Acceptance of YouTube as a Learning Platform during the Covid-19 Pandemic: The Moderating Effect of Subscription Status

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Abstract – The interests of the researcher towards the use of technology in learning surged during the Covid-19 pandemic as more users were expected to use online resources due to the limited face-to-face activities and the new norm that encouraged social distancing. This study aimed to investigate the factors that affected a student's acceptance of YouTube as learning resources. Based on the Technology Acceptance Model (TAM), this study investigated the role of subscription status as a moderator variable. The data were collected during the Movement Control Order (MCO) that was placed on Malaysians, involving 340 students of a distance education program. The findings of this study supported TAM, in which the student's acceptance towards YouTube as learning resources was related to the perceived ease of use, perceived usefulness and social influence. This study also reported that the subscription status did not moderate the relationship between the factors and the student's acceptance. Therefore, this study implies that students accept YouTube as learning resources either as a subscriber of the YouTube channel or otherwise. This study significantly contributes to the literature by investigating the acceptance of YouTube a learning resource during the Covid-19 pandemic.

Keywords – Covid-19 Pandemic, Online learning Social Media.

1. Introduction

The Covid-19 pandemic has hit almost all parts of world in 2020. This global health crisis has impacted various sectors, including education in which the interests in using online platforms for teaching and learning among educators and students have increased tremendously. Although many institutions and educators around the globe have introduced some forms of online elements into the teaching and learning process, the Covid-19 pandemic has caused tremendous participation on this. Consequently, videos on YouTube are a great option for education during the pandemic [1] in response to the practice of social distancing that demands each person to adapt to the new normal.

Although the use of online materials in teaching and learning (T&L) activities is not entirely a new norm because it has been utilized for years at different stages, for some people the practice is still considered a new norm of learning activities because the use of online learning materials is the only choice instead of an option. While the interests in using online platforms such as YouTube for T&L purposes have become more prevalent, the issue on the effectiveness and value of the available content on the online platforms for education activities is still uncertain [2]. Therefore, this paper responded to the upwards interests in the use of YouTube as a learning platform while the knowledge on the effectiveness of this platform was still unclear. YouTube is the most used social medium for academic purposes compared to the other social media as revealed in a study among students in Malaysia [3]. However, the literature on factors of social media use for academic purposes is still progressing, suggesting for more empirical studies before conclusive findings can be made.

The use of online materials for T&L activities is consistent with the strategy on combating Covid-19 pandemic as suggested by the World Health Organization (WHO) which is, among others, limiting the people's movements and avoiding large gatherings. Therefore, the conventional face-to-face

classroom is not possible or is conducted at a minimal rate because student's gatherings may lead to new clusters of Covid-19 patients. For some, this sudden change may cause some level of panic. However, our understanding on how people respond and react to the new norm of life including T&L activities is still inadequate. As such, the ways students responded to the online learning materials during MCO remained mostly unknown and under-explored by researchers.

The Covid-19 pandemic and the implementation of MCO have provided new opportunities for researchers to revisit the existing theories. Therefore, this study was done by revisiting the applicability of the Theory of Acceptance Model (TAM) on the factors that might influence user's acceptance towards technology. In the first version of TAM, two predictors of intention to use technology are perceived usefulness and perceived ease of use [4]. However, the TAM's body of knowledge has expanded to include other factors, such as social influence. Social influence refers to the social mechanism that contributes to an individual perception towards a technology [5]. In this study, the original TAM model was incorporated with social influence, a factor that has been discussed in the literature for the extended TAM.

This study has a significant contribution to the literature by threefold. First, it tested the existing theory and model under new circumstances; thus, significantly enriching the literature. Second, understanding the issues related to how people have responded to the new norm during Covid-19 is imperative to enhance the knowledge so that people are better prepared for similar situations in the future. Third, although YouTube has various freely available video that may be used for learning, the use of the self-created teacher's YouTube channel, as investigated in this study, is still relatively unexplored in the literature.

The literature has reported that the use of technologies in learning was influenced by three factors: perceived ease of use, perceived usefulness and social influence [6]. The authors chose these three factors based on the TAM. Among the technology that has gained traction among researchers is the social media technology [7]. Although there are various social media, such as YouTube and Facebook, each platform has a unique facet; thus, a researcher should consider studying each platform independently [7]. The same approach was applied in this present study by using YouTube as the learning platform of interests.

