How COVID-19 Pandemic Is Accelerating the Transformation of Higher Education Institutes: A Health Belief Model View

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Abstract At the beginning of the year 2020, massive fast spread Coronavirus or (COVID-19) pandemic caused a serious impact on the education system worldwide. This chapter aims to explore the students’ attitude to use social media as a learning tool during COVID-19 pandemic based on the view of the Health Belief Model (HBM). A total of 504 students in Malaysian universities were involved in this study. The partial least squares structural equation modelling (PLS-PM) has been employed to analyse the data collected in this study. The results indicated that perceived susceptibility, perceived severity, perceived barriers, perceived (health) motivation, perceived benefits and self-efficacy were significant in predicting the students’ attitude to use social media as a learning tool during COVID-19 pandemic. The results of this study has been contributed to the existing literature by validating HBM in the Malaysian context and provide theoretical contributions and practical implications to the theory, and practice.

Keywords Social media • Health belief model • COVID-19 pandemic • Higher education institutes

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1 Introduction

At the beginning of year 2020, massive fast spread Coronavirus or (COVID-19) pandemic caused a serious impact on the education system worldwide. From that moment, the traditional methods of teaching and learning in all schools and universities of the world have almost changed. To the extent that this pandemic has inflicted on harming all countries in many fields, especially the economic and educational domains, however, it has contributed to raising a new philosophy and concepts where the traditional methods of education could be changed to new orientations that may become essential styles in the nearest future. Recently, according to the United Nations Education, Scientific and Cultural Organization (UNESCO), over 91% of the world’s students effected and most of schools and universities have suspended the teaching and the learning process. Alongside, they claimed that the (UNESCO) started supporting all countries, especially those in need of assistance through strive to find other alternative ways to maintain the educational process through many solutions such as remote learning.

Researchers, in the current chapter, would slightly criticize the claim that said the change in any field will not succeed unless the organizations or individuals are fully ready for change [1–5]. The main evidence for this claim is what we are witnessing in the current time with COVID-19 pandemic which forces educational institutions to accept the new method of teaching and learning. It can be said that most of those organizations, students, lecturers, and even staff were not ready for change, rather than that, they accepted it and it becomes a reality where became an alternative solution to proceed educational process progress using several social media platforms which become essential tools used by people across the globe [6, 7]. In spite, some previous studies and reports such as LCIBS [8] expected that the e-learning tools such as using social media platforms would be as the mechanism and effective tools in teaching/learning process in terms of sharing and delivering the educational materials through these tools to students.

According to Huang et al. [9], there is still a lack of further empirical studies to examine the impact of health belief model on attitude. Thus, this study aims to explore the students’ attitude to use social media as a learning tool during COVID-19 pandemic based on the view of the Health Belief Model (HBM). According to literature, social media could be used as a novel educational technic in learning, where that study was clarified on how the possibility of social media employing for that purpose internationally [10, 11]. On the other hand, the students’ engaging a with social media long hours a day are less motivated to achieve their academic performance than those who use it for educational purposes [12, 13]. That claim also supported by Giunchiglia et al. [14], who demonstrated that the constant using social media through their computers, or smartphones will affect their study outcome, however, they encourage students to stay away of social media during studying to avoid the unwilling consequences.

Regarding the possibility of students interacting in the educational process through available social media such as Facebook, Twitter, Instagram, various
Google applications, etc., a study in Australia and New Zealand (ANZ), conducted by some researchers at the beginning of the year 2020 confirms that students of the surgical department have a positive attitude with posts with educational content [6]. The study recommended conducting more studies in this regard and in different societies to find out the extent of interaction with non-traditional educational methods in the teaching and learning process. We conclude from such studies the extent to which these platforms are used in raising awareness to reduce the spread of diseases and risks to people as illustrated by the Health Behaviour Model and also to realize the possibility of employing these methods in the educational process in addition to the basic traditional educational process (face to face) that is indispensable, whatever the reasons. In line with that, the e-learning could be work properly through certain social media platforms as an effective tool, however, it could not completely replace the tradition teaching/learning styles [15].

