the synchronous and asynchronous features of Google Classroom with instructional needs and pedagogical goals in order to fully realize the benefits of technology and create a satisfying online learning experience. To fill the gap, this study aims at exploring the pedagogical use of Google Classroom in OWI through constructing an English Composition MOOC in an EFL context. With a specific focus on matching the technological features of Google Classroom with writing pedagogy, this study intends to shed light on the greater flexibility that Google Classroom offers as an LMS in OWI and examines students' learning effectiveness in this fully online writing course.

Methods

Context and participants

This study was carried out in spring 2019 in an English Composition course at a medical university in Taiwan (see Figure 1). In this typical 18-week semester-long course, a six-week, theme-based composition MOOC aiming at equipping participants knowledge and skills needed to write a literature review assignment was constructed as a substitute course component to the original six-week face-to-face writing class. Given the inherent complexity involved in learning to appropriately cite sources and the very limited amount of time the instructor has in addressing difficulties students encountered in the face-to-face classroom, the teacher-researcher converted the original 6-week course component into a MOOC, using Google Classroom as the learning platform, to examine the potential of using composition MOOCs to solve students' source use problems in traditional classrooms. All the existing lectures were first transformed into appealing, digestible video lectures for students to watch at any time or at their own pace, designed to free students from the often compressed or fast learning pace in traditional classrooms. Meanwhile, various interesting, engaging online writing activities or tasks were designed using apps integrated into Google Classroom, in order to not only create more writing opportunities for students, but also to improve interaction and collaboration among students and the instructor.

Conducted as classroom-based action research in which the teacher-researcher attempted to explore students' learning effectiveness in a composition MOOC, the participants were 33 EFL students enrolled in the course. These students had voluntarily signed an informed consent before entering the study

and had the right to withdraw at any time without consequence or penalty of any kind. Their English proficiency was at intermediate level or above since this was an advanced-level elective course offered for students with a TOEIC score of 650 or an equivalent level of English proficiency. For the majority of students enrolled in this class, this was their first formal composition course.

One caveat was that unlike many MOOCs that are free and available for the public, the composition MOOC developed in the current research was merely open to students on campus. Since the study aimed at exploring the possibility of using composition MOOCs to solve problems students encountered in traditional writing classes through a classroom-based action research, a Small Private Online Course (SPOC), a version of a MOOC used with on-campus students, was more manageable and adaptive to the university environment given the exploratory nature of the research. Results of the action research were intended to be used to adjust the course design of the composition MOOC for it to become a MOOC open to the public interested in learning citation practice in the future. For this reason, the term MOOC has been used throughout this paper, despite the small scale nature of the tools used.
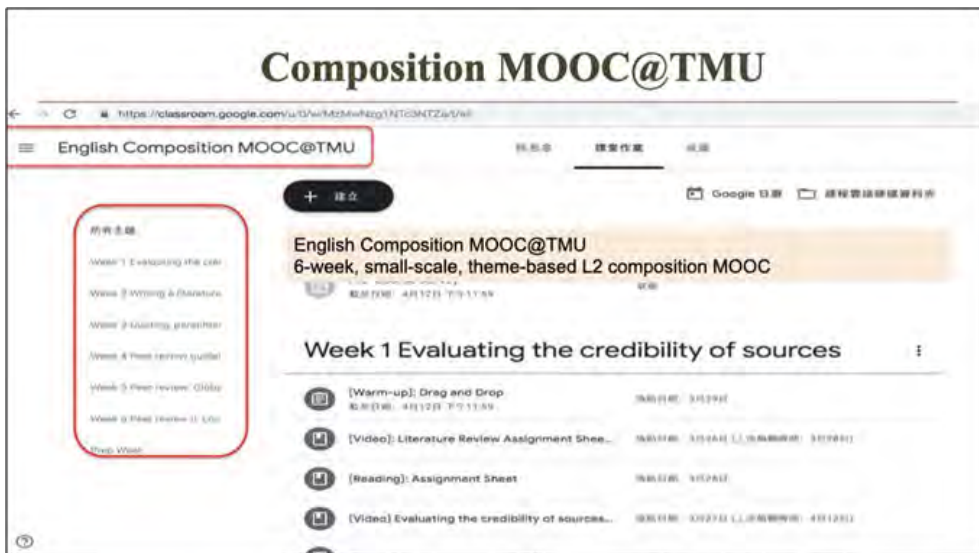

Figure 1. The English Composition MOOC Developed Using Google Classroom

Course design

This section explains major principles adopted in the pedagogical design of the English composition MOOC. This elaboration aims at preparing readers to better understand how these theoretically-informed activities can later be transformed to an online writing classroom and most importantly, how these principles and pedagogies can be realized with technology offered in Google Classroom.