The objective of this study was to investigate the moderating effects of subscription status on the relationship between the three factors of user's acceptance and the user's acceptance of YouTube as a learning resource. The three factors were perceived ease of use, perceived usefulness, and social influence. Although these three factors have been widely investigated in the literature in predicting the user's acceptance of a technology, the way the subscription moderates this relationship is relatively unknown. While not all technology acceptances involve 'subscription', subscriptions, likes, and comments have become the indicators of user's acceptance of internet 2.0 applications, such as YouTube, Facebook and Instagram. However, this new phenomenon has not been fully explored in the literature, leaving the question on ways the subscription status have impacted the user's acceptance towards internet 2.0.

The next section highlights the factors of user's acceptance of YouTube as a learning resource. Then, it is followed by the discussions on the available functions for YouTube users, such as subscription, to improve the user's experience when using YouTube. Therefore, this study investigated the moderating effects of subscription on the user's acceptance of YouTube.

2. Literature Review

2.1. Factors of User's Acceptance

The internet has been used by a high percentage of students for academic purposes [8]. The Covid-19 pandemic has brought changes to various sectors, including education. While traditional face-to-face class is discouraged to minimize human contact, moving T&L activities on online platforms has seen tremendous interests. In addition to the pandemic situation that requires T&L activities to be online, online platform also has various advantages, thus attracting more T&L activities to be available online. The adoption of technology into T&L activities has been found to improve T&L activities in various aspects, including making learning more flexible because the material accessibility is not restricted by time, place, and channel [3].

From a user perspective, the usefulness and social influence are among the main factors that lead to the use of YouTube for learning [3]. The user would use YouTube if they perceive that the content of YouTube is useful for their learning, and they receive positive feedbacks from their social circle or their social circle has shared similar interests towards YouTube as a learning platform. These two factors are suggested in TAM; however, the factor of perceived ease of use was not found by [3] in their exploratory qualitative study. The factor of perceived ease of use in investigating the use of YouTube may be irrelevant for adult students as YouTube is generally well-known for its ease of use even for children. According to [9], YouTube has low barrier

to children due to the simple and intuitive interface. However, this present study investigated the YouTube users from age range of 20 years old to more than 50 years old. Due to the large age range of respondents of this present study, the perceived ease of use with regards to YouTube was relevant to be investigated.

2.2. Benefits of YouTube Videos as a Learning Material

Using YouTube as a learning platform has the potential to help users achieve multi-faceted learning outcomes, including cognitive, social, emotional, and psychomotor outcomes [9]. The content of the videos on YouTube may help users improve their cognitive ability by gaining knowledge like learning a new language or mastering new skills to find solutions for mathematical problems. In addition to that, the use of YouTube involves users' social skills, such as reacting to comments given by other users and providing feedbacks to the content developer in the right manner. The use of YouTube also trains users in the psychomotor aspect by using various functions that need to be managed by the users, such as downloading the video, sharing the video or skipping the advertisement. In a study among students of an English class, learning on YouTube was found to be more flexible, interesting, and interactive; thus, integrating YouTube videos from language-teaching Youtubers into T&L activities would be useful to the students [10]. Educators are also encouraged to create videos and upload them on YouTube to improve the learning experiences of their students [11].

In summary, the use of YouTube as a learning platform has the potential to support the lifelong learning experience for users; it was highly relevant to the respondents of this study who were students of distance education. However, the knowledge on the ways the subscription status of users impacts their interests towards YouTube as a learning platform is largely unknown. The next section discusses the difference between subscribers and non-subscribers in their user experience of YouTube. Previous authors have reported the positive outcomes of using YouTube in various academic disciplines, such as science [2], language [10], marketing [12], and medicine [11]. However, little is known about the use of YouTube as a learning resource for accounting. This gap is intended to be fulfilled by this present study.

2.3. Subscription and YouTube User Experience

Studying on how the features of YouTube channel add values to the T&L activities may improve the understanding on how YouTube channel can be effectively used as a T&L platform. One of the features of a YouTube video is the comments space provided below each video, enabling viewers to provide comments on the content of the video. These comments may be in the form suggestions, criticisms, and commentaries. The comments are open to public; other users may react to the comments, and consequently, the communication and knowledge exchanged through the comments space have positively affected the process of collaborative and lifelong learning [2].

