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Teaching and Learning Introduction to Biomechanics in Exercise through Google Classroom in University Students

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Abstract

Google classroom is a service of application in google apps for education group. Its function can be used for teaching and learning. The purposes of this study were to evaluate students' satisfaction of using google classroom in subject of Introduction to Biomechanics in Exercise and to determine if desire for google classroom is associated with usability. Twenty-six undergraduate students (ages 18-23 years) who enrolled Introduction to Biomechanics in Exercise subject were used in this study. A set of questionnaires was used as a surveying tool. The data was collected through an online questionnaire. Data were analyzed using the percentage and means, standard deviation, Pearson correlation with statistically significant at level .05. The results showed that students satisfied with teaching and learning Introduction to Biomechanics in Exercise subject through google classroom's tool, with variable of suitable for subject with high satisfaction, and wanted to use google classroom in other subjects. Additionally, association of a desire to use google classroom as an education tool with usability of students was observed. A desire of Google classroom using was positively associated with suitability, functions, effectiveness, and usefulness (all $p < .05$). In conclusion, google classroom can be a useful education modality for teaching and learning in the university students because of its benefits and several relevant issues.

Keywords: Teaching and learning, Google classroom, university students

Introduction

Google classroom is a new free and popular tool in Google apps for education in 2014 (Shaharane, Jamil, Rodzi, 2016; Azhar & Iqbal, 2018). The classroom offers a helping tool that the teachers can use for document and classroom management. The

teachers perceive it as a facilitation tool they can create and organize assignment promptly, provide information and result efficiently, and communicate easily with their students in the class (Azhar & Iqbal, 2018). Additionally, the students who belonging to the classroom will get notification in their emails when teachers post any announcement or provide any information. They can use Google classroom comfortably whenever an activity is beginning in the classroom via their devices which installed the app (Bhat, Raju, Bikramjit, D'Souza, 2018). Therefore, Google classroom's tool can be integrated into the teaching and learning of data mining software, as pedagogical application (Shaharane, Jamil, Rodzi, 2016).

The working of Google classroom is about data collection over a period and representing of an analysis in terms of teachers and students' perspectives (Bhat, Raju, Bikramjit, D'Souza, 2018). There are two crucial components of the actual system used. First, perceived ease of use (PEOU) and next is perceived usefulness (PU). Both of components is involving technology acceptance model (TAM) which explain the computer usage behavior (Davis Jr, 1986). They are positively influence the behavioral intention, which influence the actual usage of Google classroom (Saeed Al-Marroof & Al-Emran, 2018). The research of Google classroom application reported that the classroom is ease of access, perceived usefulness, communication and interaction, instruction delivery that students satisfied with the Google classroom's learning activities (Shaharane, Jamil, Rodzi, 2016). Moreover, the study of effectiveness and acceptance of Google classroom revealed that teachers and students perceive it as a useful tool in helping in teaching and learning process (Azhar & Iqbal, 2018; Saeed Al-Marroof & Al-Emran, 2018). For a pedagogical framework, a study has reported that the Google classroom can improve classroom dynamics and even elevated student participation and learning (Heggart & Yoo, 2018).

Accordingly, the purposes of this study were to evaluate students' satisfaction of using google classroom in subject of Introduction to Biomechanics in Exercise and to determine if desire for google classroom is associated with usability. In this paper, research question is proposed that whether Google classroom can be a useful education modality for teaching and learning in the university students or not. We hypothesized that students would exhibit satisfied towards the Google classroom and that a desire to use Google classroom of students would be significantly associated with usability.

Research Methodology

Subjects

The study was conducted at Department of Physical Education and Exercise Science, Faculty of Education, Naresuan University in Thailand. By the initiative of

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the first semester of the academic year 2018, the target subjects for this research are twenty-six undergraduate students (ages 18-23 years), the 3rd year, who enrolled Introduction to Biomechanics in Exercise subject (male, n = 16; female, n = 10). The subjects in the class was invited to the Google classroom via class code before session started. Google classroom was used throughout the semester.

