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Improving student experience with learning management systems: What undergraduate Japanese university students find useful

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The aim of this study is to investigate how Learning Management Systems (LMS) can be harnessed effectively to better meet the learning needs and preferences of students. The article examines how the LMS, Google Classroom, can improve students' learning experience, by creating student-centred learning environments. The analysis presents what LMS information students found most useful and why. While the study found no direct relationship between LMS use and student autonomy, it recommends LMS be used to give students information they perceive as useful. A total of 142 participants from a range of majors and enrolment years at a women's university in Tokyo took part in the study. Results indicate learners appreciate Google Classroom for course reminders, relating to tests and homework, and learner training strategies. Findings have been used to formulate recommendations that educators can implement on their preferred LMS. Informational posts relating to homework, course reminders, and activities to encourage peer interaction are recommended.

Keywords: LMS, autonomy, competence, relatedness

Literature review

Learning Management Systems (LMS), software applications used to manage education content, are widely used among secondary and tertiary education and can be considered part of the social and mobile learning phase of autonomy-supportive self-access, which began in the 2010s (Mynard, 2023, p. 22). Research into students' perceptions of LMS by Bailey and Gamble (2022), Moonma (2021) and Kassim (2021) appeared due to COVID-19, as many educators began relying more on LMS for remote teaching. These studies reported positive attitudes towards Google Classroom regarding ease of access materials and opportunity for peer interaction. Students

appreciated notifications about assignments (Bailey & Gamble, 2022). The current study investigates the extent to which LMS create positive learning spaces based on students' preferences.

An underlying premise of the current study is the Reeve et. al argument for creating learner autonomous spaces. Asking learners about their LMS perceptions makes their learning experience more student-centred, increases student engagement and enhances the teacher's motivational style (Reeve et. al. 2022). Teachers are encouraged to take their students' perspectives and can adopt a supportive motivating style by listening to students' preferences on their LMS.

Central to Reeve et al.'s (2022) argument is Deci and Ryan's (2000a) Self-determination Theory (SDT), which proposes motivation is based on three underlying psychological needs: autonomy, relatedness and competence. According to Deci and Ryan (2000b, p.231) "autonomy concerns the experience or integration and freedom, and it is an essential aspect of healthy human functioning". Competence refers to being able to succeed within one's environment, and relatedness relates the sense of connectedness and "being involved in close and caring relationships" (Mynard & Shelton-Strong, 2022, p. 3). The connection between SDT and Reeve et al's argument of taking the students' perspective underlies the data interpretation in this study. SDT provides a framework with which to analyse the data.

Methods

Participants were undergraduate Japanese students at a private women's university in Tokyo. The majority were second-year students from a range of majors such as Psychology, International Relations, and Sociology. They were enrolled in compulsory and elective English face-to-face classes meeting once a week for 90 minutes over fifteen weeks. The study used a cross-sectional design collecting data once during the first semester.

Students completed a reflective task identifying elements in their learning environment in Week 8 of the first semester. Working in small groups, students developed diagrams of available study resources. A summary of this task can be seen in Figure 1. The aim was to raise students' awareness of their learning environment. During feedback the teacher established Google Classroom represents one element in a learning environment. After the task, students were invited to complete a Google Forms survey with open-ended questions (Appendix A) about the LMS use. Some examples of weekly content published on Google Classroom are illustrated in Table 1. Posts included information about the course but also non-class related content. Participants were also asked to indicate whether they would agree to the potential use of their data for future research purposes.

Qualitative data coding followed a thematic analysis method proposed by Braun and Clark (2006). The data were collated verbatim and read through by the author, who then analysed it to notice patterns. General themes were identified, and pertinent opinions were noted. Responses were then coded by hand and used to produce horizontal bar charts.