2 Research Model and Hypotheses Development

A Health Belief Model (HBM) which was introduced in 1950 by social psychologists in the United States, the public health sector. HBM used as a systematic way to identify, explain the preventive health behaviours and to predict factors involved in the failure of screening programs for early detection of tuberculosis [16]. It has been employed to explain and to enhance the effectiveness of health education programs [17]. That style was the health belief model the one that was the first social cognition models which able to explain health behaviour change [18]. Moreover, the HBM model was based on three assumptions that must be taken into consideration, Rosenstock et al. [19], (i) the presence of anxiety and health concerns that individuals feel due to some logical motivations about the probability of an occurring some events, (ii) establishing the belief in people that they may suddenly be exposed to potential risks, so they feel in constant danger. (iii) HBM model prompts the perpetual belief that a healthy culture and taking precautions that make society alert is of great benefit. From this standpoint, this study highlights the relationship between the components of the HBM theory and students’ attitudes about using the social media platforms as an educational method in exceptional circumstances to alleviate panic that caused by COVID-19 pandemic and employing it in raising awareness instead. According to Huang et al. [9], there is still a lack of further imperial studies to examine the impact of health belief model on attitude. Thus, the current study highlighted the effect of perceived susceptibility, perceived severity, perceived barriers, perceived (health) motivation, perceived benefits and self-efficacy, with students’ attitude toward COVID-19 pandemic. HBM’s constructs have found appropriate for diverse contexts and importantly explain the health-related behaviours [9, 20].

Furthermore, HBM through its main dimensions’ focuses on the behaviour of health beliefs of the individuals to identify the impact on student’s attitudes during COVID-19 pandemic. This study aims to explore the students’ attitude to use social
media as a learning tool during COVID-19 pandemic based on the view of the HBM.

Perceived Susceptibility is as a personal perception of the risk of illness [21]. And according to Glanz et al. [22] it refers to “beliefs about the likelihood of getting a disease or condition”. Since the world is currently and since the beginning of 2020 is facing the fiercest contagious viral pandemic called COVID-19 which has caused fear among the world’s population. However, the rapid transmission of this epidemic from one person to another led to increased perceived susceptibility to infection and raising the level of caution and taking precautions to save themselves away from infection [23].

In Malaysia, Dengue fever is endemic which consider as a public health concern. Thus, Othman et al. [24], found that most of the respondents answered that they were highly convinced that they might be affected by the epidemic at any moment. This is what proves that the perceived susceptibility plays a prominent role in an individual’s attitude especially among the adults towards dangers. In line with that, they have a belief that mosquito bites the main reason behind the spread disease and then they are taking care of themselves by avoiding that dangerous insect, especially in the affected areas. We can realize here that the perceived susceptibility towards something has a significant effect on people attitude. Moreover, Huang et al. [9] demonstrated that the perceived susceptibility has an essential role in predicting individuals’ attitudes that it boost taking preventive measures towards a serious situation that could be happened any time. Thus, the researchers intend to find out the impact of perceived susceptibility to e-learning tools on students’ attitude during COVID-19.

Regarding the perceived severity, according to Glanz et al. [22] “the feelings about the seriousness of contracting an illness or of leaving it untreated include evaluations of both medical and clinical consequences (e.g., death, disability, and pain) and possible social consequences (e.g., the effect of the condition on work, family life, and social relations)”.

As mentioned earlier, a study of Othman et al. [24] conducted on Malaysian context, which adopted the health belief model (HBM) to highlight and clarify the level of target participants’ attitude in terms of dengue disease issue. the study concluded that the perceived severity has a positive significant impact on the individuals’ attitude towards dengue fever since most respondents were strongly agreed and agreed that dengue fever is a serious illness and few of them believe it probably causes death. Moreover, people during COVID-19 pandemic are quite afraid of being infected with any type of diseases, thus the probability of getting infected during the COVID-19 outbreak time becomes as a source of concern for many people, that proves the perceiving severity could change and affect the individuals’ attitudes [25, 26]. Hence, all previous researches indicate and focus on that the social media has also significant impact in increasing the awareness and sometimes the anxious among people, however, we can assume that there is social media’s impact as a learning tool on students’ attitude and behavioural intention during COVID-19.
Perceived barriers are the second construct of the health belief model which refer to the seriousness and negative outcomes of personal behaviour. According to Mohamed et al. [21], perceived barriers as one of the negative aspects of individuals’ behaviour that prevents necessary health measures. A study conducted in Pakistan during COVID-19 period by Saqlain et al. [27], on the healthcare workers, found the overcrowding in emergency rooms was one of the barriers that prevent workers to controlling the infection spreading based on the majority of study respondents. However, on the other hand, some of the healthcare workers in that context thought that not performing handwashing and not wearing a mask was not a barrier to infection control. Thus, these consequences indicate that the perceived barriers could change and affect some people attitude whether negatively or positively. Another empirical study in Iran by Hatefnia et al. [28] confirmed that the education program on promoting mammography behaviours perceived barriers have a significant impact in decreased in case group but not in the control group. Consequently, perceived barriers are the actual cost associated with the health behaviour change and the negative outcomes that could interrupt individuals’ desire to change.

Health motivation has found it to be associated with most health behaviours, where helps to improve the effects of education on health behaviours and health knowledge [29]. In that study, researchers found that health motivation related to most health behaviours. Besides, according to several previous studies that health motivation refers to individuals’ interest in their health in general and constantly [30, 31]. Recently, Kocoglu-Tanyer et al. [30] claimed that most of health belief model dimensions are associated with the individuals’ attitudes in terms of health awareness. Spite of the people has sufficient knowledge about coronavirus disease and they have become more educated, however, we can realize that health motivation plays a vital role in making the acquisition the health information and will significantly affect their attitude toward adopting social media in raise the awareness among students and also as an alternative tool can be used in the critical circumstances such as the COVID-19 pandemic.