This theme-based, small-scale composition MOOC was designed aiming at (a) developing a process-oriented writing course for EFL college students and

(b) addressing challenges encountered in earlier composition MOOCs. The process writing approach was adopted because the majority of these EFL students received writing instruction emphasizing on the more product-oriented approach in high school. This college-level writing course, different from their previous writing classes if any, intended to direct students' attention to the composing processes, including generating ideas, organizing ideas, drafting, and revising. Participants in the composition MOOC, thus, were required to generate ideas through discussion, write multiple drafts, conduct peer review and revise drafts based on feedback received. Another design principle considered and responded to negativity towards the previous composition MOOCs. Specifically, three features were added in the current course design in order to address challenges encountered in earlier composition MOOCs (Comer & White, 2016; Gilliland, Oyama, & Stacey, 2018): (1) A course orientation video which provided an overview of the course was offered prior to the opening of the course. This instructor-led video introduced topics of each week, including titles and length of weekly video lectures with a particular emphasis on making the connection among video lectures, reading materials, online discussion, assignments, etc. clear to students so they know what to expect in such a self-regulated learning environment, which in turn is likely to increase students' online engagement; (2) create opportunities for regular and meaningful interaction by engaging students in various synchronous and asynchronous online writing activities; and (3) design multiple assessment methods, including formative and summative assessment to evaluate and monitor students' learning progress. The following section will illustrate how these pedagogical features were realized through functionalities and technology offered in Google Classroom.

Technology and pedagogy

The major assignment in the six-week composition MOOC was a 500–750 word literature review assignment in which writers needed to find three references on their chosen topic and summarize them within a framework that illustrates how the three references are in relation to each other (see Appendix A). To this end, learning objectives of the composition MOOC include (a) acquiring the ability to evaluate the credibility of sources, (b) learning common rules about when to cite, (c) learning differences among quotations, paraphrases, and summaries and know how to use them effectively, (d) developing convincing arguments through framing sources into your own text with specific rhetorical purposes and (e) using stylistic guidelines such as the APA style. Table 1 illustrates the list of weekly topics and titles of video lectures, including the length of each lecture video. The weekly topics were carefully sequenced to ensure that students' learning was structured and established on prior knowledge learnt from previous courses since students are more motivated and engaged when they know clearly where their learning is headed.

Table 1. The weekly topics and titles of videos in the composition MOOC

Week	Weekly topics	Titles of videos
1	Evaluating the credibility of sources	Video 1: Evaluating the credibility of sources (7:09)
		Video 2: Evaluating internet sources (5:05)
2	When to cite	Video 1: When to cite (8:03)
		Video 2: Citation quiz (9:18)
3	Quoting, paraphrasing, and summarizing	Video 1: Quoting, paraphrasing, and summarizing (21:17)
		Video 2: Annotated bibliography (12:34)
4	How to write a literature review	Video 1: Steps for writing a literature review (9:42)
		Video 2: How to structure/ organize a literature review (15:20)
5	Developing convincing arguments: framing quotes, paraphrases, and summaries	Video 1: Framing quotes, paraphrases, and summaries (10:05)
		Video 2: Rhetorical functions of citations (11:49)
6	Introduction to APA style	Video 1: Citation style: APA (16:53)
		Video 2: How to write a peer review (14:43)

Each week, all course materials including video lectures, readings, discussion tasks, quizzes, or assignments were carefully designed and sequenced to ensure that they were closely connected to the aforementioned learning objectives. In particular, weekly course materials which addressed specific course objectives were structured from warm up activities, followed by main course materials, and finally assessment tasks, either formative or summative. Take the course structure of Week 2 for instance (see Figure 2), the major course objective of this week was to teach students characteristics of a literature review and steps for writing a literature review.