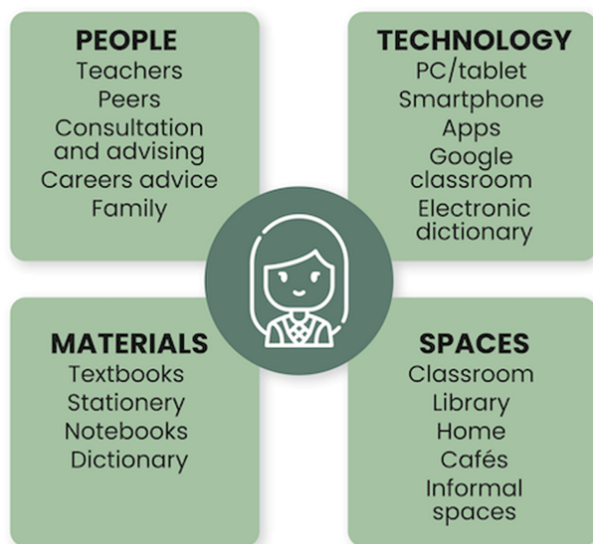


Figure 1. Summary of learning environment task

Table 1. Week 1–7 content posts

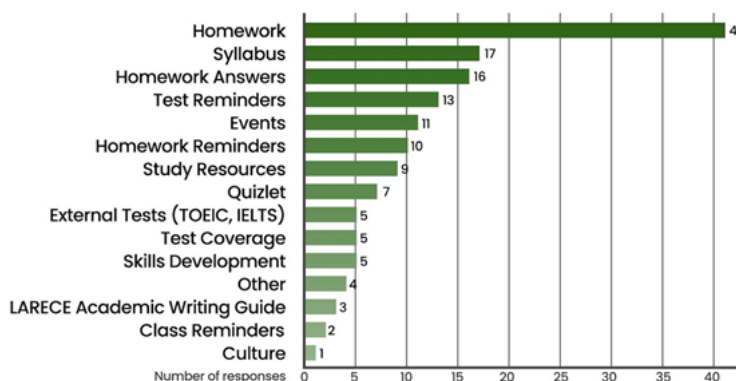
1	In-class syllabi & IELTS workshop
2	Easter recipes
3	Event with a university in Singapore
4	Online dictionaries
5	Golden week on-demand answers and IELTS workshop & advice for working in a group
6	Student advising & course reminders
7	Pomodoro technique & campus event

Results

Responses to the question “Which posts have been useful for you on Google Classroom?” are illustrated in Figure 2. The most useful posts for participants in this study related to homework, syllabi and tests. Forty-one students ($n = 41$) indicated the most useful types of posts related to homework. One said, “I sometimes forget to get confused about the HW, so the posts about the HW is really helpful for me”. Comments regarding homework answers were rated as third most useful with ($n = 16$). Students rated syllabus information as second most useful with ($n = 17$). Also rated highly was information related to tests ($n = 13$). One student commented, “I’m happy to be told the date of the test so I can study in advance”. These preferences indicate students in this study value posts clarifying assignment requirements.

The next most useful posts for participants in this study related to course reminders, study resources, and university events. Regarding test reminders ($n = 13$), one student commented, “they helped me keep track of deadline and provided clear explanations of what I needed to study, which made it easier to prepare”, while another said, “I was grateful because I tend to forget what I need to do for next week”. As for homework reminders ($n = 10$) one student commented “I’m glad that there is a reminder for homework”. Study resources, ($n = 9$) included word lists, pomodoro technique and online dictionaries. The category of others ($n = 4$) included, soft

skills advice, internships, LARECE (Liberal Arts Research and Education Center for English). Interestingly, one student also mentioned the built in to-do list was useful for managing deadlines. Related to study resources the following two trends were identified: the vocabulary application Quizlet ($n = 7$), and support with skills development ($n = 5$). Concerning campus events ($n = 11$), one said, “I often overlooked some information such as announcement of preparations and events so it is very useful”. These comments also suggest that support with self-planning, independent study and campus news were appreciated by students in this study.



Note. Culture refers to content related to the arts, music, religion etc.

