Study on the Adoption of Online Collaborative Learning from the Perspective of Sociability Quality

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Abstract: Online learning has become more centric in students' lives nowadays. While sociability quality is one of the challenges with collaborative learning that have been discussed in past studies. Despite numerous studies have explored collaborative learning features, there is still a lack of research that look at sociability quality in the context of online collaborative learning. Therefore, this research aims to identify the relationship between sociability quality dimensions with the adoption of online collaborative learning in higher institutions. This study has collected data from 101 respondents among students in Malaysian higher institutions. The sample was gathered using the quantitative study approach with a series of questionnaires, and online surveys were used to obtain data from respondents. All of the data and quantitative reports in the form of frequency, percentage, mean, and standard deviation were obtained using the Statistical Package for Social Science (SPSS). This study enhances understanding and provides the best technique for improving online collaborative learning in higher institutions. As a result, all variables have a significant relationship with the adoption of online collaborative learning, and social comfort has the highest correlation coefficient with a value of 0.419, referring to the sociability quality dimensions that can provide a positive visual in socialising.

Keywords: Sociability quality, Collaborative learning, Higher Institutions, Online Learning

1. Introduction

The concept of online learning has been introduced since year 1995 where web-based system; the first learning management system (LMS) developed which later known as Blackboard (Singh & Thurman, 2019). Since then, numerous platform including e-learning, blended learning, online

education and online courses have been used to describe online learning. However, most of online learning has focused on certain community only. In early February 2020, COVID-19 pandemic has spread widely and has given greater impact towards education in globally (Tang *et al*., 2022). Thus, the implications of COVID-19 on learning have led to the revocation of face-to-face classes and social interaction, accommodating the process of learning, lessons, assessments, or virtual encounters to the digital world (Salem et., 2020). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has collaborated with Ministries in affected countries to ensure learning through various channels in order to respond and mitigate the negative impact of lockdowns on the educational development of the most vulnerable communities (Profuturo, 2020). In an online environment, students collaborate in groups as well as their process of information seeking often differs from a traditional environment (Robinson *et al*., 2017). Other researchers examined the best interactional strategies that are necessary for collaborative learning so that the learning would be effective and rewarding in an online environment (e.g., An & Kim, 2007; Dirkx & Smith, 2004; Kumi-Yeboah *et al*., 2017). Online collaborative is a process of learning together using the Internet while sociability is the ability of being sociable with other people, specifically, in the context of students having interactions during online classes. When students have issues of not being sociable during online learning, this can affect the online collaborative learning as well.

According to the Ministry of Higher Education (MOHE), Higher Education Providers (HEP) are allowed flexibility to conduct online learning activities while taking the current scenario into consideration (Bernama News, 2021). Online learning can be implemented properly with the integration of various tools and software. Therefore, most higher institution already started to normalize the online learning by using a variety of platforms to conduct the classes in these challenging times where it is the safest and most effective way for people to continue education and it is crucial to use the right tools so that students are always connected to each other (Colman, 2022). Hence, collaborative learning in educational activities is important for strengthening students' intellectual cooperation, when students engage in groups of two or more, seeking mutual understanding, answers, or generating a product. Collaborative learning is becoming increasingly popular in online education, as many programme developers and instructors of online courses recognise its favourable impact on student learning and as an instructional technique of choice in the online environment (Ashong & Commander, 2012; Kumi-Yeboah *et al*., 2017). The main challenges related to online collaborative learning is sociability quality. Sociability quality is defined as the tendency of an individual to interact with others (Capitanio, 2002; Vitale & Udell, 2018). The ability to interact plays an important role in providing a satisfying level of social existence. Online environments may challenge constructing social presence and comfort, which in turn may impair learning processes (Caspi & Blau, 2008). The lack of social ability among students, may cause difficulties and uncomfortable in collaborative learning. Collaborating will not occur just by grouping pupils, because social connection is necessary for collaboration (Law *et al*., 2017). One of the common concerns highlighted in the collaborative learning research at various levels of education, according to a prior study, is students' lack of collaboration abilities (Janssen & Wubbels, 2017). Therefore, thid study aims to dentify the relationship between the level of sociability quality dimensions with the adoption of online collaborative learning in higher institutions.

