# Online Learning Framework Model: The Application of Technology for Practical Learning Practices

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Education is now immersed in the "Globalization Age" and today's learners are often referred to as the "Millennial" generation. A concomitant development to this is a general push to implement student-centered learning in an e-learning context. Much research in modern education concerning e-learning has focused on using learning management systems (LMS) for content and exam delivery. Little research, however, has been done to address the technical aspects faced by instructors attempting to effectively facilitate online language learning. In this study, the authors present an innovative online learning framework (OLF) model to facilitate delivery of a student-centered writing task. The authors describe the online tools designed to facilitate online writing tasks and activities with a focus on student-centered learning.

*Keywords:* learning management system, practical learning practices, student-centered learning, online learning framework (OLF)

## Introduction

Considerable interest in developing practical methods of integrating technology with language learning pedagogy has been shown. However, there is currently little empirical research supporting the realization of this goal, for example, numerous learning management systems (LMSs) providing a diverse range of built-in activities and other functions exist. But many teacher/administrators struggle to adapt these tools to our classrooms. It is generally acknowledged, "One of the pitfalls of technology application in education research is that the focus has been on the technology and less concerned about the appropriate pedagogy" (Townsend & Asano, 2018). To address this deficit, the online learning framework (OLF) model was designed with the intent of providing a practical method for determining the efficacy of utilizing LMS activity components in various tasks and activities to support student-centered learning.

This paper is organized as follows. Firstly, background information concerning "Research 1" will be given, and then, the OLF model design rationale is presented, followed by statement of the research question.

Next, the methodology describing the learning context and an outline of the steps taken in:

1. The implementation and trial of the OLF model, presented in a "How to?" format;

2. The implementation of a digital badge to award students for successfully completing the unit.

Then, the OLF model testing outcomes are given in Part A (How to) of the results section. These results will illustrate that an integral part of the student-centered learning rests on setting up the system tasks and

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activity components in Step 3 (Functions: tasks and activity components). In Part B (Work flow) of the results, the completion rate and an explanation of the writing stages work flow is given, including a short evaluation on awarding digital badges. Analysis of these results contributes to the development of student-centered and e-learning pedagogy, as shown in the summary of this study.

## Philosophy for E-learning

### Background Information: Research 1

The goal of research one was to provide an online course and teach basic writing concepts, and for students to write a short one-page essay in a multi-paragraph format: introduction, body, and conclusion. Of note, an integral concept underlying the course was previous research showing that formative assessment (FA) and feedback enhanced self-regulated learning (Nicol & Macfarlane-Dick, 2006), and that students can learn to be more self-regulated (Zimmerman & Schunk, 2001). Research 1 question asked, "Were students able to learn how to write a short essay in a student-centered online writing unit that implemented FA and feedback strategies?" This research conducted an end-of-unit student questionnaire. Students' impressions of their participation in the writing unit were generally positive and that they felt that the online learning process was beneficial. The purpose of the OLF model was to design an implementation method for managing various writing tasks and activities, coupled with a student-regulated learning approach. The LMS course settings provided a way to control or regulate how students carried out these tasks and activities. Self-regulated learning was previously defined as "a student-centered process whereby the student is expected to make decisions to confirm that he or she has understood, either used or viewed unit information and teaching materials, and carried out the procedures needed to complete the tasks and activities required for the assessment" (Townsend & Asano, 2018).

### OLF Model Rationale

The current study's main objective is to identify practical applications of supporting student-driven learning with a LMS. In Figure 1, the model is presented followed by a brief explanation.

Townsend and Asano (2018) in the original study stated that:

> The philosophy that underlies our approach for utilizing e-learning in higher education is that education should be driven more by learning itself, than by technology: we should be developing tools to assist in teaching goals, rather than scrambling for applications for new technology.