As shown in Figure 2, two warm-up activities were developed; one was created as a checkbox question using Google Forms (see Figure 3) while the other was designed as an interactive drag and drop activity with Google Draw and Google Slides (see Figure 4). Both of the two warm-ups not only intended to increase students' learning motivation in the online course but to call students' attention to gaps in their understanding.
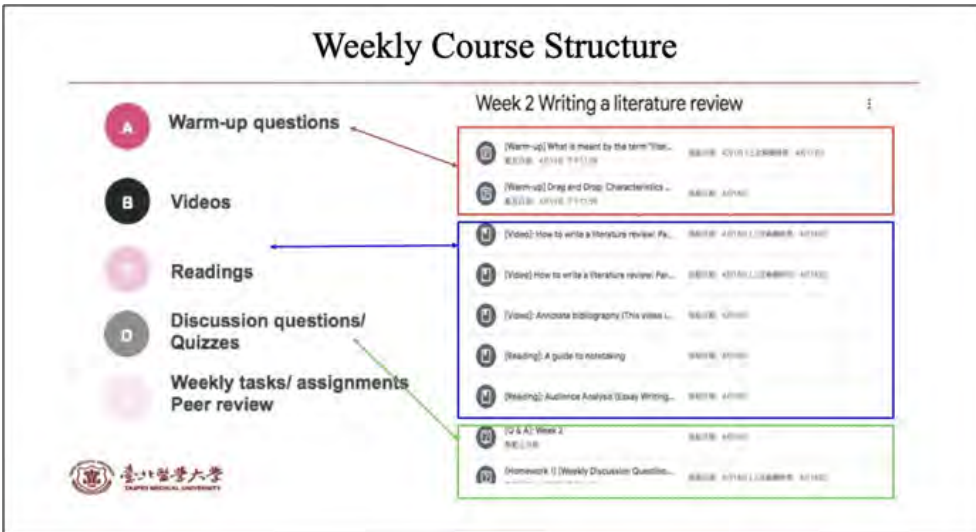
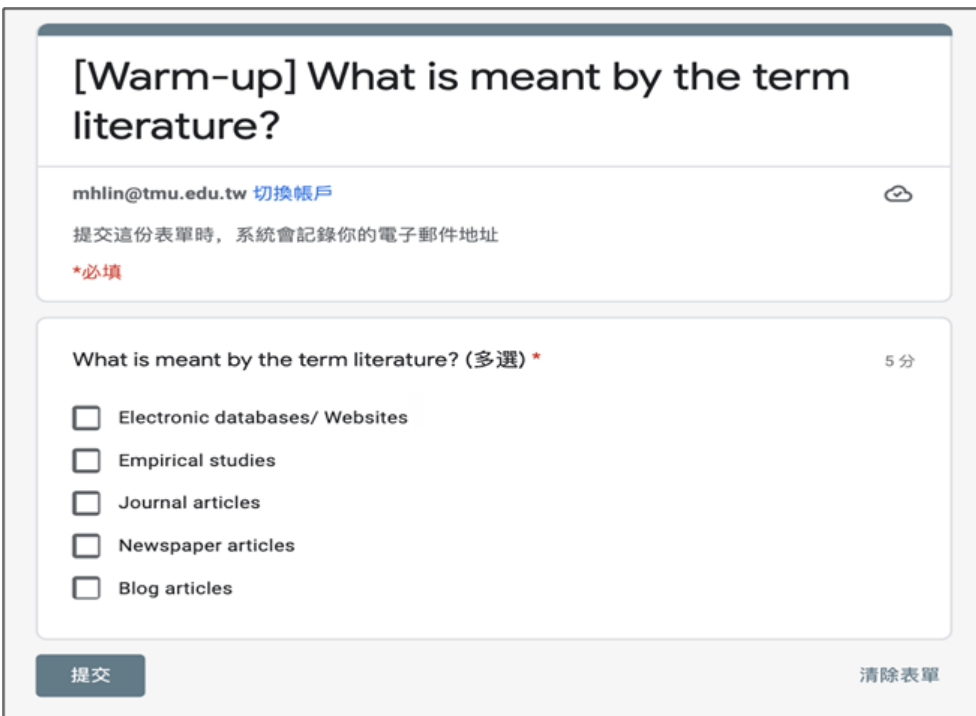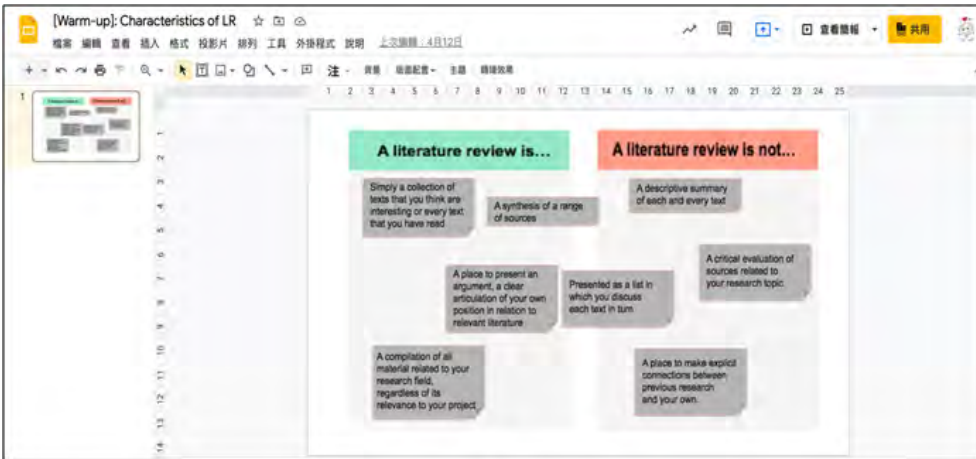**Figure 2.** Weekly course structure of the composition MOOC