2. Literature Review

2.1 Online Collaborative Learning

Collaborative learning is a teaching and learning method in which students collaborate in groups to address a problem, complete a task, or create a product (Laal & Laal, 2012). Online collaborative learning is a specific type of constructivist education, formerly known as computer-mediated communication (CMC), or networked learning, has resulted in the emergence of constructivist learning theories and the growth of the Internet. Collaborative learning is an important aspect of the group work

in which social connection and teamwork are crucial (Salam & Farooq, 2020). According to Wang (2014), users can share information and create new knowledge collaboratively in today's collaborative Web. There are several advantages to the notion of collaborative learning. Collaborative learning is the way for students to improve their social skills and work in groups. Explained by Laal & Ghodsi (2012) that Collaboration is an interaction concept and a chosen behaviour in which individuals are responsibility for their actions, including educating about and recognising the skills and contributions of their peers. As well as online collaborative learning also plays with the interaction of students working in groups but in the concept of distance learning via the internet. Due to the significance of the teacher's duties, online collaborative learning is not easy to scale up (Demuyakor,2020).

2.2 Sociability quality in online learning

According to the Oxford Dictionary, sociability is a character or quality of being sociable, friendly disposition, or intercourse. Sociability is an online learning environment quality that is thought to encourage social interaction. Therefore, it is essential to have sociability quality in online learning to enable students and educators to interact with each other. Interaction and emotional connectedness among students and instructors are essential in education (Lee & Akcaoglu, 2020). Sociability is defined as support for social process response such as collaboration, communication, cooperation, thought, and discussion, as well as the formation of a group's identity and norms (Vatrapu *et al*., 2008).

2.3 Research Framework

A research framework is a theoretical framework that believes on how certain variables or concepts are related to each model and an explanation of why these variables are associated with a theory. For this study, sociability quality is an independent variable with two dimensions which are social comfort and social influence and the dependent variable is the adoption of online collaborative learning.

Sociability Quality
1. Social Comfort
2. Social Influence

→ The adoption of online collaborative learning

Figure 1: Research Framework

(a) Social Comfort Dimension

In oxford learner's dictionary, social is defined as connected with society while comfort is defined as the state of being physically relaxed and fatigue. Social comfort is defined as the sense of being recognized in the same way that we recognize the other. On the other hand, the term social comfort in this study refers to individuals who feel more or less comfortable with others, to be socially "connected" as opposed to "disconnected", to pull toward and feel accepted or to feel socially rejected (Philippe, 2016).

(b) Social Influence Dimension

The phrase "social influence" in this study refers to the ways in which individuals change their behaviour to match the expectations of a social situation, according to the American Psychological Association. A specific action, demand, or request usually results in social influence. People's behaviours may, however, change in response to what others do or think. Self-categorization theorists contend that when individuals identify as part of a group, they are influenced by the group's social

expectations and hence tend to behave in group-specific roles (Turner *et al*., 1987; Cork *et al*., 2020). When people learn about the beliefs of others, they revise their own beliefs to become more similar to their social referents (Becker *et al*., 2017). Ultimately, according to Gershman *et al*., (2017), The preferences of others significantly influence everything from everyday purchases to important life decisions.

3. Research Methodology

The research methodology is used to identify the research that will be conducted in order to fulfil the study objectives. It covers all research procedures designed to reach the research's objectives. The goal of data analysis is to identify the research findings and to examine the results in order to establish the outcome of the research objectives.

3.1 Research Design

This study employed both descriptive and quantitative research methods. Descriptive research provides a clear and complete picture of the study. In addition, this research design is to logically and coherently combine the various study components.

3.2 Data Collection

Data collection is the process of gathering data on specific variables in a system that has been developed, measuring that data, and using that data to evaluate results and respond to relevant issues. Data collection was divided into two categories which are primary data collection and secondary data collection.

3.3 Data Analysis

All of the information obtained has been gathered and organised in a systematic and easy-to-understand manner. The data was analysed to identify the research's findings and to determine the study will meet its objective. Data from the descriptive analysis approach and correlation analysis, survey questionnaire form has been analysed.

4. Results and Discussion

This section detailed the data analysis and findings of the research, which were acquired based on questionnaires distributed to respondents using online surveys through Google Forms. To answer the research objectives, the data were analysed using the Statistical Package for Social Science (SPSS). This discussion was discussing the independent and dependent variables starting from the response rate, the reliability test to the descriptive analysis. Then, the discussion will be continued with the normality test and correlation analysis

4.1 Turnover Rate

Respondents are among students in higher institutions around Malaysia. The estimated population of students in higher institutions around Malaysia is 1.32 million. According to Krejcie and Morgan (1970) on determining the sample size based on population number, this study required around 384 respondents to answer the questionnaire. Hence, the online surveys had been distributed through students' email and social media such as WhatsApp, Instagram and Facebook. Based on that, the survey received only 101 sets of response with the response rate of this study is shown on the table below.