The OLF model's design guides the teacher/administrator towards the most effective way to construct a framework allowing user access, determine navigation systems, and user control. Student access and permissions were considered in the design and development process of the OLF model and were implemented in Step 3. In this step, the task and activity components have configurable options to determine how users carry various tasks and activities. More detailed information is provided in the explanation of the implementation and testing of the model. The OLF model is an extenuation of previous research carried out by Townsend and Cronin (2017), which evaluated mobile learning on students' smart phones.

### Research Question

The OLF model as it is described in the current research was implemented in a self-regulated writing unit through the Moodle LMS system. In the writing unit, "The course's unit design is centered on alternative and FA and feedback tasks and activities that help students to take direction in their learning" (Townsend & Asano,

2018). This study will describe how the administrator set up this writing unit in the LMS. Specifically, the author asked, "What was the efficacy of utilizing the LMS to direct students in carrying out a student centered online writing unit?"

The current author logged into the Moodle LMS under the system administrator of the Moodle system. The name unit refers to the three-week writing course, and course is the terminology used in the Moodle control panel (C-Panel). The terms user and student will interchangeably be used to represent the participant in the study.
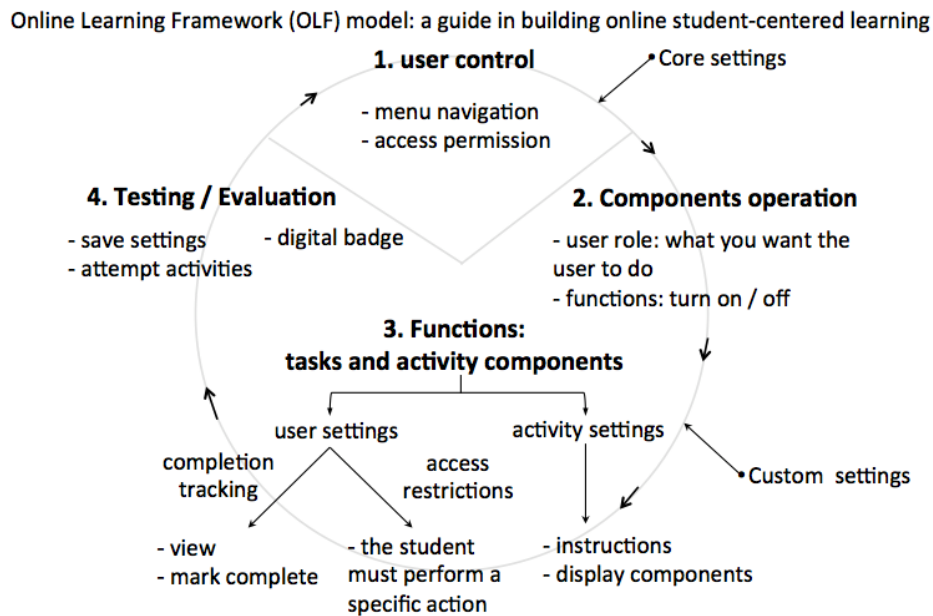


*Figure 1.* The OLF model is a practical application to unite technology and learning.

## Methodology

### Computer Assisted Language Learning Context

Thirty-eight students from two first-year English as a second language (ESL) classes were involved in this study at a Japanese national university. The classes were combined for the three-week duration of the study, and the lesson was conducted in a computer assisted language learning (CALL) classroom. The students were categorized as intermediate or advanced as determined by a university-administered English proficiency examination. The unit was accessible via the Internet both in and outside of class. The unit schedule is presented in Table 1. Self-enrollment, three writing stages, and an end-of-unit questionnaire were carried out.

Table 1

*E-learning Unit schedule for Three-Weeks*

| Unit Framework | Week 1 | Week 2 | Week 3 |
|---|---|---|---|
| Pre-unit self-enrollment | | | |
| Stage 1: Online quizzes | | | |
| Stage 2: Essay draft | | | |
| Stage 3: Final essay | | | |
| Post-student questionnaire | | | |

Source: Townsend and Asano (2018).

