Supporting Active Learning with Moodle

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Moodle 活用によるアクティブ・ラーニング支援

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要 旨
アクティブ・ラーニングの演習を実施し、管理することは、EFLの教員にとってはますます差し迫った問題になりつつある。本稿では、オンラインの学習テクノロジーを活用することによってもたらされるアクティブ・ラーニングへの利点について調査を行った。まず、アクティブ・ラーニング、および Moodle として知られている学習管理システムを概観する。次に、日本の大学の EFL クラスにおいて、Moodle と連携させたアクティブ・ラーニングの実践内容について記述する。さらに、アクティブ・ラーニングに Moodle を活用することに対する学生と教員の意識調査を行った。その結果、自主的な学習活動、タスクベースの学習活動、さらに社交的に構成された学習活動による体験を通じて、学生と教員の双方が、Moodle 活用はアクティブ・ラーニングを支えるものであると肯定的に捉えていることがわかった。

キーワード
アクティブ・ラーニング、Moodle、外国語としての英語教育

Abstract
The implementation and management of active learning practices is becoming a more pressing concern for instructors of English as a foreign language (EFL). For this paper, the authors investigated the possible benefits to active learning provided by online learning technologies. The authors begin with overview of active learning and the learning management system (LMS) known as “Moodle”. Following this, the authors describe the implementation of active learning in conjunction with Moodle in an English as a Foreign Language class at a Japanese university. Additionally, the authors surveyed students and teachers about their impressions of using Moodle for active learning. Students and teachers positively perceived Moodle as supporting active learning through experiences with autonomous, task-based, and socially constructed learning activities.

Key words
Active learning, Moodle, English as a foreign language

1. Introduction
The concept of “active learning” has emerged as part of the educational landscape in the last 30 years and has gained wide acceptance as being comparable to and in some ways superior to traditional lecture-format classes (Bonwell & Eison, 1991). Active learning as defined by Prince (2004) is “any
instructional method that engages students in the learning process” (p. 1). The authors begin with an overview of active learning and the learning management system (LMS) known as “Moodle”. Following this, the authors describe the implementation of active learning in conjunction with Moodle in an English as a Foreign Language class at a Japanese university. Additionally, the authors surveyed students and teachers about their impressions of using Moodle for active learning. Students and teachers positively perceived “Moodle” as supporting active learning through experiences with autonomous, task-based, and socially constructed learning activities.

2. Active learning

A vast number of definitions of active learning are available. Primarily, these definitions differ on the matter of how much detail and specificity are included. Some definitions take a minimalist approach to defining the methodology. For example, Paulson and Faust (1998) describe active learning as “any learning activity engaged in by students in a classroom other than listening passively to an instructor’s lecture” (p. 4). On the other hand, some definitions feature further details. In the case of Bonwell & Eison (1991), active learning is defined as “instructional activities involving students in doing things and thinking about what they are doing” (p. 19). This slightly more detailed definition is echoed by Prince (2004) in his review of active learning research. The authors choose to use a definition of active learning that is similar to the one provided by Prince (2004). For the purposes of this article, active learning is defined as any practice that engages students in meaningful and practical activities and requires students to reflect on that activity.

Regardless of the fundamental definition of active learning, proponents such as Bonwell and Eison (1991) agree that active learning has a powerful impact upon students learning. Moreover, Prince (2004) points out that active learning can have drastic effects on student acquisition, retention and comprehension of important materials. There is no single ideal way to implement active learning in the classroom. Numerous inventories of activities to promote active learning exist (Faust, 1992; Prince, 2004; Benson, 2011). Examples include (but are not limited to) autonomous learning through self-access resources, project-based learning, and peer assessment. As such, it is no surprise that active learning can feature prominently in an English as a foreign language (EFL) classroom.

3. Moodle

Moodle provides the online component for active learning which at times contrasts and at other times complements a traditional lecture-format classroom. Where lecture-format classrooms deliver curriculum in a more teacher-controlled environment, Moodle provides a flexible framework - a set of containers - for a social constructivist student-centric learning environment. This makes it an excellent tool to support active learning.