Survey Instrument

The survey included question on demographics, which cover age and gender, and student satisfaction. An online questionnaire survey was sent to all the enrolled students at the end of course on the first of the academic year 2018. The survey aims to collect student satisfaction regarding the Google classroom usage. These variables consist of six issues such as 1) understanding of using google 2) suitable for subject 3) desire of google classroom 4) functions of google classroom 5) effectiveness of Google classroom and 6) usefulness of google classroom. All the items were measured using Likert scale, a five-point nominal scale, ranging from 1 (least) to 5 (greatest). Based on the survey, it was observed that the respondents were high percentage (90%) of female and 81.25% male respondents.

Statistical Analyses

All data were analyzed using IBM SPSS statistical software (IBM SPSS version 22). Prior to the parametric tests, the tests for normal distribution were performed and verified. Bivariate correlation (Pearson's correlation) analyses were used to examine the relations between desire of google classroom and usability of Google classroom. Descriptive data are expressed as percentage and mean \pm S.D. An α -level of 0.05 was considered the statistical significance.

Results and Findings

The number of posts in Google classroom by lecturer are shown in Table 1. Announcements were posted more than assignment in Google classroom. These involving lessons of subject, appointment, and information, while assignment regarding work and instruction of work for students. However, lecturer did not post some assignment in Google classroom since the activities, which consistent with the lesson, were designed to do in real classroom.

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Table 1

Number of posts in Google classroom

List of post	Number of posts
1. Assignment	5
2. Announcement	19

In term of assignment submission through Google classroom, based on Table 2, the results showed that most of students submitted their assignment. We can observe that 57.69% of students submitted late in the first assignment while no one submitted late in the last assignment. The finding revealed that most of students can use Google classroom in assignment submission with high percentage submit late in the first assignment and lowest (0%) percentage in the last assignment.

Table 2

Number of Students Submitted Assignment through Google Classroom

Assignment	Number of students (n = 26)					
	Submit	%	Submit late	%	Missing	%
1	25	96.15	15	57.69	1	3.85
2	26	100	8	30.77	-	0
3	22	84.62	7	26.92	4	15.38
4	24	92.31	10	38.46	2	7.69
5	22	84.62	-	0	4	15.38

Based on Table 3, all score shows above average with the highest mean is component of suitable for subject provided by the students are about accordance and application with mean value of 4.43. Respondents strongly agree (mean of 4.41) that Google classroom is a service of application which suits for subject of Introduction to Biomechanics in Exercise and it could be applied in other subjects (mean of 4.45). On the contrary, the lowest mean value is about component of understanding of using Google classroom. The average mean of this component is 3.57. In addition, understanding of using Google classroom in pre- and post-course with mean value of 2.77 and 4.36, respectively. The results indicated that on average, the students had little satisfied about understanding of Google classroom using before course starting. However, they had satisfied more in using Google classroom after finished course of Introduction to Biomechanics in Exercise. Additionally, the score shows above average with the high mean are the students satisfied with all components of desire of using, functions, effectiveness, and usefulness of Google classroom (mean of 4.32, 4.00, 4.05, and 4.39, respectively).

According to the main findings of the present study, these results are consistent with the idea that Google classroom plays a role in facilitating teaching and

learning process. The two important determinants of actual systems used, perceived ease of use (PEOU) and perceived usefulness (PU) (Shaharane, Jamil, Rodzi, 2016; Davis Jr, 1986; Saade, Nebebe, Tan, 2007). Both were involving computer usage behavior, participation and acceptance behavior in using system. The results of this study proved that majority of the students satisfied with the Google classroom's tool with high satisfaction, above average. In particular, the area of suitability, desire of using, functions, effectiveness, and usefulness. These presents are consistent with previous study emphasizing students' satisfaction towards the Google classroom's learning activities (Shaharane, Jamil, Rodzi, 2016). Google classroom was integrated into the teaching and learning when users (teachers or students) have perception that system is usefulness, helping in the teaching and learning process (Shaharane, Jamil, Rodzi, 2016). These results can reflect that Google classroom can be a useful education modality or pedagogical tool in changing teacher-centered to learner-center, more active learning (Shaharane, Jamil, Rodzi, 2016; Saeed Al-Marroof & Al-Emran, 2018).