**Implementation and Testing of the OLF Model**

The system administrator logged into the C-Panel and created the Moodle-course for the writing unit. For the methodology in Research 1, teachers first decided upon the unit goals and language objectives, and then, began course creation by naming the course, creating a description and setting up manual enrollment. The menu navigation and user-access permissions were set up in Step 1. In Step 2, the administrator selected activities that included online quizzes (Stage 1) and an assessment-based workshop (Stages 2 and 3). The administrator then determined the user role and functions of each activity. This step requires identifying the activity objectives and designing a workflow that facilitates users accomplishing these through implementing selected functions provided in the LMS. Below, Step 3 describes which functions were selected to support this workflow and how the tasks and activities of the framework were integrated.

**Functions: Tasks and Activity Components (Step 3)**

Step 3 is illustrated in Figure 2. User settings consist of two primary components: the completion tracking component and the access restrictions component. In turn, the completion-tracking setting consists of two activity options, the "view" and "mark complete." The access restrictions control if a student must perform a specific action to proceed. Completion tracking and access restrictions settings control the way, the user completes an activity and how the user proceeds to the next task or activity. A supporting function is the activity settings component, which allows the administrator to add instructions and control where and when to display information on the personal computer (PC) screen.
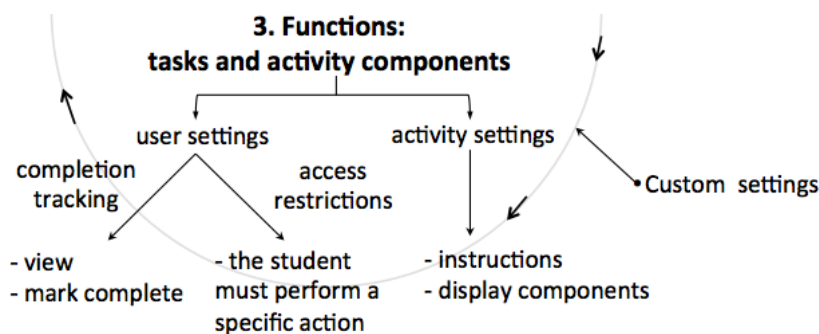


*Figure 2.* Customization of the online learning framework in Step 3.

**Stage 1: Writing Quizzes**

This section describes the implementation of Step 3 that was central to the framework's implementation success. Initially, this procedure depended on the students' ability to access the system and permissions settings to manage their experience in the system, specifically through the following functions:

1. Completion tracking;
2. Access restrictions;
3. Activity course display.

Screenshots of the C-Panel will be used to explain the quiz-design procedure.

**Completion tracking.** In Step 1, several options are available in controlling activity completion. In Figure 3, the first option shown in the "completion tracking" function requires students to confirm activity completion by checking the appropriate box. In the following option, if the "require view" option is checked, the student must click on and view the activity for it to be considered complete. Pass or fail quizzes can be tailored with the

following two options. The "require grade" option specifies a minimum grade needed for the activity to be considered complete. This grade can be entered when setting up the quiz. An additional option ensures that a passing grade is achieved or a specific number of quiz attempts are carried out. However, this framework's quizzes have no pass/fail line, which was designed FA (Ellis, 2003). So, the student can decide when they want to continue to the following activity, as shown in the "Completion tracking" below. Students can manually mark the activity as completed. Other tasks and activities in this writing unit utilized the "require view" function and this was done expressly to provide instructions and feedback. This was done to ensure that students could move at their own pace between tasks.

**Completion tracking** ⓘ  Students can manually mark the activity as completed ▾

**Require view**    ☐ Student must view this activity to complete it

**Require grade** ⓘ   ☐ Student must receive a grade to complete this activity

**Require passing grade** ⓘ   ☐ Require passing grade    ☐ Or all available attempts completed

*Figure 3.* Completion tracking is set so that students can self-regulate activity progress.

**Access restrictions.** In Step 2, the "access restrictions" function specifies conditions the user must meet to proceed from one activity to another. For example, the screenshot in Figure 4 illustrates that for "activity completion" Quiz 1 (Contrast or show exceptions) must be marked complete by the user to access the next Quiz 2 (Opinion I).