Regarding perceived benefits in health belief model, it is one of the main objectives in this chapter to examine the effect of the students’ attitudes towards the e-learning process during COVID-19. To highlight this matter, there are a few previous studies have in-depth examined that relationship between these variables in different contexts and on different topics. Based on the (HBM), perceived benefits are one of the positive components that can occur from behaviour change. Initially, perceived benefits refer to the belief of the individuals that a particular behaviour will occur positively based on some positive believes of the individuals [32]. Furthermore, in terms of the relationship between perceived benefits and individual attitude, Liu et al. [33], claimed that the perceived benefits can be an element factor that influences people attitude. According to Han et al. [34] an empirical study examined the impact of playing screen golf on player attitudes and the hypothesis was supported where perceived benefits of golf have a positive and significant effect on customer’s attitudes about screen golf. This study strives to highlight to which perceived benefits of the social media that could be used in
teaching and learning properly in the exceptional circumstances especially in natural disasters or pandemic crises. Thus, at the end of this part, the main hypotheses and the results of those assumptions have been shown.

The last construct of health belief model shown in Fig. 1 is Self-efficacy. According to Schneider [35], this theory has been defined as the level of confidence for the patient in taking the right action in their healthcare journey. Furthermore, Self-efficacy is defined as the actions taken by individuals toward particular behaviour successfully and carefully to meet the proposed goals [36]. Also, it is defined as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given levels of attainments” [37]. In terms of the relationship between self-efficacy attitude, Özokcu [38], reported in his study that there is a positive significant relationship between attitudes of the targeted teachers and self-efficacy for inclusive practices where teachers’ self-efficacy has been found as a statistically significant predictor of their attitudes towards inclusive education. Moreover, another study has been done by Uyanik [39], in one of the Turkish universities, investigated the relationship between teachers’ self-efficacy beliefs in teaching science and attitudes towards teaching profession at the teacher candidates. The result revealed that there is a positive relationship between self-efficacy of teachers’ beliefs and attitudes to the teaching profession.

Lastly, in this part, researchers reviewed some of the previous studies that discussed the relationship and the effect of health belief model dimensions “Perceived severity, Perceived susceptibility, Perceived barriers, Perceived (health) motivation, Self-efficacy, Perceived benefits” on the individual’s attitudes and behaviour, in order to enable us in formulating the assumptions of the current research that aimed to investigate the effect of the constructs of health belief model to using social media platforms as an effective tool in teaching and learning process on the attitude of the students in the Malaysian universities during COVID-19 period. Based on all the above arguments, the researchers hypothesize as a following:

**H1**: Perceived susceptibility has a significant positive effect on students’ attitudes to use social media as a learning tool during the COVID-19 outbreak.
H2: Perceived severity has a significant positive effect on students’ attitudes to use social media as a learning tool during the COVID-19 outbreak.  
H3: Perceived barriers has a significant positive effect on students’ attitudes to use social media as a learning tool during the COVID-19 outbreak.  
H4: Health motivation has a significant positive effect on students’ attitudes to use social media as a learning tool during the COVID-19 outbreak.  
H5: Perceived benefits has a significant positive effect on students’ attitudes to use social media as a learning tool during the COVID-19 outbreak.  
H6: Self-efficacy has a significant positive effect on students’ attitudes to use social media as a learning tool during the COVID-19 outbreak.

3 Research Methodology

Due to COVID-19 outbreak, all universities, colleges, and schools in Malaysia have been suspended the study for various period of times during 2020. Almost, all those institutions replaced face to face teaching and learning process with virtual methods as a temporary to keep the education process ongoing using different social media platforms. Hence, to meet study objectives which were based on the situation, the targeted students in Malaysian universities have been asked about the role of e-learning during COVID-19. The time for collecting data was between February 2020—May 2020 using an online questionnaire where the questionnaires distributed online universities and lecturers WhatsApp groups. a total of 504 participants were considered out of 549 participants responded to the online survey.