Table 1: Questionnaire of response rate

Population	Sample size	Questionnaire distributed	Questionnaire received	Percentage (%)
1,320,000	384	384	101	26.30

4.2 Reliability Test

The results of validity of the data collection by the questionnaires that had been distributed to the selected respondents has been determined using Cronbach's Alpha method

(a) Pilot Study

Based on table 2, 30 questionnaires were delivered to respondents who are students in higher institutions in Malaysia, and the final results were analysed using the Statistical Package for the Social Sciences (SPSS).

Table 2: The value of Cronbach's Alpha for 30 respondents

Factors	Cronbach's Alpha	No. item
Social comfort	0.833	4
Social influence	0.847	3
Adoption of online collaborative learning	0.929	3

(b) Actual Study

Based on table 3, it shows Cronbach's Alpha value for 101 respondents that have answered the questionnaires given.

Table 3: The value of Cronbach's Alpha for 101 respondents

Factors	Cronbach's Alpha	No. item
Social comfort	0.795	4
Social influence	0.803	3
The adoption of online collaborative learning	0.910	3

4.3 Descriptive Analysis (Demographic)

Table 4 below shows the results of descriptive analysis for the demographic respondents

Table 4: Summary statistics of demographic analysis

Demographics	Items	Frequency (N)	Percentage (%)
Gender	Male	28	27.7
	Female	73	72.3
Race	Malay	94	93.1
	Chinese	3	3.0
	Indian	3	3.0
	Other	1	1.0
Age	19-21	16	15.8
	22-24	78	77.2
	25-26	5	5.0
	27 and above	2	2.0
Current Year of Study	Year 1	9	8.9
	Year 2	17	16.8
	Year 3	26	25.7
	Year 4	42	41.6
	Others	7	6.9
Institutions	UTHM	41	40.6
	UM	3	3.0
	USM	4	4.0
	UTM	3	3.0
	UiTM	20	19.8
	UIAM	1	1.0
	UPSI	1	1.0
	UMT	7	6.9
	UMP	1	1.0
	UniSZA	1	1.0
	UMK	2	2.0
	UKM	7	6.9
	Other	10	9.9
Respondents Who Likes to Social	Yes	75	74.3
	No	26	25.7
frequency meeting with friends	Daily	60	59.4
	Weekly	16	15.8
	Monthly	11	10.9
	Not frequent	14	13.9
Opinion towards by being socialize would improve communication skills	Yes	100	99.0
	No	1	1.0
Interaction with groupmates by social skills	Yes	100	99.0
	No	1	1.0

Table 4 shows the results of the demographic of respondents. It shows that the number of male respondents is 28 while the total number of male respondents is 73 out of 101. Hence, 27.7 percent are male respondents which are slightly less than the female respondents which are 72.3 percent. The percentage of Malay race was 93.1 percent followed by Chinese with 3 percent. Besides that, Indians received the same percentage as Chinese which is 3 percent and the other remaining 1 percent is Bumiputera Sabah. Therefore, Malay respondents received the highest percentage of other races. The table above also shows the number ages for the respondents. The ages of 19 to 21 years old respondents were 15.8 percent while 22 to 24 years old respondents were 77.2 percent. For 25 to 26 years old and 27 and above years old received 5 and 2 percent respectively. Thus, the age for 22 to 24 years old was the highest compared to the other ages. students from year 4 have the highest percentage with 41.6 percent followed by year 3, year 2 and year 1 with percentage 25.7, 16.8 and 8.9 percent respectively. Besides, there was another respondent from others which included year 5 with 6.9 percent. The most institutions that respondents came from was UTHM with 40.6 percent.

Institutions from UIAM, UMP, UPSI and UniSZA received the same percentage with only 1.0 percent and also considered as the least percentage followed by UMK with 2.0 percent while UM and UTM shared the same percentage which is 3.0 percent and USM with 4.0 percent. Besides, UMT and UKM also shared the same value of percentage which is 6.9 percent. Next, respondents from UiTM are considered the second highest after UTHM with a percentage 19.8 percent. The rest of respondents were from the other institutions, most of them were from private universities such as UniKL, UTAR, Kuptm, and UNITAR. The percentage of respondents that likes to social based on the results, it shows that most of the respondents like to social with 74.3 percent with yes answer and 25.7 percent with no. respondents who meet their friends frequently received the highest percentage with 59.4 percent. Followed by weekly was the second highest with a percentage 15.8 percent. Respondents also were not frequently meeting their friends was the third highest with 13.9 percent compared to monthly with 10.9 percent which received the least percentage. Based on the results the percentage of the respondents' opinion that socializing would improve their communication skills was 99.0 percent of the respondents agreed with the statements while another 1.0 percent was not. Lastly, the respondents' opinion towards the interaction with group mates would be easier if they have social skills. Based on the results, 99.0 percent of the respondents chose yes as agreed to the statement while the other 1.0 percent did not agree with the statement.