Previous study has disclosed that the use of the internet has positively impacted the academic performance of students. One of the main challenges for students to use the internet effectively is due to information overload [13] which may cause students to allocate time to determine the useful and appropriate information for them. This action is difficult for new or inexperienced users when they want to validate and assess the reliability of resources. This problem of information overload may be less severe by subscribing to a reliable YouTube channel. Another challenge faced by YouTube users when using the videos on YouTube for learning is the inconsistent quality of the available videos, leading to the low-quality learning experience. This challenge has been found in a study on medical trainees who used YouTube videos as their learning resources [14]. Therefore, this challenge may be overcome by limiting the exposure to various videos through subscriptions to trusted channels with high-quality content instead of viewing all the available videos.

Although the study on the effects of subscription status on the YouTube user experience may be lacking in the literature, findings from previous studies that investigated the effects of buy button on social media users may provide useful information. The buy button in social media is a link or visual on a social media page, allowing users to click and transfer users to another page, such as a payment page that allows users to make payment for their purchases [15]. The authors found that the buy button contributed to better shopping experience and higher willingness to purchase the products. In other words, creating and adding an extra function on a webpage or social media page may have positive effects on the user.

For YouTube, there are several reasons for users to subscribe to a channel. Among others, the users are interested in the content of the subscribed channel or the users would like to get notifications about the new video uploaded in the channel. Although the subscription status of YouTube may bring a better experience of using YouTube, the subscription is not compulsory. In other words, a person can still watch a video on YouTube without subscribing to the

channel. Although subscription is an important function of YouTube, very little is known about how this function impacts users when using YouTube as learning resources. At this point, this paper may postulate that YouTube subscribers' experience may differ from those who do not subscribe.

Following the discussion on how the perceived ease of use, perceived usefulness and social influence are related to the user's acceptance of YouTube content; and on how subscription status may impact the relationships; this study formulated six hypotheses as follows:

H1: Perceived ease of use influences the user's acceptance of YouTube;
H2: Perceived usefulness influences the user's acceptance of YouTube;
H3: Social Influence influences the user's acceptance of YouTube;
H4: Perceived ease of use influences the user's acceptance of YouTube, moderated by subscription status;
H5: Perceived usefulness influences the user's acceptance of YouTube, moderated by subscription status;
H6: Social Influence influences the user's acceptance of YouTube, moderated by subscription status.

3. Methodology

After data screening, the data of this study was analyzed from 340 students undergoing a distance education program during the implementation of MCO due to the Covid-19 pandemic in Malaysia. The pandemic has brought changes to the T&L activities at higher institutions in Malaysia where almost all T&L activities were shifted to online platforms. This phenomenon has forced lecturers and students to leverage the online platforms both provided by the institutions and publicly available, such as YouTube.

To execute this study, three phases were involved.

First phase: The students were informed that a collection of learning videos would be uploaded on a dedicated YouTube channel to facilitate the learning process in addition to the live sessions conducted through WebEx online platform. The YouTube channel was created for this purpose. The videos on YouTube were complimentary to the printed learning materials and recorded sessions of online classes. In other words, the students' use of content uploaded on YouTube was based on voluntary basis.
Second phase: The subscription to the channel was not made compulsory to the students. Some students chose to subscribe, the others decided otherwise. After the watching hours of videos uploaded on the channel achieved 100 hours, and the data collection process started. The questionnaire was distributed

using Google Form to the students who have experienced watching the videos uploaded on the developed YouTube channel and the participation was on voluntary basis.

In the second phase, a research instrument was adapted and adopted from the literature, such as [16] and [17]. Table 1 summarizes the latent variables (independent variables and dependent variable), and number of observed variables for each of them.

Table 1. Research instrument

Latent variable	Num of Item
Acceptance	3
Perceived Ease of Use	3
Perceived Usefulness	3
Social Influence	3

Third phases: A total of 340 responses were usable for further analysis. Incomplete responses, including incomplete profile information were excluded from further analysis. The profile of the respondents is reported in Table 2. A total of 152 respondents (44.7%) were male and 188 respondents (55.3%) were female. The age range of the respondents of this study varied because this study collected data from a distance education program. This data pattern allows this study to gauge the acceptance of online learning material from a diverse age group of respondents. Table 2 reports that the biggest percentage of respondents are from 21 to 30 years old (n=175; %=51.5) and 31 to 40 years old (n=148; %=43.2).