Figure 3. A checkbox warm-up activity designed using Google Forms

Note. The content of this activity was retrieved from https://www.monash.edu/rlo/
graduate-research-writing/write-the-thesis/introduction-literature-reviews

Figure 4. A Drag-and-drop warm-up activity created using Google Draw and Google Slides

Main course materials were presented in the form of pre-recorded video lectures (see Figure 5) and readings that allowed students to learn at their own pace. Finally, formative assessment tasks, such as weekly quizzes or weekly discussion questions, were distributed to monitor students' learning progression.

Figure 5. Main course materials: Pre-recorded video lectures

Here, the weekly quizzes created using Google Forms not only enabled students to receive instant score or feedback with Google Forms's automatic grading feature (see Figure 6), but it also provided teachers with the instant results of students' learning outcomes.
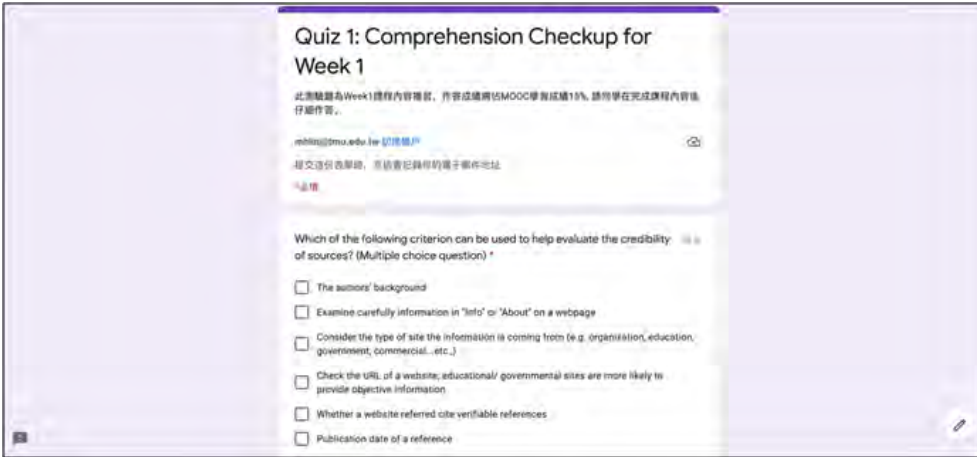
Figure 6. A weekly quiz designed using Google Forms