The online survey questionnaire consisted of two sections. The first section includes 25 items measured university students’ shifting to using social media as a learning tool during the COVID-19 pandemic while the second represents the demographic data which consisted of 10 questions. To measure the extent of agreeing or disagree with the items given in the questionnaire, the researchers employed a 5-point Likert scale that ranged from ‘strongly disagree’ (1) to ‘strongly agree’ (5). The questionnaire used in this study was developed based on the Health Belief Model, which derived from several previous studies as shown in Table 1.

| SI. No. | Factor                   | Items       | Source            |
|--------|--------------------------|-------------|-------------------|
| 1      | Perceived Susceptibility | 4           | [40, 41] [42]     |
| 2      | Perceived Severity       | 3           | [41–43]           |
| 3      | perceived barriers       | 3           | [40–43]           |
| 4      | Health Motivation        | 4           | [40, 42]          |
| 5      | Perceived benefits       | 4           | [40–43]           |
| 6      | Self-Efficacy            | 3           | [41, 43–47]       |
| 7      | Attitude                 | 4           | [48–50]           |
To make sure of the quality and content validity the questionnaire as it is an essential requirement during designing and developing the study’s questionnaire [51], every single item of the questionnaire was assessed by several experts in the related area of research. Then the last version of the questionnaires has been adopted based on draft given back by experts with the proper suggestions. Finally, in terms of data analysis, the current research utilised both software programs “SPSS version 25.0 and structural equation modelling (PLS-SEM) through SmartPLS V.3.2.8”. According to Hair et al. [52], Structural Equation Modelling (SEM) are one of the most powerful statistical tools in the area of social science due to its ability to test several relationships simultaneously. Therefore, PLS-SEM has been chosen to be the statistical program software due to the current research is an exploratory and its conceptual model is a quite complex with 7 constructs and 25 indicators.

4 Results

4.1 Descriptive Analysis

The percentage of females 290 (57.5 %) out of 504 respondents was over 214 (42.5 %) males. Their total was 290. The majority of respondents are relatively young, of them (67.7 %) aged 18–25 and 17.5 % of total respondents are aged 26–35, of which 9.1 % are aged between 36 and 45 and 5.8 % are aged 46 or higher. With regards to the education level, the largest percentage of bachelors graduates with a degree (66.3 %) leads by a diploma (18.8 %), master’s degree (8.3 %) and Ph.D. (6.5 %). The largest group in terms of the university in which the participants are connected is from UMP (124), and the smallest group is UTP (89). USIM, UiTM and INTI members have 103, 98 and 90 respectively. About social media usage, data shows that (93.1 %) of students use social media every day, (3.2 %) three times a week, (2.0 %) weekly and (1.8 %) two days a week. Once asked on the social media service they mainly use, the respondents indicated that they used Whatsapp (59.7 %), Youtube (14.9 %), Facebook (10.3 %), Twitter (9.1 %) and Instagram (6.0 %) (9.1 %).

4.2 Measurement Model Assessment

Models for measuring reliability and validity are developed [53]. The internal consistency of the measurement item is evaluated using Cronbach’s alpha (CA) and composite reliability (CR) [54]. Alpha value 0.70 for quantitative research is deemed adequate, and CR of 0.70 in exploratory research considered acceptable [55]. As in Table 2, the alpha value of Cronbach ranged from 0.8219 to 0.9388,
which was higher than the standard of 0.7. Besides, the CR values ranged between 0.784 and 0.933. This then set in place adequate steps of internal reliability.

Convergent validity and discriminant validity should be examined as far as validity is concerned [55]. The validity of a model convergent validity was assured by the measurement of factor loadings and the average variance extracted. This was done by looking at the loading of the items and all items had a loading of more than 0.7, which is sufficient in the multivariate analysis [54]. The AVE values for the constructs also ranged from 0.6502 to 0.8454, above the estimated value of 0.5 [56]. HTMT (Heterotrait-monothrait ratio), as suggested by Henseler et al. [57] has been used to test discriminant validity for the measures in this study. The mean value of the indicator correlations between constructs was defined, as indicated by Ringle et al. [58] HTMT criterion, relative to the (geometric) mean of average correlations between indicators that measure the same construct. Henseler et al. [57] stated that if values greater than 0.85 HTMT values may be an issue. Table 3 showed that all values were below the 0.85 standards, indicating adequate