A generally agreed upon definition of Moodle follows:

**Moodle** (acronym for Modular Object-Oriented Dynamic Learning Environment) (stylised in lowercase as **moodle**) is a free software e-learning platform, also known as a Learning Management System, or Virtual Learning Environment (VLE).
As of June 2013 it had a user base of 83,008 registered and verified sites, serving 70,696,570 users in 7.5+ million courses with 1.2+ million teachers. (Moodle, n.d.)

While lecture-format classrooms provide learning for students in a more controlled and passive environment in which learners rely heavily on the teacher for direction and feedback, Moodle provides learners with autonomy over their course materials and assignments when used in conjunction with classroom lecture or class laboratories and workshops.

Learners are able to keep track of assignments, deadlines, grades and scores while independently managing projects and submissions. Both individual and group activities are supported. Rubrics and peer assessment, a common theme in active learning environments, are also a large part of the Moodle framework.

Communication between the course facilitator and learners is also improved in the environment Moodle provides. Course members can contact each other for collaboration easily within a course. Learners can also receive feedback through chat messages, emails, and mobile texting from facilitators and peer assessments. Course materials and assignments can be exported into digital portfolios controlled by students.

Moodle is the most widely used learning management system (LMS) in the world given that it is freely available as open-source software. Moodle is available to be used in any language including Japanese, Chinese, Korean, and other Asian languages. It functions on many technology platforms including personal computers, handheld devices, pads, and tablets. Its browser-based interface, its widespread use, and the multilingual support currently available make Moodle a top choice for managing an active learning environment. Moodle supports active learning by enabling students to effectively participate in allowing for the practical activities and reflection found in active learning curriculum.

4. Implementation and rationale

The Q-LEARN Moodle system was configured and launched in April 2014 at Nagasaki International University and became the framework for a set of online courses. These courses included the following topics:

- Global Tourism Course
  - Practical English IA/IIA (Presentation and communication skills)
  - Practical English IB/IIB (Academic skills)
  - Reading I/II (Extensive reading)
  - Writing I/II (Writing)
- English Exercises IA/IIA (Reading and Writing)
- English Exercises IB/IIB (Speaking and Listening)

The current active enrollment on Q-LEARN is about 260 students primarily in their first year. These students are divided into four departments based on their major field of study. The current departments and online enrollments are:

- Pharmacology (130 students)
- International Tourism (70 users)
- Health and Nutrition (38 students)
- Social Welfare (22 students)
English Exercises courses are offered for all students in all the departments, however for this study, students from the International Tourism courses were used. These students participated in an English Exercises IA/IIA course in their first and second semesters respectively. The curriculum for IA/IIA consisted of English grammar and topics focusing on writing activities as well as required reading using English graded readers.

The facilitators for these courses chose to make use of the Q-LEARN site as a course organizer blended together with some traditional lecture-format materials. A blended learning environment is defined as a traditional classroom supported with a certain percentage of technology-based activities and assignments. This blended learning environment (BLE) divided each 90-minute lesson as a 45-minute lecture paired with a 45-minute laboratory/workshop. All assignments and grades were managed and stored on the Q-LEARN site.

As this paper is focused on Moodle and its support and promotion of active learning, the online content will be discussed preferentially over the lecture-format materials. It is important to know that each of the lecture-format lessons were in direct support of the activities provided on the Q-LEARN site. Those materials included grammar point lectures and activity explanations along with in-class practical exercises.

### 4.1 Active Learning with Moodle

Students participating in the English Exercises IA/IIA courses were given various reading and writing assignments, projects, and workshops with which they could practice English skills. These activities are listed here:

- Extensive reading assignments with online book quizzes and book reporting via email
- Bi-weekly writing journal assignments with rubrics
- Project workshops with peer assessment criteria

Except for the extensive reading quizzes, all assignments and workshops were evaluated online by the facilitators. Feedback was provided through rubric and assessments from facilitators to students. In the case of the projects, the feedback was not only facilitator to student but also student to student. Grading of all activities was managed in the Q-LEARN course and provided an accurate up-to-date progress indicator self-accessible by each student. Messaging was also used to notify facilitators of submitted assignments and also to notify students of grades and evaluations received for any particular assignment.