Table 2. Profile of respondents

Items	Category	N	%
Gander	Male	152	44.7
	Female	188	55.3
	Total	340	100.0
Age (years)	21 to 30	175	51.5
	31 to 40	147	43.2
	41 to 50	13	3.8
	51 and above	5	1.5
	Total	340	100.0

Table 3 reports the mean and standard deviation (s.d) of each variable. The mean score of acceptance was 4.65 (s.d = 0.36), perceived ease of use was 4.83 (s.d = 0.35), perceived usefulness was 4.47 (s.d = 0.21) and social influence was 4.00 (s.d = 0.68). This result indicated that, in general, the respondents had high level of acceptance of using YouTube as a learning resource. The respondents also agreed that YouTube was easy to use and useful, and their social influence towards using YouTube was high.

Table 3. Mean and standard deviation

Variable	Mean	S.D
Acceptance	4.65	0.36
Perceived Ease of Use	4.83	0.35
Perceived Usefulness	4.47	0.21
Social Influence	4.00	0.68

4. Findings

The data of this study was analyzed using SmartPLS 3.0 [18], and the latest guideline of using PLS-SEM in analysis by [19] was applied. In agreement with the guideline, this study applied two stages of assessments: measurement model assessment and structural model assessment.

In the measurement model, the procedure of robustness checks for the reflective measurement model was used. Table 4 reports the results of robustness evaluation of the measurement model. In the first round of factor loading evaluation, two items were dropped due to the factor loadings of below than 0.70 (Hair et al., 2019). The items were Ease of Use 1 (EOU1) with factor loadings of 0.630, and Social Influence 3 (SI3) with factor loadings of 0.635. Table 4 shows the results of factor loadings after removing these two items, and all the remaining items have factor loading on their assigned construct of above 0.70.

The examination on other assessment criteria also indicated that the measurement model of this study surpassed the benchmark, thus suggesting that the measurement model was robust. The recommended value for Cronbach alpha, rho_A and composite reliability was between 0.70 and 0.90 [19], and the results in Table 4 showed that these criteria were met. Few exceptions were reported for composite reliability: the composite reliability of ease of use (0.907), perceived usefulness (0.908) and social influence (0.914). However, these values were still below the maximum acceptable value of 0.95 [19].

The convergent validity of measurement was satisfied based on the score of Average Variance Extracted (AVE) of between 0.886 and 0.914. [20] suggested that the AVE value above 0.50 indicated the satisfying level of convergent validity. The discriminant validity of measurement was also supported and based on the threshold value of Heterotrait-monotrait ratio (HTMT) below 0.90 (Hair et al., 2019).

Table 4. Reliability and validity test

| | Factor Loading | | | |
	Acceptance	Ease of Use	Perceived Usefulness	Social Influence
A1	0.885			
A2	0.864			
A3	0.796			
EOU2		0.911		
EOU3		0.911		
POUn1			0.816	
POUn2			0.892	
POUn3			0.917	
SI1				0.924
SI2				0.911
Cronbach's Alpha	0.806	0.796	0.848	0.813
rho_A	0.816	0.796	0.864	0.816
Composite Reliability	0.886	0.907	0.908	0.914
AVE	0.721	0.830	0.767	0.842
HTMT				
Ease of Use	0.840			
Perceived of Usefulness	0.706	0.828		
Social Influence	0.613	0.389	0.537	
Subscription	0.218	0.138	0.113	0.290

4.1. Structural Model

After the measurement model assessment was satisfied, the next step was to evaluate the structural model. The structural model assessment allowed this study to test the hypothesis. First, the VIF was checked as one of the conditions of robustness of the structural model. The results reported in Table 5 showed there was no issue of collinearity because the VIF of all predictors was less than 3 (Hair et al., 2019).

Table 6 reports the results of the model assessment. Based on the results, the H1, H2, and H3 were supported: H1 ($\beta = 0.472$; t value = 5.646, $p<0.05$), H2 ($\beta = 0.16$; t value = 2.056, $p<0.05$), and H3 ($\beta = 0.246$; t value = 4.019, $p<0$). The model validation was done using the bootstrapping procedure at 5000 samples and the results at the lower 2.5% bound, and upper 97.5% bound were reported.

Table 5. Variance Inflation Factor (VIF)

	Acceptance
Ease of Use	1.965
Ease of Use X Subscription	1.666
Perceived Usefulness	2.239
Perceived Usefulness X Subscription_	1.697
Social Influence	1.374
Social Influence X Subscription_	1.512
Subscription	1.309

Figure 1 shows the Coefficient of Determination (R2) of 0.572, consequently considering a medium

predictive power of independent variables. In other words, the combination of all predictors in this study was able to explain 57.2% of the variance of acceptance.