Table 3

Students' Satisfaction of Using Google Classroom in Subject of Introduction to Biomechanics in Exercise

Variables	\bar{x}	S.D.
1. Understanding of using google classroom	3.57	1.13
1.1 Pre - course	2.77	0.97
1.2 Post - course	4.36	0.58
2. Suitable for subject	4.43	0.59
2.1 Google classroom is suitable for this subject.	4.41	0.59
2.2 Google classroom could be applied in other subjects.	4.45	0.60
3. Desire of google classroom using	4.32	0.57
4. Functions of google classroom	4.00	0.78
4.1 Easy to find menu and icon position.	4.00	0.82
4.2 The position of menu and icon are not complicate location.	4.00	0.82
4.3 Wording in application menu is clearness and accordant with function.	4.00	0.76
4.4 Size and pattern of alphabets are beautiful and easy to read.	4.14	0.71
4.5 Arrangement of application is simple.	3.86	0.83
5. Effectiveness of google classroom	4.05	0.68
5.1 System is quickly response.	3.95	0.65
5.2 System correctly shows outcome.	4.00	0.62
5.3 Alphabets, pictures, and animation are beautiful and play smoothly.	4.00	0.69

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Variables	\bar{x}	S.D.
5.4 Windows and icons of working are simple.	4.05	0.72
5.5 Google classroom helps students to submit assignment early.	4.27	0.70
6. Usefulness of google classroom	4.39	0.59
6.1 Comfortable interacting with lecturer and easily approaching the content of the course.	4.41	0.59
6.2 Google classroom provides students to better understand the content of the course.	4.18	0.59
6.3 Time saving and lessening in submission process.	4.45	0.60
6.4 Students can submit assignment on time.	4.50	0.51
6.5 Students can monitor their performance and approach lecturer and the content of the course anytime.	4.41	0.67

The associations between desire of using and usability of Google classroom are shown in Table 4. A desire of Google classroom using was positively associated with suitability, functions, effectiveness, and usefulness (all $p < .05$). Although, the number of studies that address the association of a desire to use google classroom as an education tool with usability is limited. The findings of this study are involving the point that Google classroom is useful in facilitating teaching and learning process (Saeed Al-Marouf & Al-Emran, 2018). The increasing of students' participation and learning, and improvement of classroom dynamics were raised by Google classroom (Heggart & Yoo, 2018). According to the previous researchers' mention (Saeed Al-Marouf & Al-Emran, 2018; Heggart & Yoo, 2018), raising classroom dynamics by using Google classroom, it possibly to see that a desire of Google classroom using of students was positively associated with the usability area, functions, effectiveness, and usefulness of Google classroom.

Table 4

Bivariate correlation of desire of Google classroom using with usability

Variables	Pearson's correlation coefficient	p value
Suitable for subject		
1. Google classroom is suitable for This subject.	0.588	0.004*
Functions of google classroom		
1. Easy to find menu and icon position.	0.513	0.015*
2. The position of menu and icon are not complicate location.	0.513	0.015*

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Variables	Pearson's correlation coefficient	p value
3. Wording in application menu is clearness and accordant with function.	0.555	0.007*
4. Size and pattern of alphabets are beautiful and easy to read.	0.478	0.025*
Effectiveness of google classroom		
1. System is quickly response.	0.426	0.048*
2. System correctly shows outcome.	0.543	0.009*
3. Google classroom helps students to submit assignment early.	0.488	0.021*
Usefulness of google classroom		
1. Google classroom provides students to better understand the content of the course.	0.531	0.011*
2. Time saving and lessening in submission process.	0.537	0.010*

$p < .05$

Conclusion

It can be concluded that students were highly satisfy to the using of Google classroom in subject of Introduction to Biomechanics in Exercise and the desire of Google classroom was associated with usability. Therefore, it indicates that Google classroom have suitability, functions, effectiveness, and usefulness which can be a useful education modality for teaching and learning in the university students because of its benefits and several relevant issues. Considering the important role that Google classroom plays in the document and classroom management, there is no question that more studies, especially using of Google classroom in teaching and learning point, are warranted in the future.

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