### 4.2 Connecting active learning to individual Moodle activities

Principles of active learning can be applied to the field of English as a foreign language (EFL) education in several ways including extensive reading, task-based language teaching, and peer assessment. Extensive reading can be defined as reading a large quantity of simplified texts (usually graded readers) for interest and pleasure (Day & Bamford, 1998). Though reading may not seem to be an ‘active’ form of learning, extensive reading meets the conditions of active learning in the form of autonomous self-study, which Benson (2011) describes as study that is out of class, not taught by a teacher, resource-based, and combines pleasure and interest with learning.
The Q-LEARN course was used to support student autonomy through extensive reading in two ways: checking comprehension and tracking students’ reading. One key principle of extensive reading is that students read books that they can understand easily. Research suggests that students should understand 98% of the words they encounter (Schmitt, 2011). Q-LEARN contains a database of simple quizzes available as a Moodle add-on to check that students have understood the main points of the books they read. The quiz results provide feedback about whether students are reading at an appropriate level. Facilitators have access to all data about quiz attempts and can advise students accordingly. After passing a quiz, a badge-style book cover and the total number of words read are added to a student’s reader profile thus allowing students and facilitators to track reading progress in real time.

In this model, active learning through extensive reading differs from traditional extensive reading programs in that the Q-LEARN course provides the framework to students who may decide which book they wish to read next. Q-LEARN can provide the student with every possible quiz available to allow students to progress independently and at their own pace. Conversely, a paper-based system would require much greater management and control by facilitators who by nature of the work might end up creating bottlenecks toward this self-motivated style of learning.

Another element of active learning is project-based work. In EFL terms, task-based language teaching (TBLT) provides a model. Brown (2007) describes TBLT as, “an activity in which meaning is primary, there is a problem to solve and relationship to real-world activities, with an objective that can be assessed in terms of an outcome” (p.242). Possible activities can include poster presentations, videos, or debate.

Moodle acts as a hub for project activities. There are areas for the project description, assessment criteria or rubric, and student submission. Information can be in the form of any or all of the following: direct-text input, HTML links, photos, videos, audio, virtual whiteboard or uploaded files. Thus, a student could type an outline and notes, upload photos, then insert a link to an unlisted YouTube recording of their presentation. The facilitator can grade and provide comments within the same project space.

One example of this project-based work was the writing assignment called “Stranded on a deserted island.” In this activity, students imagine being stranded on a deserted island. Practicing their skills of English letter writing and multimedia content creation, students were asked to compose a letter to an individual informing them of their plight. Different grammar points were stressed as the focus of the project. Included with the letter is a “sketch” of the imaginary island using one of the available multimedia content creation tools - a digital whiteboard in this instance.

The third aspect of active learning to be discussed is peer assessment. Peer-assessment can be described simply as students assessing students. Langan & Wheater (2003) describe peer-assessment as well-suited for project-based work with the potential benefits including greater learner autonomy, self-reflection, and inter-active learning. Having students apply the assessment criteria to other students’ work allows for self-reflection and a form of peer-teaching through student
sharing of content. The result is a decentralized form of education whereby it is possible for students to assume the role of peer-teachers.

In addition to using Moodle as a hub for projects as described above, Moodle provides peer-assessment functionality. Within the Moodle Workshop Module, facilitators can decide whether each student assesses all students in the class or only a certain number - randomly or facilitator-selected. Assessment criteria can be decided by the facilitator in the form of a rubric and/or comments. Furthermore, facilitators can decide what percentage of the project grade will be comprised of peer-assessment. An added feature to this is students are graded on the quality of their assessments, based on what the facilitator and other students have graded. By having Moodle organize peer-assessment facilitators save valuable time, whereas organizing peer assessment manually might make the process otherwise unfeasible.