On the other hand, a weekly discussion was created through "Create Question" in Google Classroom which allowed the instructor to ask short-answer questions that required students to reflect on materials they had learned. To ensure students' participation and enhance peer interaction, students needed to first write their response to the questions and then read and respond to their peers' comments (see Figure 7) resembling threaded discussion. The short-answer discussion questions, designed as component parts of the final writing product, not only provided additional informal writing opportunities for students but functioned to gradually prepare students to complete the 500-word literature review assignment. On the other hand, since writing is a subject that strongly requires qualitative evaluation, students' written responses to the discussion questions can be used as a formative assessment activity for the instructor to evaluate students' progress, offering an additional assessment option for course designers.
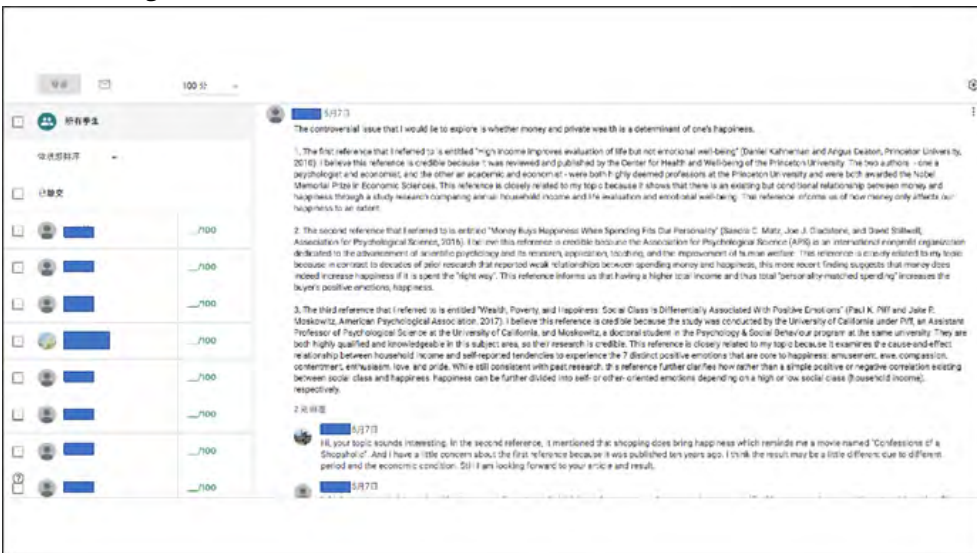

Figure 7. A weekly discussion question using "Create Question" in Google Classroom

In addition to all the above asynchronous learning activities, a synchronous peer review was designed in the final week of the composition MOOC, using the real-time collaborative feature of Google Docs. The synchronous peer review included a practice module prior to the real peer review to increase the reliability and quality of peer review. During the practice module, the instructor had the whole class review the same article simultaneously through the sharing feature of Google Docs, which allows every participant in the MOOC to view and edit the article at the same time. Students thus practiced adding, replying, or deleting comments on this shared article. This practice not only familiarized students with technical skills needed in giving feedback in the online environment, but gave students an opportunity to practice writing constructive feedback. Once students had finished reviewing the article, the instructor synchronously demonstrated how to offer valuable and constructive feedback through commenting on the same article. This teacher modelling (see Figure 8) enabled students to compare and contrast their feedback to that of the instructor, which in turn may better prepare students for the following peer review and assist them become better commentators.
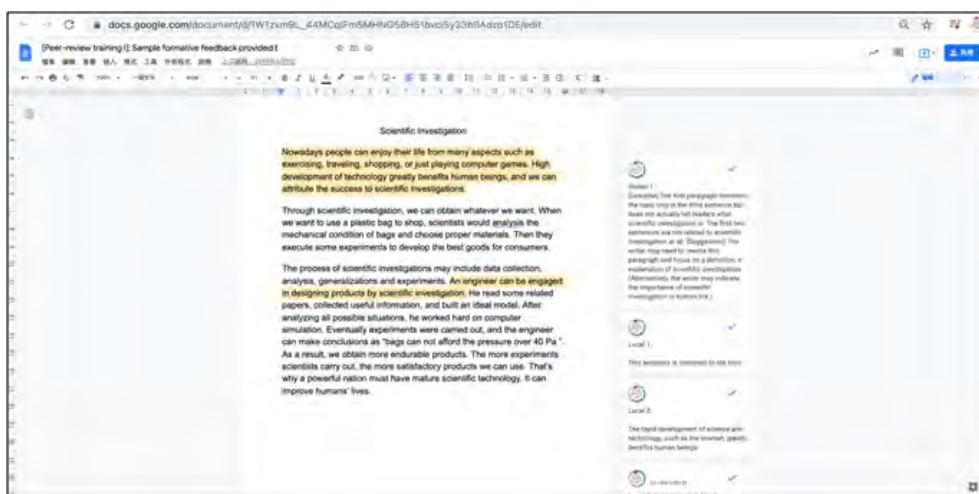

Figure 8. The instructor's synchronous modeling of peer review skills using Google Docs

Data collection and analysis

Data collected to evaluate students' perceptions of the composition MOOC and their learning effectiveness included a post-course survey, pre- and post- tests of citation quizzes, and a pre- and post-course writing task. The post-course survey, which contained nine questions on a 4-point Likert scale and four open-ended questions, was distributed to explore students' perceptions of the course structure, course content, and learning activities. The four open-ended questions, in particular, were designed to investigate students' perceptions of adopting Google Classroom as an online learning platform for the composition MOOC and which features of Google Classroom were perceived as being of great/little help to improve students' writing abilities. On the other hand, students'

learning effectiveness of the composition MOOC was evaluated through their performance on citation quizzes and a pre- and post-course writing task. The pre- and post- citation quizzes were designed as formative assessment tasks for evaluating students' knowledge of source use before and after instruction. Each of the two citation quizzes was a ten-item short test adopted from Harris (2001, p.143 and p. 145) and one of its items is given below for illustration.