Table 2 Loading, Cronbach’s alpha, CR and AVE

| Constructs               | Indicators | Loading | Cronbach’s alpha | Composite reliability | AVE   |
|--------------------------|------------|---------|------------------|-----------------------|-------|
| Perceived susceptibility | PSUS1      | 0.9210  | 0.9388           | 0.9561                | 0.8449|
|                          | PSUS2      | 0.9311  |                  |                       |       |
|                          | PSUS3      | 0.9237  |                  |                       |       |
|                          | PSUS4      | 0.9006  |                  |                       |       |
| Perceived severity       | PS1        | 0.8795  | 0.8545           | 0.9115                | 0.7744|
|                          | PS2        | 0.8815  |                  |                       |       |
|                          | PS3        | 0.8790  |                  |                       |       |
| Perceived barriers       | PBA1       | 0.8894  | 0.8340           | 0.8995                | 0.7494|
|                          | PBA2       | 0.8912  |                  |                       |       |
|                          | PBA3       | 0.8141  |                  |                       |       |
| Health motivation        | HM1        | 0.7912  | 0.8282           | 0.8862                | 0.6619|
|                          | HM2        | 0.7237  |                  |                       |       |
|                          | HM3        | 0.8606  |                  |                       |       |
|                          | HM4        | 0.8701  |                  |                       |       |
| Perceived benefits       | PBE1       | 0.8908  | 0.8946           | 0.9269                | 0.7605|
|                          | PBE2       | 0.8966  |                  |                       |       |
|                          | PBE3       | 0.8184  |                  |                       |       |
|                          | PBE4       | 0.8802  |                  |                       |       |
| Self-efficacy            | SE1        | 0.9097  | 0.9090           | 0.9425                | 0.8454|
|                          | SE2        | 0.9268  |                  |                       |       |
|                          | SE3        | 0.9218  |                  |                       |       |
| Attitude                 | ATT1       | 0.7373  | 0.8219           | 0.8811                | 0.6502|
|                          | ATT2       | 0.8460  |                  |                       |       |
|                          | ATT3       | 0.8034  |                  |                       |       |
|                          | ATT4       | 0.8342  |                  |                       |       |

PSUS perceived susceptibility, PS perceived severity, PBA perceived barriers, HM health motivation, PBE perceived benefits, SE self-efficacy, ATT attitude, AVE average variance extracted
discriminatory validity. The standardized root mean square residual (SRMR) is the model fit criterion for PLS path modelling that was used to determine the model fit [59]. SRMR is defined as the average root square difference between the correlations observed and the model-involved correlations [60]. SRMR is an index of malfunction (greater signal values are worse fit), ranging from 0.0 to 1.0. When model predictions fit perfectly with data, SRMR is zero. In the clean (high-factor load) model [61], the adequate cut off value for PLS path models is enhanced (0.08) Henseler et al. [57], SRMR is increased (lowered).

### 4.3 Structural Model Assessment

The structural model used to analytically test whether data support the hypotheses presented by the structural model. Only after a successful evaluation of the measurement model can the structural model be analysed. A structural model can be evaluated using the determination coefficient (R2) and path coefficients in PLS. The structural model evaluation shown in Fig. 2 proves a hypothesis test indication with six direct hypotheses. The results indicated that all the study hypotheses are supported. Perceived Susceptibility was found to have significant influence on attitude ($\beta = 0.1195$, $t = 2.3608$, $p < 0.05$). Hence, H1 is accepted. Further, the result found that perceived severity ($\beta = 0.0928$, $t = 2.1176$, $p < 0.05$) has a significant effect on attitude. Therefore, H2 is accepted. Similarly, the result indicated that perceived barriers have significant effect on attitude ($\beta = 0.1029$, $t = 1.9761$, $p < 0.05$). Hence, H3 is accepted. Likewise, health motivation found to have a significant effect on attitude ($\beta = 0.1015$, $t = 2.4245$, $p < 0.001$). Hence, H4 is accepted. Furthermore, the result found that perceived benefits have a significant influence on attitude ($\beta = 0.1317$, $t = 2.6167$, $p < 0.05$). Therefore, H5 is accepted.

|   | 1     | 2     | 3     | 4     | 5     | 6     | 7     |
|---|-------|-------|-------|-------|-------|-------|-------|
| 1 | Attitude |       |       |       |       |       |       |
| 2 | Health motivation | **0.4773** |       |       |       |       |       |
| 3 | Perceived barriers | 0.3795 | **0.2029** |       |       |       |       |
| 4 | Perceived benefits | 0.4948 | 0.5992 | **0.2192** |       |       |       |
| 5 | Perceived severity | 0.4625 | 0.6409 | 0.1425 | **0.6674** |       |       |
| 6 | Perceived susceptibility | 0.4359 | 0.3385 | 0.8547 | 0.3789 | **0.3476** |       |
| 7 | Self efficacy | 0.4903 | 0.5145 | 0.5257 | 0.5832 | 0.5023 | **0.5351** |
Additionally, self-efficacy significantly predicts attitude ($\beta = 0.1796$, $t = 4.1969$, $p < 0.001$). Therefore, H6 is accepted. However, the thumb rule for an appropriate $R^2$ differs but the $R^2$ value of 0.26 and higher is considered significant in accordance with Cohen [62]. As shown in Fig. 2, 29.3% of the variation in attitude is explained by all independent variables (Table 4).