Returning to the “Stranded on a desert island” project, once the project had been submitted and the project submission deadline closed, the project moved automatically into the peer-assessment phase. Students were assigned a random set of 10 other students’ work to read and assess based on a short list of criteria (rubric) provided by the facilitators. Peer-assessment counted for 20% of the total project grade. In addition to engaging with other students’ work through giving feedback, students were also provided an opportunity to solidify the self-reflection associated with active learning.

5. Method

A group of first-year International Tourism students who are ongoing members of the English Exercise IA/IIA courses were surveyed about their experiences with Moodle and the active learning activities used in the class. Of the seventy students surveyed, fifty-nine responded. The survey employed a ratings system (similar to Likert items) for all of the questions. Each rating item used a five point range and includes a neutral central point in each ratings item. The decision to include the neutral option is in line with the suggestions of Ryan & Garland (1999) to prevent uninterested or uninformed parties from distorting findings. The resulting survey focused on the three aforementioned Moodle active learning implementations: extensive reading, projects, and peer-assessment.

For each of the three implementations, the students were asked a set of three questions about their experience. The first question related to how the students perceived the difficulty of completing the three activities within the Moodle environment (extensive reading=Q1, projects=Q4, peer-assessment=Q7). The second question asked students to evaluate their enjoyment of the activities within the Moodle environment (extensive reading=Q2, projects=Q5, peer-assessment=Q8). The third question asked whether the students were interested in continuing to use Moodle with active learning activities (extensive reading=Q3, projects=Q6, peer-assessment=Q9). In addition to these three question sets, students were also asked to evaluate their overall experience with using Moodle in their English classes (Q10).

The authors also surveyed a group of Japanese private high school English teachers. The survey was designed to determine
the teachers’ current use of the three active learning implementations (autonomy, projects, and peer-assessment) discussed above and their interest in using Moodle as a support tool. Each of the three active learning implementations was assigned a pair of questions. The first question focused on the teachers’ prior experience with that particular implementation. The second question gaged the teachers’ interest in using Moodle as a support tool for that active learning implementation.

The survey was conducted after a workshop on the potential uses of technology (primarily Moodle) in an English language classroom. Out of the fifty teachers present at the lecture, thirty teachers responded to the survey. Only three of the respondents had any previous experience with Moodle. Similar to the survey of students, the survey was based on ratings items (similar to Likert items) for all of the questions. Unlike the student survey, some ratings items used a five point range and included a neutral central point and some ratings items used a four point range without a neutral central point.

6. Results and Discussion

The results of the student survey suggest that students perceive Moodle positively. When asked if they enjoyed using the system (Q10), 72% responded positively with an additional 21% having no opinion. Only 7% of students responded that they do not like using the system. These results are important to keep in mind as they suggest that students perceive the LMS as a positive rather than adding an extra burden or hindering the learning process.

Regarding the use of Moodle as a support for active learning, a majority of students either had no opinion or agreed that using Moodle for self-directed reading, projects, and peer-assessment was enjoyable. Unlike Q10, for each of these questions (Q2, Q5, and Q8), the no-opinion choice ranked highest. One possible reason for this could be that students are less enthusiastic about studying English than they are about using Moodle in general. Nevertheless, the number of students who did not enjoy the activities averaged less than 20%. Further to this point, Q1, Q4, and Q7 asked about how students perceived the difficulty of each learning activity. Even though the no opinion choice ranked highest, more students responded that the activities were difficult than easy. Given this perceived difficulty of the tasks, the fact that students enjoyed using Moodle as a whole and Moodle active learning activities to some extent can be seen as a testament to the power of the platform. Finally, the responses for whether students wanted to do more active learning activities on Moodle (Q3, Q6, and Q9) resulted in a majority of students either in favour or with no opinion.

In general, the results according to Q2, Q5, Q8, and Q10 suggest that students perceive Moodle positively within an active learning environment. By its very definition, active learning challenges students to be engaged rather than sit passively. Some students may respond positively to this while other may not. A study that directly compares active learning to more traditional methods (while both using Moodle) might be beneficial in clarifying to what degree active learning has shaped students’ perceptions of Moodle.