4.4 Descriptive Analysis (Variables)

In this section, each variable's attributes are examined using descriptive analysis. As a result, the researcher analysed the data to identify the average and standard deviation for all parameters, including social comfort, social influence, and the adoption of online collaborative learning. Furthermore, this technique uses the Likert Scale to quantify the degree of all independent and dependent variables to differentiate for each item of the mean distribution. In this study, previous researchers defined the interpretation scale or mean. A mean value range of 1.00 to 2.33 is thought to be low. Furthermore,

thelevel mean value of 2.34 to 3.67 is regarded as medium, whilst a level mean value of 3.68 to 5.00 is regarded as high.

(a) Social Comfort

Table 5 displays the mean, standard deviation, and level of agreement for each question in the social comfort variable. The level of adoption of online collaborative learning for social comfort is medium in this study, with a mean average of 3.43.

(b) Social Influence

Table 6: Descriptive analysis (Social influence)

Item social influence	Mean (μ)	Sd. Deviation (SD)	Level
My extra effort usually influenced by reaction of my group members.	4.01	0.922	High
My quality of work been influenced by knowing that other members were aware with my performance.	3.78	1.006	High
My actions on the remaining tasks been influenced by knowing what other members of the group did.	3.85	1.003	High
Total Average	3.88	0.977	High

Table 6 displays the mean, standard deviation, and level of agreement for each item about social influence. The average mean value of social impact in this study is high, with a mean average of 3.88.

(c) The adoption of online collaborative learning

Table 7: Descriptive analysis (the adoption of online collaborative learning)

Item Adoption	Mean (μ)	Std. Deviation (SD)	Level
I will use the online platform for collaborative learning if there is a need in the future.	3.96	0.905	High
I will increase the frequency of use online platforms for collaborative learning for compulsory use in the future.	3.88	0.875	High
I would suggest to others to use online platform for collaborative learning.	3.96	0.871	High
Total Average	3.93	0.884	High

Table 7 displays the mean, standard deviation, and level of agreement for each question about the adoption of online collaborative learning. The adoption of online collaborative learning factors is high in this study, with a mean value of 3.93.

Hence, the dependent variable with the highest mean score is the adoption of online collaborative learning, which has a total average value of (μ = 3.93). Meanwhile, social comfort had the lowest mean score, with a total average value of (μ =3.43).

4.5 Normality Test

Table 8: Normality test analysis

Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Social comfort	0.088	101	0.050	0.971	101	0.024
Social influence	0.151	101	0.000	0.933	101	0.000
The adoption of online collaborative learning	0.186	101	0.000	0.918	101	0.000

The results of the normality test using the Kolmogorov-Smirnov and Shapiro-Wilk tests are shown in Table 8. The analysis included 101 respondents, and Kolmogorov-Smirnov test results were selected for the normality test analysis because the number of respondents exceeded 50. This analysis shows that the value of variable for social comfort is 0.050 which the p-value is p> 0.05 while variables for social influence and the adoption of online collaborative learning are both 0.000 which does not reach the value requirement. Therefore, the analysis will look at the value of skewness for both variables that does not reach the p-value. Based on the results, the value of skewness for social influence and the adoption of online collaborative learning is -0.396 and -0.564 respectively. The value of skewness should be between -1.96 to +1.96. Hence, the value of skewness for both social influence and the adoption of online collaborative learning has reached the range of skewness. As a result, this data is normal and parametric. To define the relationship between two variables and meet the study's goals, the Pearson correlation test was used.

4.6 Correlation Analysis

In this research, the parametric Pearson correlation test was applied to analyse the relationship between two variables.

(a) The relationship between social comfort and the adoption of online collaborative learning

Table 9: Correlation between social comfort and the adoption of online collaborative learning

		The Adoption of Online Collaborative Learning
Social Comfort	Correlation Coefficient	0.419
	Sig. (2-tailed)	0.000
	N	101

Table 9 illustrates the result on the relationship between social comfort and the adoption of online collaborative learning by using Pearson's correlation coefficient. The results indicate 0.419 which is higher than 0.05 based on the p value (P>0.05). this correlation determined that the more positive the social comfort of sociability quality, the higher the adoption of online collaborative learning. Therefore, there is a positive significant relationship which it proves that H1 is been accepted.

