

Adopting Badges in Moodle to Enhance Engagement in e-Learning for In-service Teachers of English

英語教員研修のための e ラーニングプラットフォームでのバッジの活用法

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本稿は、e ラーニングプラットフォーム “Moodle” におけるバッジ (badges) の機能と効果について、英語教員対象の「英文ライティング添削講座」「英文ライティング添削講座『フォローアップ』」での実装例をもとに論じる。また、バッジの技能習得指標としての実用可能性や、英語中核教員養成のための「英語教育アドヴァンスト研修」での活用法、さらなる研究の方向性について考える。

INTRODUCTION

The inclusion of badges is the newest feature in the Moodle website for teacher training. Along with the progress bar and completion certificates as referred in Parise (2015), badges allow the participants to track and monitor their achievement in the course. This report intends to describe the adoption of this type of feature in Moodle to enhance the participants' engagement in the Support Writing A and the Support Writing Follow-up courses. The main intention for adopting badges is to provide a more gamified method of encouraging the participants to complete two vital tasks for the courses: the quizzes and the writing assignments. First, a brief review of the theory and purpose of badges will be discussed. Following this the implementation of badges to the Support Writing courses will be described, such as design and procedure, along with some responses from the participants. Finally, in the conclusion, future implementation strategies will be considered for the writing courses, as well as methods for more rigorous research on the effect of badges on the participants. In addition, implementation ideas for the Advanced Program, a yearlong in-service teacher training program in which the participants conduct action research will be discussed.

Utility and Efficacy of Badges

Generally, the use of badges has become a vital tool to communicate the acquisition of skill and the hierarchy of a specific community of practice (Ahn, Pellicone, & Butler, 2014). This applies not only to offline activities but online as well. Badges are said to promote two kinds of interaction online. The first kind is by crediting the participant for acquiring some kind of skill. A second is to motivate the participants to take action online. As demonstrated in a study by Anderson,

Huttenlocher, Kleinberg, and Leskovec (2013), badges can promote more activity online. Their study looked at the actions of users on Stack Overflow, a question and answer website that offers 100 badges. They compared the performance of the users in relation to one badge and then followed with two. They noted that the activity of the user on the site reaches optimal levels when they are just short of gaining their badge but then settles to normal levels of activity afterward. In their comparison with two badges, they observed that a participant can gain two badges easily if the prerequisites of attaining such badges were aligned on the same dimension. In other words, gaining badges is easier if those badges orient to similar rather than divergent objectives. While Stack Overflow is markedly different in terms of its goals and the number of available badges compared to what is offered on our Moodle website, this study provides a glimpse of how participants respond to badges on a general level.

Badges and Gamification

Another aspect of badges is that it promotes the *gamification* of courses in Moodle. Gamification is defined as the use of game like elements, such as points, or rewards of some type in a non-game like environment (Deterding, Dixon, Khaled, & Nacke, 2011, p. 10). These environments tend to be business or education type contexts and the use of gamification enhances motivation and encourages engagement in tasks to be performed in those environments. In general education, gamification becomes a way to promote the content of the course to learners. For language learning, the system can be used to orient learners through means other than test scores to measure progress. One important aspect though is that badges should reflect a competency in some area to provide evidence of the participants' acquisition of a certain skill rather than as a mark of achievement (Greeve, 2014, p. 10). This idea will be discussed further in the conclusion of this report.

Badges in Moodle and Open Badges

Since Moodle version 2.5, the ability to provide badges has been available in the main software package of the program, eliminating the need for installing additional plug-ins as would be the case with other motivation facilitating features ("Badges - MoodleDocs," n.d.). Digital badges has become more acceptable in mainstream education due to a shift from a system that relies on physical attendance to one that measures competencies. Because of this shift, technology allows learning to happen anywhere, at any time ("Digital Badges for Learning | U.S. Department of Education," 2011). To cooperate with this shift, Moodle badges have the capability to

connect with the Open Badges Project by Mozilla (Mozilla, 2016). By doing so, the qualifications gained in online education can be applied to different educational contexts. The Mozilla project supports what are termed *backpacks* (“Badges - MoodleDocs,” n.d.; Mozilla, 2016). These are online repositories of badges that are gathered from online courses from different institutions. This allows the user to transfer skills across online education programs as evidence that they have acquired a relevant skill, which can be applied in other educational contexts. By having this capability, Moodle courses can participate in this broader qualification system. This aspect of badges will also be addressed later in this article.