**Access restrictions**    Student  must ▾  match the following

👁   Activity completion   Quiz 1:Contrast or Sho ▾   must be marked compl ▾   ✕

[Add restriction...]

must be marked complete
must not be marked complete
must be complete with pass grade

*Figure 4.* The administrator sets up access restrictions for each activity.

**Activity course display.** The two previously explained processes comprised Stage 1, adopting a self-managed activity procedure (see Figure 5) in which students must manually mark the box as completed for Quiz 1 in order to access Quiz 2 in the test-taking exercise. This is an example of an activity that is student-led and the activity instructions are inserted when configuring activity parameters using the functions shown.

## Stage 1: Writing Quizzes

✓ Quiz 1:Contrast or Show Exceptions                                                    ☑

✓ *Quiz 2: Opinion I*                                                                          ☐
     Not available unless: The activity **Quiz 1:Contrast or Show Exceptions** is marked complete

✓ Quiz 3: Opinion II                                                                          ☐

✓ Quiz 4: Disadvantages                                                                     ☐

✓ Quiz 5: Advantages                                                                        ☐

*Figure 5.* Stage 1 writing quizzes, activity completion and check boxes are illustrated.

**Summary.** The basis for online learning framework (OAF) implementation rests on the "completion tracking" and "access restrictions" for each language task or activity. In addition, task/activity confirmation enables access between unit stages.

## Digital Badge

Digital badges are gaining notice in educational settings, as they "provide new affordances for online educational activities and experiences" (Gibson et al., 2015, p. 403). The decision to include a final completion component in the course was made. A small-scale trial for awarding students digital badges for successful completion of the writing unit was conducted (Step 4). The badge was awarded to acknowledge that the students had successfully completed all tasks and activities and passed the writing assignment based on a summative assessment given on writing performance (Scriven, 1967). Screenshots of badge creation in the C-Panel are provided to illustrate two things: digital award badge and notification.

**Digital award badge.** The procedure for adding a new badge (see Figure 6) required the administrator to enter the badge name and description, determine requirements for earning the badge, and establish who can award the badge. The number of recipients awarded the badge is recorded, and other settings are available. For example, editing/saving badge details, awarding the badge to new users, copying the badge for another class or course, and messages (notification) are functions that can be configured. Of note, at the time that this screenshot was taken (see Figure 6), three students (recipients) had been awarded the badge.

| Name | Badge status | Criteria | Recipients | Actions |
|------|-------------|----------|-----------|---------|
| Essay Writing | Available to users | • Awarded by: Manager | 3 | 👁 🏆 ⚙ 🗐 ✖ |

*Figure 6.* The digital badge settings are used to create the badge information and requirements.

**Notification.** The badge notification component notifies students that they have received a badge. An automated message is sent via the LMS email system to the "My badges" folder that exists in the students profile page (see Figure 7).

| Message subject* | Congratulations! You just earned a badge! |
|------------------|--------------------------------------------|
| Message body* | You have been awarded the badge "%badgename%"! More information about this badge can be found at %badgelink%. You can manage and download the badge from My badges. |

*Figure 7.* Notification is automated and sent to students using the message service.

## Data Collection Methods and Analysis

The system administrator documented the course's development. In the OLF model's implementation methodology, Part A configuring components for each task and activity was noted. Data tabulation for each writing stage was performed and the results are presented in a "How to?" format in the results section to

identify the completion-tracking setting used for the following task/activities: "view" and "mark complete." In Part B, the course-creation process is illustrated through explanation of the following points:

1. The five steps as part of the OLF model;

2. The number of students who successfully completed the course and recognition of the digital badges awarded.

## Results and Discussion

**Part A: How to?**

**Stage 1: Writing quizzes.** Students determined their readiness for proceeding from one quiz to the next through their own assessment of how well they understood the content. Table 2 outlines the framework designed to facilitate course progression in the taking of the quiz test.