Table 6 reports the results of the model assessment. Based on the results, the H1, H2, and H3 were supported: H1 (β = 0.472; t value = 5.646, p<0.05), H2 (β = 0.16; t value = 2.056, p<0.05), and H3 (β = 0.246; t value = 4.019, p<0). The model validation was done using the bootstrapping procedure at 5000 samples and the results at the lower 2.5% bound and upper 97.5% bound were reported. Table 7 summarizes the results of hypothesis testing.
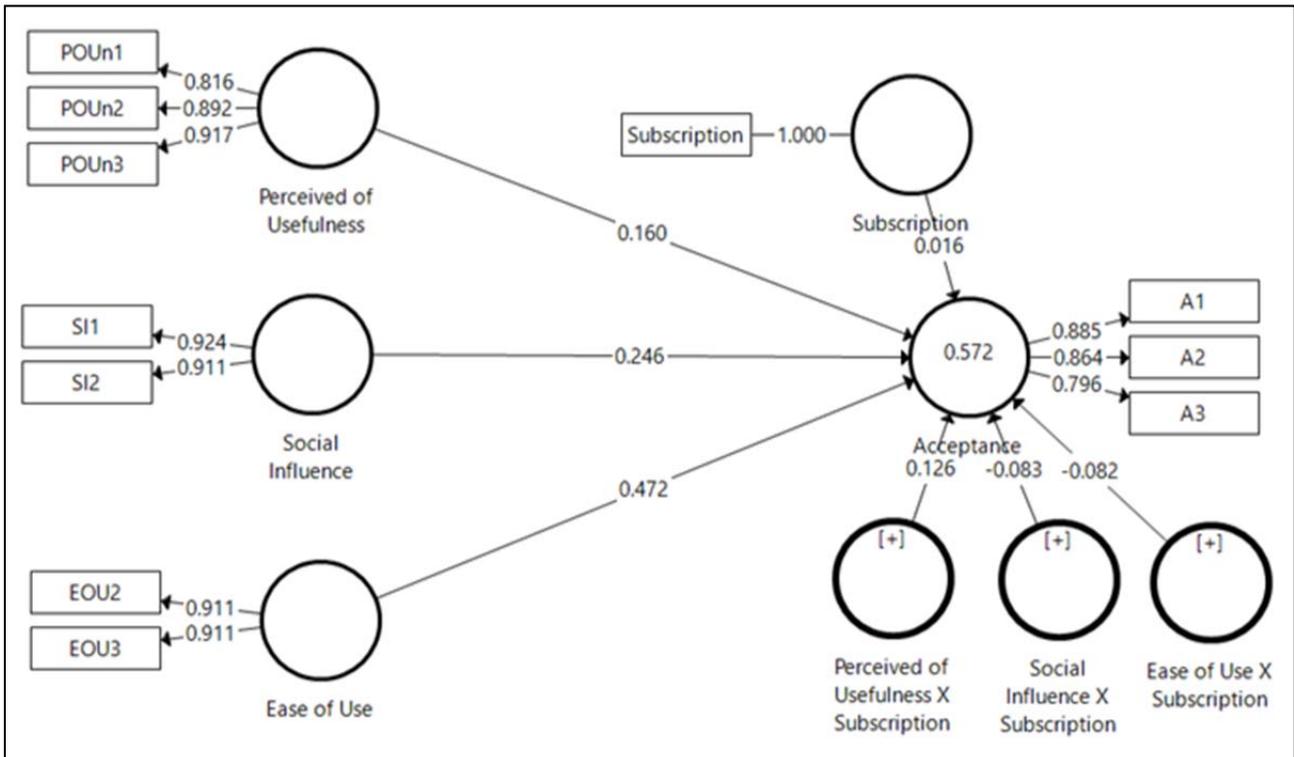

Figure 1. Structural Model

Table 6. Model Assessment

	Coefficient value	t value	P < 0.05	Lower bound 2.5%	Upper bound 97.5%
Ease of Use -> Acceptance (H1)	**0.472**	**5.646**	**0**	**0.311**	**0.638**
Ease of Use X Subscription -> Acceptance (H4)	-0.082	1.095	0.274	-0.226	0.071
Perceived of Usefulness -> Acceptance (H2)	**0.16**	**2.056**	**0.04**	**0.019**	**0.325**
Perceived of Usefulness X Subscription-> Acceptance (H5)	0.126	1.791	0.073	-0.02	0.257
Social Influence -> Acceptance (H3)	**0.246**	**4.019**	**0**	**0.119**	**0.359**
Social Influence X Subscription_ -> Acceptance (H6)	-0.083	1.097	0.273	-0.235	0.056
Subscription -> Acceptance	0.016	0.52	0.603	-0.046	0.078