1. In an article, you find the phrase "cultural tapeworm." You decide to use the phrase in your paper.
(1) have to cite it   (2) do not have to cite it

The pre-writing task, on the other hand, was a summary writing task that asked students to write a one-paragraph summary based on the same source article while the post-writing task referred to the final writing product of the course – a 500-word literature review assignment written through citing three references. Although the pre-writing task was not as authentic as a typical multi-source literature review writing task, it served as the baseline for assessing students' entry-level source-based writing skills before the instruction. A rubric (Liu, 2016) (see Appendix B) that considered both the effectiveness of source use and the general text quality was adopted to assess the pre- and post- summary writing task. The statistical paired t-test was used to compare the 33 students' scores on both the two citation quizzes and two writing tasks given before and after instruction to evaluate students' learning effectiveness in the English MOOC.

Results

1. Students' perception of learning writing in an English composition MOOC using Google Classroom.

Table 2 presents descriptive statistics of the post-course survey result. The students, in general, showed satisfaction across several key domains, including their post-course self-assessment, course design, course content, learning activities, and the use of Google Classroom as the LMS for the composition MOOC (M = 3.59, SD = 0.52). Specifically, students' responses to Question 3 (M = 3.8, SD = 0.41) and Question 5 (M = 376, SD = 0.44) demonstrated that the well-structured course design was highly valued by participants. The course orientation video, for one thing, helped visually organize all course components (learning objectives, weekly topics, titles of video lectures, selected readings, activities, assignment, assessment) and the connections between them; for another, given that weekly course materials were organized in a cohesive, consistent way on Google Classroom (see Figure 2), it was easy to navigate for students and provided a clear path for students to progress. The only greater variation was observed in Question 4 (M = 3.36, SD = 0.7) in which participants showed slightly different perceptions with regard to the amount of homework given.

Table 2. Descriptive statistics for the post-course survey

Questions	M	SD
1. This composition MOOC effectively helped me acquire skills needed to write the genre – literature review.	3.72	0.46
2. This six-week course was neither too challenging nor too easy; it was adequately designed to meet students' learning needs.	3.48	0.59
3. This six-week course had clear course objectives and course materials were comprehensive and easy to follow.	3.8	0.41
4. Weekly homework/discussion questions/quizzes are manageable.	3.36	0.7
5. The instructor provided sufficient guidelines and instruction to help students participate in the composition MOOC.	3.76	0.44
6 Please evaluate the extent to which the following learning activities helped enhance your writing ability.		
(1) I found the prerecorded videos help enhance my writing skills.	3.8	0.5
(2) I found warm-up activities help enhance my writing skills.	3.64	0.49
(3) I found that responding to weekly discussion questions help enhance my writing skills.	3.8	0.41
(4) I found weekly quizzes help enhance my writing skills.	3.28	0.54
7. I found Google Classroom an appropriate platform for the composition MOOC.	3.48	0.65
8. I found functions offered in Google Classroom help enhance collaborative learning and peer interaction needed.	3.56	0.58
9. I found learning writing using the composition MOOC helped me enhance my writing skills and learning motivation.	3.48	0.51
Total	3.59	0.52

Except for the above close-ended questions, the four open-ended questions illustrated in Table 3 explored the students' qualitative feedback towards using Google Classroom as the learning platform and their perceptions of learning writing using MOOCs. Results from qualitative analysis showed that most students found the composition MOOC effectively helped improve their writing skills. The pre-recorded video lectures with high-quality instructional content were engaging and allowed students to watch repeatedly at their own pace. In particular, they commented positively on the well-organized course structure and the step-by-step instruction, which provided students a clear guidance to fully understand the course content and complete course activities. Although few students felt a bit overwhelmed by the amount of reading and writing required to write a literature review and failed to complete the final draft, this clear, organized course structure still helped keep the majority of students engaged in the learning process.