Figure 2. Most useful posts

Future posts

Responses to the question “What information would you like your teacher to post on Google Classroom in the future?” are illustrated in Figure 3. The most useful future posts for participants in this study were class reminders ($n = 28$), homework ($n = 18$) and culture ($n = 18$). This partly aligns with the most useful posts (Figure 2), suggesting these students most value posts related to reminders and homework. While culture ($n = 1$) was not initially identified as useful (Figure 2), culture was rated highly for future content ($n = 18$) (Figure 3). Therefore, given the choice, participants in this study would appreciate more culture content. One student said “I want to read more posts about UK culture! I enjoyed reading the Easter post”. However, responses failed to indicate specific examples of culture. Rated in fourth place were study resources ($n = 16$). One student said, “more English learning tips”. These last two categories reveal that whilst not viewed as useful, culture and study resources were still considered beneficial for future learning.

The next most useful future posts indicate a degree of motivation among the participants in this study. Useful future posts included the category of other ($n = 12$). This theme consisted of responses relating to resources including news websites, pronunciation, class slides, audio, business English and vocabulary. One student commented they wanted not only English-related posts: “more posts about fun information not only about school”. Apps were also mentioned ($n = 5$) and books/films/TV ($n = 3$). These results indicate that students in this study want a wider variety of learning resources suggesting they are motivated yet lack resources.

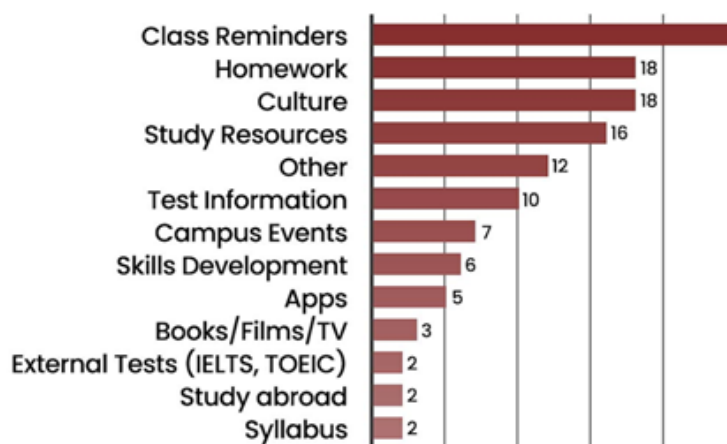


Figure 3. Future posts

Discussion

Previous research on learner perceptions of Google Classroom focused on usefulness for remote learning during COVID-19. The purpose of this study was to identify what content students consider most useful face-to-face classes. The data was analysed based on the elements of SDT: autonomy, competence and relatedness. Concerning autonomy, study resources were frequently mentioned by students in this study. They requested a variety of specific materials including cultural content and learning strategies. The diversity of resource types mentioned indicates these learners value having choice from which to select based on their personal interests or learning preferences. In addition, the perceived need for more English learning tips, suggests a sense of motivation but also a need for guidance in developing autonomy. This finding shows a contradiction. Although the data reveals intrinsic motivation to direct their own learning, it also shows a lack of confidence in identifying resources to support their goals. This indicates to develop autonomy the students in this study need support making informed choices about their learning.

Regarding competence, class reminders and homework information such as deadlines and answer keys were highly valued areas by these students. This finding aligns with Bailey and Gamble's (2022) research, which identified assignment notifications as useful. This support for competence helped learners feel more capable of managing their workload and deadlines. Providing clear deadlines and regular updates, Google Classroom reduced uncertainty and enabled students to stay organized with their studies. This enhanced students' sense of competence as they were more confident meeting course requirements successfully. The positive responses about homework and reminders indicate that feeling organized helped students in this study to feel capable of managing academic responsibilities.

Pertaining to relatedness, students in this study expressed interest in campus events and external opportunities such as IELTS, internships, and study abroad programs. Although these posts may have helped them feel connected to their broader academic community, relatedness remained the weakest of the three SDT components compared to autonomy and competence. The limited evidence for relatedness suggests that informational posts, while valued, may be less effective at addressing students' need for social connection and meaningful relationships within their

learning community. Had Google Classroom been used for peer collaboration such as using shared documents or slides, students may have indicated these as useful. In previous studies on LMS usage, participants highlight value of interacting with peers Bailey & Gamble, (2022), Moonma (2001, and Kassim (2021). Moreover, the limited evidence for relatedness may reflect the individualized nature of LMS engagement, particularly as most students use mobile devices. This mobile-assisted learning approach, while supporting autonomy and competence, may have inherently limited the social interaction aspect necessary for relatedness. Mynard (2023, p. 22) points out, basic psychological needs and wellbeing phase of self-access requires all three elements of SDT for students to thrive.