METHOD OF ADOPTION

The intention of utilizing badges on Moodle is to promote the completion of certain tasks. Badges lend themselves as guideposts for learners to direct their progress in the course and provide short term goals. This year two courses hosted on the Moodle have adopted badges. For both the first and second term of 2018, the Support Writing Course A (英文ライティング添削講座) has made use of badges and for the second term the Support Writing Course Follow-up (英文ライティング添削講座「フォローアップ」) has also made use of badges. Badges have been utilized to encourage learners to perform two tasks: the quizzes and the writing assignments. Both tasks work in tandem to build their procedural knowledge of English by completing writing assignments and the declarative aspect through the quizzes. The purpose of quizzes for these online courses is to encourage the learners to focus on important elements regarding the writing process, academic writing, and logical progression. This is to be an assessment of their understanding of the content of the module, and on a more basic level, to determine whether the participants had read the material online or not. When the participant completes a quiz related to a certain module on Moodle, the website automatically awards the participant with a badge. What this does is provide incentive to try upcoming modules and continue in the course. The same happens with writing assignments. When a participant submits a final draft – the last phase of a feedback loop – a final grade for their writing is issued and the site automatically awards a badge related to that assignment. The badges show the participants how far they progress in the course by obtaining badges that correspond to the writing assignments that they have completed as shown in Figure 3.

Badge Design

One of the most appealing aspects of badges on Moodle is how they look. The

badges vary in color and design. For the quiz related badges for the Support Writing Course A as shown in Figure 1, the colors and motifs are the most noticeable aspect of the set. The colors range from cool blue and green for the first two initial designs and then transition to warmer colors for the latter two, implying that the participant is “getting warmer“ i.e. they are getting closer to completing the course. The motifs for the quizzes between courses are also different as shown in Figure 2. The badge design for the Support Writing Course A for example is a computer, hinting at the context of the quiz, whereas the badge for the Follow-up course is a medal. There are also instances where the motifs change as the participant progresses such as the size of the trophy and the number of stars as shown in Figure 3 for the writing assignment badges. Gradually the design becomes more elaborate as the participant progresses in the course and earns more badges as shown in Figure 4. This aesthetic quality can be appealing to the participants and seem to prompt engagement.

Support Writing Course A Fall 2018: Badges
 Number of badges available: 10

Image	Name	Description	Criteria	Issued to me
	Quiz 4 Complete	A badge designating that the participant completed Quiz 4.	Users are awarded this badge when they complete the following requirement: <ul style="list-style-type: none"> The following activity has to be completed: <ul style="list-style-type: none"> "Quiz - Quiz: On Paraphrasing" 	
	Quiz 3 Complete	A badge designating that the participant completed Quiz 3.	Users are awarded this badge when they complete the following requirement: <ul style="list-style-type: none"> The following activity has to be completed: <ul style="list-style-type: none"> "Quiz - Quiz: Compare and Contrast" 	
	Quiz 2 Complete	A badge designating that the participant completed Quiz 2.	Users are awarded this badge when they complete the following requirement: <ul style="list-style-type: none"> The following activity has to be completed: <ul style="list-style-type: none"> "Quiz - Quiz Session 2" 	
	Quiz 1 Complete	A badge designating that the participant completed Quiz 1.	Users are awarded this badge when they complete the following requirement: <ul style="list-style-type: none"> The following activity has to be completed: <ul style="list-style-type: none"> "Quiz - Quiz Session 1" 	

Figure 1. Badges for quizzes of the Support Writing Course A.

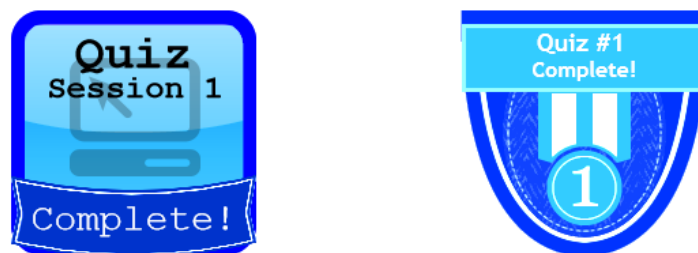


Figure 2. Badges of quiz 1 for the Support Writing Course A and the Support Writing Course Follow-up.

	Assignment 4 Complete	A badge designating that the participant completed Assignment 4.	Users are awarded this badge when they complete the following requirement: <ul style="list-style-type: none"> The following activity has to be completed: <ul style="list-style-type: none"> "Assignment - Submit Assignment Four"
	Assignment 3 Complete	A badge designating that the participant completed Assignment 3	Users are awarded this badge when they complete the following requirement: <ul style="list-style-type: none"> The following activity has to be completed: <ul style="list-style-type: none"> "Assignment - Submit Assignment Three"
	Assignment 2 Complete	A badge designating that the participant completed Assignment 2.	Users are awarded this badge when they complete the following requirement: <ul style="list-style-type: none"> The following activity has to be completed: <ul style="list-style-type: none"> "Assignment - Submit Assignment Two"
	Assignment 1 Complete	A badge designating that the participant completed Assignment 1	<div style="border: 1px solid gray; padding: 5px; margin-bottom: 5px;"> Complete when Assignment 1 receives a grade for the final draft. </div> Users are awarded this badge when they complete the following requirement: <ul style="list-style-type: none"> The following activity has to be completed: <ul style="list-style-type: none"> "Assignment - Submit Assignment One"

Figure 3. Badges for writing assignment in the Support Writing Course A.