With regard to students' perception of using Google Classroom as the LMS for the composition MOOC, the majority of students considered that features of Google Classroom made it a good online learning platform. Except for students' positive responses to survey question 7 and 8, results of open-ended

questions showed that the user-friendly interface of Google Classroom made it easy to use and navigate for even those who had little experience with technology. Other than that, its integration with various Google Apps such as Google Forms, Google Docs, Google Slides, Google Jamboard, etc., allowed teachers to design interactive and collaborative learning activities. Most importantly, its real-time communication technology made giving feedback, an essential part to improve students' writing quality, much easier. Therefore, despite that few participants expressed their unfamiliarity with features of the new platform and suggested the instructor offering a technology orientation, it was regarded as a useful and practical LMS for teaching writing.

Table 3. Open-ended questions in the post-course survey

10.	Which feature of Google Classroom is of great help in improving your writing ability?
11.	Which feature of Google Classroom is of little help in improving your writing ability?
12.	What do you like most about the composition MOOC?
13.	What do you like least about the composition MOOC? Please provide feedback to help the instructor improve the course.

2. The students' learning effectiveness in the composition MOOC.

The students' learning effectiveness was evaluated through quantitative analysis of students' performance. The statistical paired t-test was used to compare the pre- and post-test scores of the 33 students in citation quizzes, as well as their scores in the pre- and post-writing task. Table 4 shows a comparison of students' test scores on the citation quizzes before and after the 6-week composition MOOC. As shown in Table 4, participants' mean scores of the two citation quizzes increased from 69 to 93 (out of 100), with SD of 13.94 and 6.90, respectively. The t-test showed that the differences were significant ($t = -11.263$, $p < 0.01$). In other words, it demonstrated that students effectively acquire knowledge of citation practices through learning materials such as rewatchable video lectures and reading materials in the composition MOOC.

Table 4. Descriptive statistics of pre-test and post-test of citation quizzes

	M	SD	t
Pre-test	68.80	13.94	11.26***
Post-test	93.20	6.90	

***p<.001

With regard to students' performance on the pre- and post-writing task, Table 5 shows that students' mean scores increased from 5.60 to 7.76 (out of 10.00), with SD of 1.25 and 0.78, respectively. The t-test showed that the differences were significant ($t = -17.29$, $p < 0.01$). The statistical analysis revealed that students became more aware of citation conventions and their source-based writing skills significantly improved after the composition MOOC.

Table 5. Descriptive statistics of the pre- and post- writing task

	M	SD	*t*
Pre-test	5.60	1.25	17.29***
Post-test	7.76	0.78	

***p<.001

Discussion and conclusion

The present study aimed at exploring the potential of using Google Classroom as an LMS in a composition MOOC and students' learning effectiveness in the MOOC. A college-level, small-scale English composition MOOC was constructed using Google Classroom in which 33 participants of intermediate level of English proficiency or above watched pre-recorded video lectures, responded to weekly discussion questions, completed engaging, formative assessment tasks designed using different Google apps, participated in interactive online peer review and finally submitted two drafts of a 500-word literature review assignment. Results of the study showed that the composition MOOC was well received by the participants, implying that learning writing in a MOOC is a valuable learning avenue for these Chinese-speaking students because it allows students to make multiple attempts to master the content and learn at their own pace as opposed to conventional composition classes. In particular, in the MOOC design process, a deliberate effort had been made to maximize the affordances of the MOOC platform mentioned in Gilliland *et al.* (2018) and improve problems existing in earlier composition MOOCs. For example, all pre-recorded video lectures, serving as the main course material in the MOOC, were carefully designed to ensure they were engaging and effective educational tools. Also, different from the English Composition I of Duke University (Comer & White, 2016), the course structure was well-organized in a coherent way for students to follow and complete easily. Most importantly, the interactive and collaborative features of Google Classroom, such as file sharing and real-time interaction, made it distinguished from online learning platforms adopted by other composition MOOCs (Comer & White, 2016; Gilliland et al., 2018; Vu, 2017), allowing instructors to design synchronous and asynchronous learning activities such as synchronous online peer review and asynchronous discussion to encourage interaction among students and teachers. With regard to the students' learning effectiveness in the composition MOOC, quantitative data showed that students made significant improvement on both knowledge of citation practices and final written product, demonstrating that learning writing in a MOOC can be an effective educational choice for EFL college students who have little formal writing instruction or in times where physical presence is not possible for learning.