(b) The relationship between Social Influence and The Adoption of Online Collaborative Learning

Table 10: Correlation between Social Influence and The Adoption of Online Collaborative Learning

		The Adoption of Online Collaborative Learning
Social Influence	Correlation Coefficient	0.343
	Sig. (2-tailed)	0.000
	N	101

Table 10 illustrates the result on the relationship between social influence and the adoption of online collaborative learning by using Pearson's correlation coefficient. The results indicate 0.343 which is higher than 0.05 based on the p value (P>0.05). This correlation determined that the more positive of the social influence, the higher the adoption of online collaborative learning. Therefore, there is a positive significant relationship which it proves that H2 is been accepted.

5. Conclusion

5.1 Discussion

In general, all study objectives were met with success. The objective question that has been carried out to identify the significant level adoption of online collaborative learning in higher institutions and the relationship between the level of sociability quality with the adoption of online collaborative learning in higher institutions will be discussed in this discussion.

(a) Research question 1: What is the level of sociability quality dimensions that influence the adoption of online collaborative learning in higher institutions?

In this study, descriptive was employed to describe and calculate the average mean score. Based on these two dimensions of sociability quality, the level of social comfort is medium and the level of social influence is high. The obtained data analysis results considerably confirm the previously established hypotheses, namely that there is a positive significant relationship between social comfort and social influence with the adoption of online collaborative learning. According to the findings, social influence is one of the most effective variables influencing the adoption of online collaborative learning in higher institutions.

(b) Research question 2: What is the level adoption of online collaborative learning in higher institutions?

The results of findings show the overall level factors that influence the adoption of online collaborative learning is at a high level. The results show that the students are mostly agreed to adopt and have the consider towards the online collaborative learning culture in higher institutions. Generally, the respondents in this research have very positive feedback in online collaborative learning due to their quality of social ability.

(c) Research Question 3: What is the relationship between the level of sociability quality with the adoption of online collaborative learning in higher institutions?

The results show that all variables have a positive significant relationship with the adoption of online collaborative learning in higher institutions. Generally, all hypotheses have been accepted and there are moderate and weak level of correlation coefficient which are social comfort has moderate level and social influence has weak level with the adoption of online collaborative learning.

5.2 Limitation of study

There are a few limitations in this analysis and the other studies. First and foremost, this study's respondents are solely Malaysian students enrolled in higher education institutions. Second, there is a time limit for gathering data for the research. The challenges in distributing the questionnaires causes the time of collecting data is limited because the time taken to receive the numbers of respondents is long. Lastly, the contribution of the respondents. Not all individual will answer the questionnaires willingly. It will need some initiatives and effort from the researcher itself to convince and ask respondents' consent to answer the survey form.

5.3 Recommendation for the future research

The recommendation is required to improve future study on this issue. To begin, future research may improve in terms of selecting respondents for this study, which may deliver questionnaires to all levels of education students in Malaysia, including secondary, post-secondary, and university education. Secondly, the language used in questionnaires must be clear and simple for respondents to comprehend so that they can respond carefully. As a result, adopting SPSS will improve the accuracy of the data analysis. Following that, the period allocated for data collection should be increased so that the researcher's target number of respondents may be met. Finally, diversify the approaches used to gather more information and feedback from respondents about the research.

5.4 Conclusion

Sociability quality is about the ability to be sociable. Interaction towards student-students and educator-students is essential to ensure success in learning. Since endemic things happen, this online learning has become common in students' life. The ability of being sociable could influence the succession in collaborative learning which students will be able and comfort to collaborate during online learning in group discussions and group works. Apart from that, sociability and collaborative in learning could enhance the communication skills, social skills and problem-solving skills among students. The objective of the research is to identify the level of sociability quality dimensions towards the adoption of online collaborative learning in higher institutions. Other than that, this research also aims to identify the relationship between the sociability quality with the adoption of online collaborative learning in higher institutions.

To conclude, social influence becomes the most important factor of sociability quality towards the adoption of online collaborative learning in higher institutions compare to social comfort. Besides that, the adoption of online collaborative learning in higher institutions is all at a high level. Furthermore, this study likewise demonstrates a positive significant relation for all variables, with social comfort having the highest correlation coefficient and the average mean being at a medium level. As a result, the three research objectives outlined previously have been met. Finally, this study can help to improve understanding and knowledge of respondents' thoughts on sociability quality in relation to the adoption of online collaborative learning in higher institutions

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