Limitations

The first limitation is that the dataset includes preferences and opinions from multiple enrolment years, and majors, with a higher ratio of second year students. This could have produced biased data reflecting more the preferences of second-year students. Furthermore, patterns within or across majors could not be identified. A further limitation is the dataset was from one Japanese university alone. Therefore, generalisations about other Japanese or non-Japanese universities cannot be made.

Recommendations

Educators can harness LMS to enhance the learning experience by creating content that appeals to autonomy, competence, and relatedness. A starting point is to take students' perspectives by asking them which content is most useful. While informational posts effectively support competence and autonomy, increased relatedness might be achieved through content encouraging collaboration or interaction.

Conclusion

Drawing on SDT, this study explored how different types of LMS content support learner autonomy and motivation. The findings reveal that informational posts about homework reminders, deadlines, learning resources, and cultural content can help create learner-autonomous space by addressing autonomy and competence. However, relatedness emerged as the weakest element, likely reflecting the individualized nature of mobile LMS engagement. This suggests that while LMS platforms can effectively support competence and autonomy needs, fostering the social connection dimension of SDT would require complementary strategies beyond informational posts. These findings contribute to understanding how an LMS such as Google Classroom can be optimized to create a motivationally supportive, learner-autonomous environment by selecting content that addresses multiple dimensions of student motivation as conceptualized in SDT.

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Appendix A

Survey questions

This survey is designed to understand students’ experiences of using Google Classroom in my English class. All responses are anonymous and will not affect your grade in any way. Responses will be used to improve the way in which Google Classroom is used in the future.

Take a moment to think about which posts from our in Google Classroom (between week 1 and week 7) have been the most and least useful for you this semester. Please only consider the use of Google Classroom for my class. (Not for your other university classes.) The survey will take approximately 10 minutes to complete. Responses can be in English or Japanese.

このアンケートは、私の英語の授業で Google Classroom を使用した生徒の経験を理解するためのものです。



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すべての回答は匿名であり、成績に影響することはありません。ご回答いただいた内容は、今後のGoogle Classroomの利用方法の改善に役立っています。

Google Classroom(第1週から第7週まで)の投稿の中で、今学期、あなたにとって最も役に立った投稿と、最も役に立たなかった投稿について考えてみてください。Google Classroomの利用は、私の授業に限って考えてください。(アンケートの所要時間は約10分です。回答は英語でも日本語でもかまいません。)

How often do you check Google Classroom (for this class)?

Every day/a few times a week/once a week/every time there is an announcement/
hardly ever/never/only when I have an assignment to complete

Which posts have been useful for you on Google Classroom? (for this class)

Please briefly explain your previous answer.

Which posts have not been useful for you on Google Classroom? (for this class)

Please briefly explain your previous answer.

What information would you like the teacher to post on Google Classroom in the future? (for this class) For example more posts about strategies for learning English, more posts about campus life and events, more posts about UK culture, more course reminders, or something else? If you have other comments about your experience of using Google Classroom in this class between weeks 1 and 7, please write them below.

In the future, the responses to this survey may be used for research purposes. In that case, all responses would remain anonymous.

If you agree to the potential use of your answers, please choose “I agree”.

If you disagree with the potential use of your answers, please choose “I disagree”.

Thank you again!

将来的には、このアンケートの回答を研究目的で使いたいと思うかもしれません。その場合、すべての回答は匿名のままになります。回答の使用の可能性に同意する場合は、「同意する」を選択してください。回答の使用の可能性に同意できない場合は、「同意しない」を選択してください。改めてありがとうございます！