Despite the aforementioned potential of teaching writing in a MOOC, two caveats are worth noting here. First, to ensure the effectiveness of a composition MOOC, course designers need to predict students' study habits and

learning difficulties to make the course design accommodate their learning needs. Meanwhile, given the self-directed nature of MOOCs, it is crucial for instructors to provide both detailed guidelines to help students navigate the course and offer different types of student learning support such as "ask a question", discussion forums, live chat room or synchronous video conferencing when students have questions. Second, although the use of Google Classroom as an LMS in general has been shown to be well received in terms of its usability, it is suggested that instructors include training sessions or tutorials for students to learn how to use Google Classroom because some students might not be familiar with features of this online learning platform. Given the differences between onsite and online writing courses, an effective online writing course requires more than directly transferring all onsite writing activities into fully online courses. It is suggested that future studies may focus on addressing the integration of technology and pedagogy to construct effective OWI courses.

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Appendix A

Literature review assignment sheet

Literature Review Assignment

In this assignment you will look for three pieces of publicly available published material to summarize. The published material may be articles in journals, magazines, newspapers, or material from websites. Locate three publications you think will give you information that will be helpful in your final project report. You may have to locate more than three and select the best ones. **Each of the publications you use should run at least 2000 words. Please hand in copies of the publications with your first draft.**
This assignment has two main parts:
1. a straightforward summary of each of the three documents, and
2. a framework for the summaries.

The framework is a normal introductory paragraph and a concluding paragraph in which you briefly discuss the three documents together, perhaps linking the most important or interesting information you obtained from your three sources.
You should decide which document you will summarize first, second, and third and provide some logical link between the summaries--for example, mentioning that the next summary contains a different type of information from the last, or elaborates on the information from the last, or approaches the topic from a different perspective. Remember to include a thesis statement in the introduction that will make it clear what the point of this paper is with its three summaries. **Your literature review should run from 500 to 750 words.**

Adapted from Leki, I. (1998). *Academic writing: Exploring processes and strategies, Second edition.* New York: Cambridge University Press.

Appendix B

Integrated writing rubrics (Liu, 2016)

Score	**Task Description:** **an essay incorporates the source text into the subsequent response**
10	An essay at this level accomplishes all of the following: (1) The essay effectively and accurately presents information from the source text, and has no exact copy of more than 3 words from the source text. (2) The presented ideas in both the source text and the response are highly interrelated. (3) The essay is well-organized, and may have occasional language errors that do not result in inaccurate or imprecise presentation of content.
8	An essay at this level mostly accomplishes all of the following: (1) The essay accurately presents information from the source text despite some information being unclear and underdeveloped; OR the essay may have occasional cases of exact copy of words from the source text. (2) The presented ideas in the source and the response are understandably interrelated. (3) The essay is generally well-organized may have more frequent or noticeable minor language errors that do not result in anything more than an occasional lapse of clarity.
6	An essay at this level is marked by one or more of the following: (1) Although the response is definitely oriented to the task, it conveys only vague, global, or unclear points made in the reading. (2) Some key points taken from the source may be incomplete, inaccurate, or imprecise; the ideas presented in the source and the response are sometimes not well connected, although the essay may copy some words from the source. (3) The essay is organized, but errors of usage and/ or grammar may be more frequent or may result in noticeably vague expressions or obscured meanings in conveying ideas.
4	An essay at this level is marked by one or more of the following: (1) The response is significantly misrepresents the reading. (2) The response significantly omits or significantly misrepresents important points taken from in the source. Or the ideas presented in the source and the response are somewhat disconnected, although the essay may copy quite a few words from the source. (3) The essay is barely organized, and contains language errors or expressions that largely obscure meaning, or that would likely obscure understanding of key ideas for a reader not already familiar with the reading. (4) The essay contains too much information from the source and lacks the author's own ideas.

Score	**Task Description:** **an essay incorporates the source text into the subsequent response**
2	An essay at this level is marked by one or more of the following: (1) The response provides little or no meaningful or relevant coherent content from the source, which may or may not come from misunderstanding of the content. (2) The language level of the response is so low that it is difficult to derive meaning. (3) The entire essay contains too much information from the source and lacks the author's own ideas. (4) If the author copies words from the source, they are not connected to the response.
0	An essay at this level merely (1) copies sentences from the reading, (2) rejects the topic or is otherwise not connected to the topic, (3) is written in a foreign language, (4) consists of keystroke characters, or (5) is blank.

Liu, H.-C. (2016). A study on learning to write English source-based reports by EFL college students. *English Teaching & Learning, 40*(2), 27–53.