Figure 4. Detail of assignment 4 badge for the Support Writing Course A and the Support Writing Course Follow-up.

Figure 5. Anonymous profile page with badges displayed.

When the participant gains a badge, it appears on that participant's profile page as shown in Figure 5. The badges are publicly available, but the only place where it is visible is on the profile page of each participant in the course. In other words, if a participant wants to see how far another fellow participant has progressed in the course, they need to visit that particular person's profile. This is the only feature in Moodle where participants are able to compare each other's performance, yet it is not a broadly distributed piece of information and found only when looking at specific profile pages.

Responses to badges by the participants are confirmed with some anecdotal evidence. During one final face-to-face meeting of the Support Writing Course A for the Spring 2018 term, one participant expressed her enthusiasm for badges in a whole class discussion about the writing program. She mentioned that seeing and receiving badges prompted her to continue writing and complete the course. The beauty of the badges made her enjoy them even more. Interest was also sparked in the Advanced Program as well, during the Day 2 session of the program, which was a review of how to use Moodle, one participant expressed interest in the badge function and asked about it. This prompted the author to show the badges of the Support Writing Course a way to provide a brief explanation of the system. The participant wished that this feature was also included in the Advanced Program workshops as well, based on what he saw available from the other courses. These responses, while individual cases, show that badges can prompt learners to action than other motivation supporting features in Moodle such as the progress bar and the completion certificate as mentioned in Parise (2015). Participants in past courses have not commented orally about these latter two features. While this does not deny the usefulness of the progress bar nor the completion certificate, it does show that badges serve a motivational need in participants.

FUTURE DIRECTIONS

Future Directions for Badges

The potential for badges for both writing programs hosted on Moodle such as the Support Writing Course A and the Support Writing Course Follow-up is yet to be tapped. One issue is that the emphasis on badges is more a tool to motivate, or to provide incentives for the participants, but the overall description of badges as noted in Figures 1 and 3 reveals a missing element. This is in reference to one of the two qualities of badges in the introduction, that it is a reflection of skills gained in the

course. What kind of skills do participants receive when they attain a badge? This is a vital question because it makes the badges and the course more meaningful for the participants, and allows the Support Writing courses to have broader applications beyond the confines of the institute.

Participants should be aware of what kind of skill is involved regarding the quizzes, in other words, they can see where they are in terms of what sort of skills they acquire. This can be included in the description of the quiz badges themselves, by including in the description page for the badges a list of skills they obtain based on finishing a quiz. The same can be applied to the badges for writing assignments as well. While the badge does state that the task is “complete” it does not tell anyone looking at these badges what sort of skills are represented. This impacts the course in two ways: it shows a failure to connect skills to a larger evaluation framework and prevents broader usage outside the course for use with other open badges as supported by The Open Badges Project by Mozilla.

One way to address this gap for the short term is to add more details to the description section of the badge page. Returning to Figures 1 and 3 above, these badge pages which are visible to both participants and instructors alike, designate what is achieved. Both figures have descriptions in the rightmost column and it is here certain skills associated with the completion of a quiz can also be included. When skills are associated with a quiz or assignment, the participant can have a greater appreciation of what is gained other than just completing a task.

A longer term addition to this badge system is that skills need to be defined by a broader framework. Greeve (2014) describes earlier that badges represent skills based on an overall competency framework and that “Competencies describe the level of understanding or proficiency of a learner in certain subject-related skills“ (“Competencies - MoodleDocs,” n.d.). Moodle as of version 3.1 enables the instructor to apply and even create frameworks for evaluating competencies in light of the learners performance as reflected in their acquisition of badges. One such competency framework is the CEFR (Common European Framework of Reference for Languages) as demonstrated in an instructional video for Moodle administrators (Moodle, 2016). With the Support Writing Course, a readymade competency framework can be applied to the Moodle system, or one built from scratch can also be built to accommodate the needs of the participants.

A final consideration for defining skills related to the badge system of Moodle is the applicability to the Open Badges system of Mozilla. Should a participant want to

apply their badge to another program in the future, the non defined badges of our course would not help in this regard since they only define achievement in the course. By defining the skills related to each badge, the participant can have evidence of what was learned for other e-learning courses.