Table 4 Structural assessment results

| Hypothesis | Relationship   | Std. Beta | t-value | p-value | Decision  |
|------------|----------------|-----------|---------|---------|-----------|
| H1         | PSUS $\rightarrow$ ATT | 0.1195    | 2.3608  | 0.0186  | Supported |
| H2         | PS $\rightarrow$ ATT   | 0.0928    | 2.1176  | 0.0347  | Supported |
| H3         | PBA $\rightarrow$ ATT  | 0.1029    | 1.9761  | 0.0487  | Supported |
| H4         | HM $\rightarrow$ ATT   | 0.1015    | 2.4245  | 0.0157  | Supported |
| H5         | PBE $\rightarrow$ ATT  | 0.1317    | 2.6167  | 0.0091  | Supported |
| H6         | SE $\rightarrow$ ATT   | 0.1796    | 4.1969  | 0.0000  | Supported |

$PSUS$ perceived susceptibility, $PS$ perceived severity, $PBA$ perceived barriers, $HM$ health motivation, $PBE$ perceived benefits, $SE$ self-efficacy, $ATT$ attitude
5 Discussion and Conclusion

Many instructors and students in higher education institutions and universities, in particular, have being been affected by the COVID19 pandemic. Social media has proven to be a novel educational technic in learning during the COVID19 pandemic. Although in the dark side of social media which spread panic and affected the mental health of social media users and it could be described as a double-edged sword [63, 64], in the other hand, it can play an important role in terms of growing the awareness and educating people about the epidemic’s dangers through the flow of the information and constantly update the information. This study aimed to explore the students’ attitude to use social media as a learning tool during COVID-19 pandemic based on the view of the Health Belief Model (HBM). By collecting and analysing data about different level of students from Malaysian Universities, it was found that perceived susceptibility, perceived severity, perceived barriers, health motivation, perceived benefits, and self-efficacy constructs have a positive effect on the students’ attitude to use social media as a learning tool during COVID-19 pandemic. More interesting, the developed model explains a substantial variance (29.3 %) in the students’ attitude to use social media as a learning tool during COVID-19 pandemic, which clearly shows that the proposed research model is sound and valid. Based on the findings of the present study, it is recommended that social media as a learning tools should have more focus especially in the pandemics era.