Table 2

*Online Quizzes Stage 1*

| Tasks and activities for students | View | Mark complete |
|---|---|---|
| Read activity description and instructions | | |
| Each quiz | | |
| Activity stage | | |

**Stage 2: Essay draft.** Stage 2's objectives required students to write an essay draft in the LMS workshop. Table 3 illustrates the activity procedure and completion strategy.

Table 3

*Essay Draft Stage 2*

| Tasks and activities for students | View | Mark complete |
|---|---|---|
| Read activity description and instructions | | |
| Read the paragraph writing guide (two-page PDF) | | |
| Read the example essay (300 words) | | |
| Select an essay question and prepare response | | |
| Upload draft essay (Microsoft word document) | | |

**Stage 3: Final essay.** The first step in Stage 3 was the teacher evaluation and here the students' essay drafts were evaluated using a rubric (assessment criterion) based on progress and performance mid-course. In Step 2 of the student review, students received their evaluation to guide the revising process for the final essay. Table 4 shows the activity process for the teacher and students as well as the actions taken inside the LMS workshop.

Table 4

*Final Essay Stage 3*

| Tasks and activities for teachers and students | View | Mark complete |
|---|---|---|
| Teacher evaluation | | |
| Student review | | |
| Upload final essay (Microsoft word document) | | |

**Part B: Work Flow**

Through the OLF model, the LMS logs show that all 38 students who participated in the study successfully completed the writing unit. This online learning framework was meant to provide learner support

and support an autonomous educational setting (Holic, 1981; Chen, 2009). Part A shows the results of Step 3 in the OLF model. Step 3 was the key to successfully implementing student-centered learning, as evidenced by the utilization of the user completion and access components: The "view" and "mark complete" combined with the access restrictions, help focused students on carrying out tasks and activities. By following the intended work flow, students were able to proceed through the each stage of the writing unit. This finding proposes that:

1. The automated "view" activity condition enables students to access instructions easily, view unit materials, and accept and view assessment feedback;

2. The "mark complete" condition supports learning based on performance, as well as a way to track learning progress.

As seen in the trial and testing of Stage 1, many functions are available to manage the learners' workflow. Nevertheless, information provided in this paper provides a starting point for educators who are willing to take the first steps in online course delivery of this nature.

Finally, the digital award function was set up to acknowledge the students that had successfully completed the writing unit. As a summative assessment procedure (Scriven, 1967), evidence suggests that innovative ideas like this one provide a foundation for other research to build upon. This digital badge was sent via the LMS email, and students received the badge in their user profiles. If the students wanted to, they could download the badge onto a secondary hard drive device such as a universal serial bus (USB). This function highlights the potential of digital award systems and presents an alternative method for credentialing online students with learning achievements.

## Conclusions

To the authors' knowledge, teachers and educators avoid technology because of perceived implementation issues and other problems. In addition, "the focus has been on the technology and less concerned about the appropriate pedagogy" (Townsend, 2014, p. 50). Prior research by Townsend and Asano (2018) documented the effectiveness of online and student-centered learning supported through FA and feedback strategies in a short three-week writing unit. This study illustrates the use of an OLF model through a learning management system. The "How to?" nature of the paper was provided to support educators in implementing similar teaching/learning pedagogy online. The research suggests that the Moodle LMS and application of the OLF model effectively supported the implementation of the writing unit. These findings extend those of Nicol and Macfarlane-Dick and Zimmerman and Schunk, confirming that the online learning strategy implemented has both supported and enhanced self-regulated learning via FA and feedback activities (Nicol & Macfarlane-Dick, 2006; Zimmerman & Schunk, 2001). Most notably, this is the first study to the author's knowledge to investigate the effectiveness of the implementation of an OLF model that lends support to online FA-based activities within a student-centered learning approach in an online writing course. However, some limitations should be noted. Although a high completion rate was recorded, the teacher needed to address some issues in the classroom to confirm language goals and other expectations of the learners were met. In conclusion, this study has demonstrated an effective, yet simple two-part strategy: The "view" or "mark complete" in the building process to deliver any student-centered unit of study online. Future work should therefore include follow-up research designed to explore innovative ways to bridge the gap between technology and education.

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