Table 7. Summary of hypothesis testing

Hypothesis	Results
H1: Perceived ease of use influences the user's acceptance of YouTube	Supported
H2: Perceived of usefulness influences the user's acceptance of YouTube	Supported
H3: Social Influence influences the user's acceptance of YouTube	Supported
H4: Perceived ease of use influences the user's acceptance of YouTube, moderated by subscription status	Not supported
H5: Perceived of usefulness influences the user's acceptance of YouTube, moderated by subscription status	Not supported
H6: Social Influence influences the user's acceptance of YouTube, moderated by subscription status	Not supported

5. Discussion

The findings reported in this study confirmed the TAM and previous findings on the factors of technology acceptance. Since this study tested the variables under the Covid-19 pandemic crisis, this study enriched the literature by investigating user's acceptance towards YouTube during a global pandemic. This was in line with the TAM literatures that suggested researchers to test the TAM in different research settings. Based on the findings, this study concluded that the user's acceptance of YouTube video as learning resources was related to three factors: perceived ease of use, perceived usefulness and social influence. Individual and environmental factors were both significant in the user's acceptance of YouTube for learning [20]. Perceived usefulness was an important factor for the anatomy students in Jordan, affecting their decisions to use YouTube as their learning resources [11]. The key conclusion from this finding was that although the critical period of Covid-19 pandemic forced more teachers and students to shift their T&L activities either in full or part, they could not ignore these three factors to guarantee the students' acceptance of online resources. In other words, the perceived ease of use, perceived usefulness, and social influence still played an important role in determining the success of e-learning activities, even in situations where using online platforms was not a choice due to Covid-19 pandemic.

Although the theory and the factors investigated in this study were well-reported in the literature, this study obtained its significant outcomes by investigating how the relationships between these factors and user's acceptance were moderated by subscription status, which was one of the functions on YouTube that had the potential to increase the user experience of YouTube. By subscribing to a YouTube channel, a user can gain benefits of receiving information on the latest uploaded video by the YouTube channel owner.

This study revealed that the subscription status did not moderate the relationship between perceived ease of use, perceived usefulness, and social influence on the user's acceptance of YouTube, indicating that the acceptance of YouTube contents between subscribers and non-subscribers did not differ. This result provides an important message to the content developers when providing their content. Both subscribers and non-subscribers will accept the uploaded content if they believe the contents are useful. Meanwhile, non-subscribers and subscribers may be influenced by their social circle when viewing YouTube contents. In other words, there is no guarantee that subscribers may automatically view the content from the YouTube channel they have subscribed. To the educators, this result suggests important implications. A teacher may ask students to subscribe to a YouTube channel but to assure the students to continue to follow the content, active actions by the teacher and fellow students may yield different results on the active usage of YouTube.

The findings revealed in this study provided useful insights for educators in using YouTube as a T&L platform, either for full-online learning or blended learning. The knowledge that may influence user's acceptance would help educators to be more student-focused during the process of developing contents for self-YouTube channel or suggesting contents of YouTube to the students for their learning purposes. The use of YouTube as learning resources should be encouraged with proper guidance from teachers as students who use YouTube in their academic activities have been found to achieve better academic performance as well as improving their general knowledge [21]. As an alternative, educators may create videos on their own and upload the videos on their YouTube channels to minimize the risks of students viewing irrelevant or low-quality materials.

Although this study has achieved its objective and has laid significant contribution to the literature, it has limitations that have to be acknowledged to provide inputs for future researches. While this study has successfully investigated the user's acceptance of YouTube video as a learning material, this study focused on the lecturer's self-created videos posted on a dedicated YouTube channel. Therefore, the transferability of the findings to other conditions may require further research, such as the use of YouTube videos created by YouTubers.

6. Conclusion

The study was conducted to learn the effects of subscription status on the factors influencing the users' acceptance of YouTube as learning resources. Although the measurement model and the structural model of this study were robust, this study had its own limitations. The study was for a single subject, which was accounting and the samples were limited to the distance education students who were familiar with the online learning platform. Thus, expanding samples to other subjects and student backgrounds may strengthen the literature on this subject. One strong find from this study is that a content developer needs to constantly pay adequate attention on the target audience, either subscribers or non-subscribers during the process of developing their contents. The acceptance of YouTube contents for both groups were influenced by the same factors: perceived ease of use, perceived usefulness and social influence.

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