References

1. Al Tahitah, A.N.A.: The effect of transformational and transactional leadership on readiness for change in the educational ministries in Yemen: learning organizational culture as a mediator. Universiti Sains Islam Malaysia (2019)
2. Al-Tahitah, A., Abdulrab, M., Alwaheeb, M.A., Al-Mamary, Y.H.S., Ibrahim, I.: The effect of learning organizational culture on readiness for change and commitment to change in educational sector in Yemen. J. Crit. Rev. 7(9), 1019–1026 (2020)
3. Bateh, J., Castaneda, M.E., Farah, J.E.: Employee resistance to organizational change. Int. J. Manage. Inf. Syst. 17(2), 113 (2013)
4. Kotter, J.P.: Leading change, p. 208. Harvard business press, USA (2012)
5. Miller, D., Madsen, S.R., John, C.R.: Readiness for change: implications on employees’ relationship with management, job knowledge and skills, and job demands. J. Appl. Manage. Entrep. 11(1), 3 (2006)
6. Larkins K., Murphy V., Loveday B.P.: Use of social media for surgical education in Australia and New Zealand. ANZ J. Surg. (2020)
7. Xu, X., Wang, J., Peng, H., Wu, R.: Prediction of academic performance associated with internet usage behaviors using machine learning algorithms. Comput. Hum. Behav. 98, 166–173 (2019)
8. LCIBS: The role of social media in education. London College of International Business Studies, UK. https://www.lcibs.co.uk/the-role-of-social-media-in-education/
9. Huang, X., Dai, S., Xu, H.: Predicting tourists’ health risk preventative behaviour and travelling satisfaction in Tibet: combining the theory of planned behaviour and health belief model. Tour. Manage. Perspect. 33, 100589 (2020)
10. Al-Sharafi, M.A., Mufadhal, M.E., Arshah, R.A., Sahabudin, N.A.: Acceptance of online social networks as technology-based education tools among higher institution students: structural equation modeling approach. Sci. Iran. 26(Special Issue on: Socio-Cognitive Engineering), 136–144 (2019)
11. Mufadhal, M.E., Sahabudin, N.A., Al-Sharafi, M.A.: Conceptualizing a model for adoption of online social networks as a learning tool. Presented at the 5th international Conference on Software Engineering and Computer Systems (ICSECS), Langkaw (2017)
12. Swansea, U.: Internet use reduces study skills in university students. In ScienceDaily (ed.), USA (2020)
13. Reames, B.N., Sheetz, K.H., Englesbe, M.J., Waits, S.A.: Evaluating the use of twitter to enhance the educational experience of a medical school surgery clerkship. J. Surg. Educ. 73 (1), 73–78 (2016)
14. Giunchiglia, F., Zeni, M., Gobbi, E., Bignotti, E., Bison, I.: Mobile social media usage and academic performance. Comput. Hum. Behav. 82, 177–185 (2018)
15. Maertens, H., Madani, A., Landry, T., Vermassen, F., Van Herzeele, I., Aggarwal, R.: Systematic review of e-learning for surgical training. Br. J. Surg. 103(11), 1428–1437 (2016)
16. Khiyali, Z., Aliyan, F., Kashfi, S.H., Mansourian, M., Jeihooni, A.K.: Educational intervention on breast self-examination behavior in women referred to health centers: application of health belief model. Asian Pac. J. Cancer Prev. APJCP 18(10), 2833 (2017)
17. Steckler, A., McLeroy, K.R., Holtzman, D.: Godfrey H. Hochbaum (1916–1999): from social psychology to health behavior and health education. Am. J. Public Health 100(10), 1864 (2010)
18. Kim, J., Park, H.-A.: Development of a health information technology acceptance model using consumers’ health behavior intention. J. Med. Internet Res. 14(5), e133 (2012)
19. Rosenstock, I.M., Strecher, V.J., Becker, M.H.: Social learning theory and the health belief model. Health Educ. Q. 15(2), 175–183 (1988)
20. Jones, C.L., Jensen, J.D., Scherr, C.L., Brown, N.R., Christy, K., Weaver, J.: The health belief model as an explanatory framework in communication research: exploring parallel, serial, and moderated mediation. Health Commun. 30(6), 566–576 (2015)
21. Mohamed, H.A.E.-A., Ibrahim, Y.M., Lamadah, S.M., Hassan, M., El-Magd, A.: Application of the health belief model for breast cancer screening and implementation of breast self-examination educational program for female students of selected medical and non-medical faculties at Umm al Qura University. Life Sci. J. 13(5), 21–33 (2016)
22. Glanz, K., Rimer, B.K., Viswanath, K.: Health behavior and health education: theory, research, and practice, Wiley (2008)
23. Salzberg, S.: Coronavirus: there are better things to do than panic. https://www.forbes.com/sites/stevensalzberg/2020/02/29/coronavirus-time-to-panic-yet/#64ebc2867fa6
24. Othman, H., et al.: Applying health belief model for the assessment of community knowledge, attitude and prevention practices following a dengue epidemic in a township in Selangor, Malaysia. Int. J. Commun. Med. Pub. Health 6(3), 958 (2019)
25. Tweneboah-Koduah, E.Y.: Social marketing: using the health belief model to understand breast cancer protective behaviours among women. Int. J. Nonprofit Volunt. Sect. Mark. 23 (2), e1613 (2018)
26. Ahadzadeh, A.S., Sharif, S.P., Ong, F.S., Khong, K.W.: Integrating health belief model and technology acceptance model: an investigation of health-related internet use. J. Med. Internet Res. 17(2), e45 (2015)
27. Saqlain, M., et al.: Knowledge, attitude, practice and perceived barriers among healthcare professionals regarding COVID-19: a cross-sectional survey from Pakistan. J. Hosp. Infect. (2020)
28. Hatefnia, E., Niknami, S., Mahmoudi, M., Ghofranipour, F., Lamyan, M.: The effects of health belief model education on knowledge, attitude and behavior of Tehran pharmaceutical industry employees regarding breast cancer and mammography (in Persian). Behbood J. 14(1), Pe42–Pe53, En6 (2010)

29. Moorman, C., Matulich, E.: A model of consumers’ preventive health behaviors: the role of health motivation and health ability. J. Consum. Res. 20(2), 208–228 (1993)

30. Kocoglu-Tanyer, D., Dengiz, K.S., Sacikara, Z.: Development and psychometric properties of the public attitude toward vaccination scale-health belief model. J. Adv. Nurs. (2020)

31. Champion, V.L., Skinner, C.S.: The health belief model. Health Behav. Health Educ. Theory Res. Pract. 4, 45–65 (2008)

32. Farah, M.F.: Application of the theory of planned behavior to customer switching intentions in the context of bank consolidations. Int. J. Bank Market. (2017)

33. Liu, M.T., Chu, R., Wong, I.A., Zuñiga, M.A., Meng, Y., Pang, C.: Exploring the relationship among affective loyalty, perceived benefits, attitude, and intention to use co-branded products. Asia Pac. J. Market. Logist. (2012)

34. Han, H., Baek, H., Lee, K., Huh, B.: Perceived benefits, attitude, image, desire, and intention in virtual golf leisure. J. Hosp. Market. Manage. 23(5), 465–486 (2014)

35. Schneider, M.J.: Introduction to public health. Jones & Bartlett Publishers (2016)

36. Bandura, A.: Self-efficacy: the exercise of control. WF Freeman, USA (1997)

37. Bandura, A.: Health promotion from the perspective of social cognitive theory. Psychol. Health 13(4), 623–649 (1998)

38. Özokcu, O.: The relationship between teacher attitude and self-efficacy for inclusive practices in Turkey. J. Educ. Train. Stud. 6(3), 6–12 (2018)