Potential Badges for the Advanced Program

One idea that was generated from the anecdotal evidence from the previous section is the potential for using badges in another course that is hosted in Moodle: the Advanced Program. The participants, in contrast with the writing programs are selected by their school's principal to participate in the program, so as a result their relationship to the course and to Moodle may differ. One of the main differences is that participants in this program engage in the action research process. This process can be overwhelming at first, and so having a clear set of achievements, paired with skills relevant to improving teaching and conducting research, make badges an applicable tool to be utilized for this course. The process of action research is summarized as the following:

- Problem Identification and Preliminary Investigation -This means the teacher, through observation and/or data, determines the needs of the learners.
- Research Question Development - The participant develops research questions to clarify the goals of their teaching and by doing so determine treatments i.e. teaching methods to answer this question.
- Treatment - The participant develops a treatment to meet the educational/language learning needs of the students.
- Data Collection - The participant collects data to determine if the treatment was successful. This is usually in the form of paper or performance tests.
- Data Analysis - The participant analyzes the data obtained from the data collection phase and determines whether the treatment had an effect.
- Presentation – The participant gives a presentation in English about their action research project.
- Report Writing - The participant writes a research report in Japanese about their action research project.

A badge can be developed at each juncture of the program starting from the problem identification phase to the final report-writing phase, to reflect not only

achievement but also what kind of relevant skills are gained from each step of the process, which can be applied not only to the training program, but to their teaching careers in general. Two sample badges that can reflect this progression of skills are shown in Figure 6.

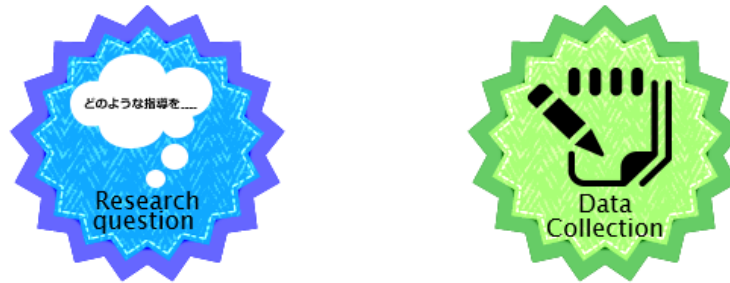


Figure 6. Sample badges for the Advanced Program: Research Question and Data Collection.

These two sample badges define a skill closer to Greeve's definition than the badges produced for the writing program by the very fact that the steps of the action research process are skills developed in sequence. The development of a research question and data collection have their own dedicated face-to-face sessions at the Academia, and have their equivalent tasks on Moodle. The participant for example develops a research question with the aid of the Academia instructors and once they perfect that question and upload it to Moodle, they can receive a badge to reflect their achievement. The same can be said of data collection. The participant can report, with attached data if necessary the type and amount of data needed to test the effectiveness of their treatment. With the guidance of the instructors, the completion of this task can be awarded with a badge as displayed in Figure 6. One vital ingredient to this is the definition of competencies to provide a framework for awarding and evaluating badges. In the case of the Advanced Program, the action research cycle can serve as a competency framework which either can be imported readymade from another source, or even built in house to reflect the needs of the participants of the program.

Further Research

While anecdotal evidence may provide initial hints that badges can be effective in motivating some learners, robust evidence of motivation may be necessary for future research. One source of data is to get the responses of the participants themselves to badges. This can come in the form of items in questionnaires. For example, additional items can be added to the final survey offered in the Advanced

Program as discussed in Parise (2018) which inquires about the usefulness of Moodle to the participants. The questions can not only focus on the efficacy of badges but other features in Moodle such as the progress bar to compare which are more motivating for participants. For the Support Writing Courses, there are several ways to obtain data through either a questionnaire, a one-on-one interview, or a group discussion. The Moodle itself can be a research tool by looking at the server logs for the website. Here details of the participants' behavior can be observed, as demonstrated in Parise (2017) such as the time taken to achieve a badge as well as frequency of log-ins can be used as data to determine how motivating or not badges were for the participants.

CONCLUSION

This report detailed the adoption of badges in Moodle to enhance the participants' engagement in the Support Writing A and Follow-up courses and how the badge system aids in increasing engagement in terms of task achievement. The current approach for using badges however, does not reflect skills that represent broader competency frameworks. To counter this deficit, badge design and implementation strategies were considered for the Support Writing courses and the Advanced Program. Badges can be used to assist the Advanced Program, to direct participants while they engage in action research and at the same time explicitly define the skills which can be applied to their performance in the program and their careers.

The data provided in this report is anecdotal in nature and should be interpreted with caution, but by using data obtained from surveys as well as learner behavior online, a more thorough conception of how badges help participants is possible. Furthermore, research can determine how effective this feature can be in relation to other motivational plug-ins and features for Moodle.

As of writing this report, providing a means for defining achievement in e-learning is just the beginning. There is much to be done with badges to make it more relevant to a 21st century conception of education. Education working in tandem with the affordances of technology can provide opportunities for learners to develop skills beyond the confines of the Academia and create opportunities for teacher training anytime and anywhere.

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