According to the results of the teacher
survey, teachers strongly perceive that Moodle can assist them in implementing active learning to a greater degree for all three areas. Approximately 60% of teachers responded that they use peer-assessment sometimes or regularly. However, 100% of teachers stated that they would be interested in an online system that supported peer-assessment. Based on this information, we can infer that teachers would be more willing to include peer-assessment with technological support. Meanwhile approximately 40% of teachers responded that they use self-directed reading. Despite that low percentage of use, 90% of the teachers responded that they would be interested in an online system that supported self-directed reading. Finally, 40% of teachers replied that they use projects in their classes sometimes or regularly. However, 93% of teachers indicated that they would be interested in an online system that supported project work. The teachers’ responses indicate that they perceive projects as being out of reach due to current support limitations.

The results suggest not only that teachers are interested in an online system such as Moodle but that teachers believe it has the potential to assist them in changing how they teach by incorporating more aspects of active learning. As one teacher commented, “We have a collection of graded readers in our school that seem to be collecting dust. It would be interesting to see how these plus online materials could be put to use in a student-directed learning program.” What this teacher’s comment suggests is that lacking an organizational system, teachers can feel at a loss for how to effectively use active learning resources that are already at hand. Whereas if a Moodle Reader type of system were in place, the teacher has indicated a willingness to implement a new form of active learning in the classroom.

One benefit of Moodle for implementing active learning is that it removes friction from the process. Certainly, Moodle is not a requirement to implement a self-directed reading program. Paper-based reading logs and book reports are a common way to run such a system. From the authors’ own experience, collecting reading logs and inputting the data into a spreadsheet can consume an inordinate amount of time. Moreover, when students forget (or lose) their logs or are absent it creates a gap in students’ records, making it more difficult to assess and support students. If facilitators decide that it is important to use quizzes or book reports to check that students actually understand what they read, it becomes necessary to assess book reports or quizzes at a rate of possibly several books per week per student. Moodle takes care of more redundant and computational tasks so that facilitators can focus their energy on interacting with students to support them individually or as a class.

Projects and peer-assessment are other examples of how Moodle can provide support as an organizer to free facilitators’ time and attention toward implementing active learning. As another teacher commented, “I have been managing a project oriented learning course at my school for several years, and the Moodle system has been a huge help in organizing students’ work.” The comment clearly indicates a level of satisfaction with using Moodle to implement active learning.

How Moodle can be used to organize, collect, and peer-assess projects has already been discussed in Section 4. Let us consider...
what it would take to organize a class of 40 students wherein each student assesses 20 of their peers in an analog system. Assessment pairings would need to be made and communicated in such a way that students clearly understood who they are assessing; with Moodle, it takes a few clicks. Students would then need to be provided with enough copies of the assessment papers and have access to each of the student’s projects for as much time as it takes to assess. Class time may be insufficient so when and where students could feasibly assess would need to be considered. Following this, the teacher would then need to collect, organize, and input data for 800 peer-assessments and somehow integrate the scores into students’ total grade. As average class sizes at junior and senior high school in Japan are about 40 students, this would be an untenable situation.

One limitation of this study is that it has not covered how to set up and manage a Moodle system. Such a discussion is beyond the scope of this paper. Nevertheless, it is an aspect that cannot be ignored. Furthermore, the issue of resistance to technology in schools has not been addressed yet must be recognized. Issues related to system administration and staff training will occur for any LMS, however the authors believe that within a short period of time the benefits described in this paper will outweigh the costs of the initial learning curve. Further research about the initial implementation of Moodle systems at institutions could help shed light on the challenges and benefits that are encountered in a variety of contexts.

7. Conclusion

This paper has discussed ways that Moodle can be used as a support tool for implementing active learning. Three aspects of active learning were examined in particular: autonomy, projects, and peer-assessment. The authors describe concrete ways in which Moodle can facilitate and enhance active learning practices. Moreover, feedback from students and teachers indicate that both sides perceive Moodle as an effective tool to achieving active learning in the classroom.

References