39. Uyanık, G.: Investigation of the self-efficacy beliefs in teaching science and attitudes towards teaching profession of the candidate teachers. Univ. J. Educ. Res. 4(9), 2119–2125 (2016)

40. Champion, V.L.: Instrument development for health belief model constructs. Adv. Nurs. Sci. 6(3), 73–85 (1984)

41. Ng, B.-Y., Kankanhalli, A., Xu, Y.C.: Studying users’ computer security behavior: a health belief perspective. Decis. Support Syst. 46(4), 815–825 (2009)

42. Kocoglu-Tanyer, D., Dengiz, K., Sacikara, Z.: Development and psychometric properties of the public attitude towards vaccination scale-Health belief model. J. Adv. Nurs. (2020)

43. Ng, B.-Y., Xu, Y.: Studying users’ computer security behavior using the health belief model. PACIS 2007 Proceedings, p. 45 (2007)

44. Woon, I., Tan, G.-W., Low, R.: A protection motivation theory approach to home wireless security. ICIS 2005 proceedings, p. 31 (2005)

45. Ifinedo, P.: Understanding information systems security policy compliance: an integration of the theory of planned behavior and the protection motivation theory. Comput. Secur. 31(1), 83–95 (2012)

46. Gao, Y., Li, H., Luo, Y.: An empirical study of wearable technology acceptance in healthcare. Ind. Manage. Data Syst. 115(9), 1704–1723 (2015). https://doi.org/10.1108/IMDS-03-2015-0087

47. Thompson, N., McGill, T.J., Wang, X.: “Security begins at home”: determinants of home computer and mobile device security behavior. Comput. Secur. 70, 376–391 (2017)

48. Davis, F.D.: Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Q. 319–340 (1989)

49. Ajzen, I.: The theory of planned behavior. Organ. Behav. Hum. Decis. Process. 50(2), 179–211 (1991)

50. Venkatesh, V., Bala, H.: Technology acceptance model 3 and a research agenda on interventions (in English). Decis. Sci. 39(2), 273–315 (2008). https://doi.org/10.1111/j.1540-5915.2008.00192.x

51. Almanasreh, E., Moles, R., Chen, T.F.: Evaluation of methods used for estimating content validity. Res. Soc. Adm. Pharm. 15(2), 214–221 (2019)

52. Hair, J.F., Anderson, R.E., Babin, B.J., Black, W.C.: Multivariate data analysis: a global perspective. Pearson Upper Saddle River, NJ (2010)
53. Sarstedt, M., Ringle, C.M., Hair, J.F.: Partial least squares structural equation modeling. Handb. Market Res. 26, 1–40 (2017)
54. Hair Jr, J.F., Sarstedt, M., Ringle, C.M., Gudergan, S.P.: Advanced issues in partial least squares structural equation modeling. saGe publication (2017)
55. Hair Jr, J.F., Sarstedt, M., Hopkins, L., Kuppelwieser, V.G.: Partial least squares structural equation modeling (PLS-SEM). Eur. Bus. Rev. (2014)
56. Fornell, C., Larcker, D.F.: Evaluating structural equation models with unobservable variables and measurement error. J. Market. Res. 39–50 (1981)
57. Henseler, J., Ringle, C.M., Sarstedt, M.: A new criterion for assessing discriminant validity in variance-based structural equation modeling. J. Acad. Market. Sci. 43(1), 115–135 (2015)
58. Ringle, C.M., Sarstedt, M., Mitchell, R., Gudergan, S.P.: Partial least squares structural equation modeling in HRM research. Int. J. Hum. Resour. Manage. 1–27 (2018)
59. Henseler, J., Hubona, G., Ray, P.A.: Using PLS path modeling in new technology research: updated guidelines. Ind. Manage. Data Syst. 116(1), 2–20 (2016)
60. Henseler, J., et al.: Common beliefs and reality about PLS: comments on Rönkkö and Evermann (2013). Organ. Res. Methods 17(2), 182–209 (2014)
61. Anderson, J.C., Gerbing, D.W.: The effect of sampling error on convergence, improper solutions, and goodness-of-fit indices for maximum likelihood confirmatory factor analysis. Psychometrika 49(2), 155–173 (1984)
62. Cohen, J.: Statistical power analysis for the behavioral sciences, p. 23. Hilsdale (NJ: Lawrence Earlbaum Associates, no. 1). Lawrence Erlbaum Associates, Publishers, New York (1988)
63. Baccarella, C.V., Wagner, T.F., Kietzmann, J.H., McCarthy, I.P.: Social media? It’s serious! Understanding the dark side of social media. Eur. Manage. J. 36(4), 431–438 (2018)
64. Sands, S., Campbell, C., Ferraro, C., Mavrommatis, A.: Seeing light in the dark: investigating the dark side of social media and user response strategies. Eur. Manage. J. 38(1), 45–53 (2020)