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Social Impact of Videos at New Media Platforms on the eLearning Acceptance during the Covid-19

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Abstract: In a country like Jordan, where technology acceptance and implementation are booming, eLearning acceptance has helped to cope with the current global healthcare crisis (Covid-19). This research examines the primary factors behind eLearning acceptance among Jordanian students. Employing an experimental approach and selecting a sample of n=332 respondents, using Structural Equation Modelling to assess the proposed conceptual framework, our findings indicated that perceived ease-of-use and usefulness were the primary determinants of shaping positive behavioral intentions towards eLearning acceptance. We found a strong significant mediating role of online videos to accept eLearning during the Covid-19 outbreak and concluded that along with the primary factors of technology and behavioral intention, online videos play a strong role in accelerating eLearning acceptance.

Keywords: Covid-19, eLearning, Healthcare crisis, Jordan, Social media, Technology acceptance.

1 Introduction

The rise of the Covid-19 pandemic raised several social and economic challenges for the countries worldwide. Closure of international borders affected trade, exports, imports, and other traveling purposes. Similarly, nationwide lockdown as a precautionary measure to hamper the virus transmission raised economic challenges and hampered daily social life activities [1]–[4]. As a result, educational institutions followed a swift transition from conventional to digital learning platforms to mitigate the difficulties raised by the healthcare crisis.

Despite students facing several challenges due to the rapid transition, eLearning was widely adopted as a part of the crisis management system. Some argued that this rapid shift from formal to eLearning is not regular [5]. Earlier formal education was considered as the fundamental part of the overall learning process. Although eLearning was already adopted by many intuitions worldwide, it was either a small part of conventional learning or considered less effective than digital learning [1], [6], [7]. According to World Bank [8], the closure of educational institutions was the worst

impact of the Covid-19 outbreak. Countries, where crisis management system in terms of education crisis was weak and academic infrastructure was less developed faced even more challenges than the other countries. Yet, we observed some countries where they turned the situation into an opportunity by tactfully implementing the specific strategic policies that facilitate the educational process [5]. As a result, a remote learning system - others called it emergency online learning [1] - was the only option left to counteract the gigantic academic concerns [9]. Today, after almost one of the Covid-19 outbreak, the crisis gave us one of the most powerful messages to strengthen the existing educational infrastructure and bring strategic reforms that can help us to cope with the current and future healthcare crisis [10].

In this regard, Jordan adopted digital pathways to facilitate students' educational journey and resume the educational activities regardless of the challenges raised by the Covid-19. However, such adoption was due to the students' in-depth consideration and active digital learning patterns [11]–[13]. Notably, several significant attributions such as accessibility, ease of use, and meaningful outcomes were the dynamic mechanisms behind an increased online

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learning adoption [6], [14]–[17]. Besides several positive characteristics of digital learning, many researchers consider behavioral intention as the impotent mechanism as much effective on eLearning adoption [18].

It is also to mention that Jordanian institutions have introduced their online learning management systems and YouTube-based channels where video learning opportunities are provided to the students. Students access and watch these videos online, but these videos are available offline with the options, including privately download services that make lecture videos more easily accessible and usable for potential students [19]. Consequently, students feel more motivated to learn and sustain their education during such crises, which further accelerates eLearning adoption [20], [21]. Therefore, several studies examine the eLearning acceptance during Covid-19, yet there is no study assessing the role of technological factors that influence one's behavioral intention to accept the eLearning. There is a gap in the literature in examining the impact of online videos in eLearning acceptance during the Covid-19 pandemic [15]. By keeping in view the opening, this study aims to cover this gap by using a self-proposed model containing the primary variables derived from Technology Acceptance Model (TAM), further proposing the impact on one's behavior leading to eLearning acceptance; the online videos further mediate that as the intervening variable [22].

2 Literature Review

2.1 Technology Acceptance and Online Educational Videos

The conceptual framework of current research is supported by the TAM, as technology acceptance and adoption have been among the primary topics of attention during the past two decades [23]–[28]. Especially, technology acceptance in education is an essential topic for educational researchers and stakeholders worldwide. Today, the Internet is preferred mainly due to its ease of availability, usage, and positive outcomes [29], [30]. These factors play an essential role in its acceptance, particularly among the young generation [25], [31]–[34].

In [35], the authors' content richness is another major determinant of technology acceptance among students for learning purposes. As students are aware of the use and results of adopting the online videos in terms of education, content richness strengthens this acceptance as these videos also keep them updated about the recent trends in teaching and learning [36]–[38]. Also, these video platforms provide online communities to the students, where besides eLearning, sharing an opinion, instant interaction with teachers and peers, and accessibility to the information regarding the recent trends in formal and informal

education [38], [39]. Students keep these benefits under consideration and switch to online videos that further help them to enhance their eLearning acceptance [40], [41]. Figure 1 illustrates the conceptual model for the current research.

2.2 Perceived Ease-of-Use and the Behavioral Intention

The Internet has become one of the essential components of our life, compared to earlier days, our lives are more dependent on Internet-devices technology than resume our daily life activities [42]–[44]. The Internet for many is not a luxury thing; instead, it is a basic element of life to perform different functions e.g., teaching, learning, information, and others. In terms of educational purposes, it provides a robust yet most accessible pathway to resume the educational journey even during emergencies like the Covid-19 outbreak [41]. Notably, besides increased accessibility and cost-effectiveness, the Internet offers easy to understand and operative system that makes education just a click away. As a result, students/learners are more likely to adopt eLearning through different online platforms with other additional benefits [45].

A study conducted by Lee and Lehto [27] affirmed a significant relationship between perceived ease of use and behavioral intention regarding internet adoption and dependency among students in the US. Employing a cross-sectional design revealed that students widely preferred e.g., YouTube learning tutorials to help their formal learning process. This higher acceptance is due to easily available videos that can be downloaded and watched easily whenever they want. For this reason, online videos (e.g., YouTube) are the most accessible and easy to ease platforms that effectively help South African university students pursue their academic journeys. These online platforms have the most extensive online video streaming repositories that enable students to access their required content with just an internet connection and internet device such as mobile, tablet, or laptops. As a result, students find the content they like, which helps them improve their academic capabilities [46]. Thus, with the simplistic and broadly available online videos, students are mainly benefitting themselves as besides entertainment, education is one of the most widely determinants of internet usage [47].

2.3 Perceived Usefulness and the Behavioral Intention

We have observed an increasing trend towards online video lectures and tutorials widely available on both the official learning management systems and video streamin

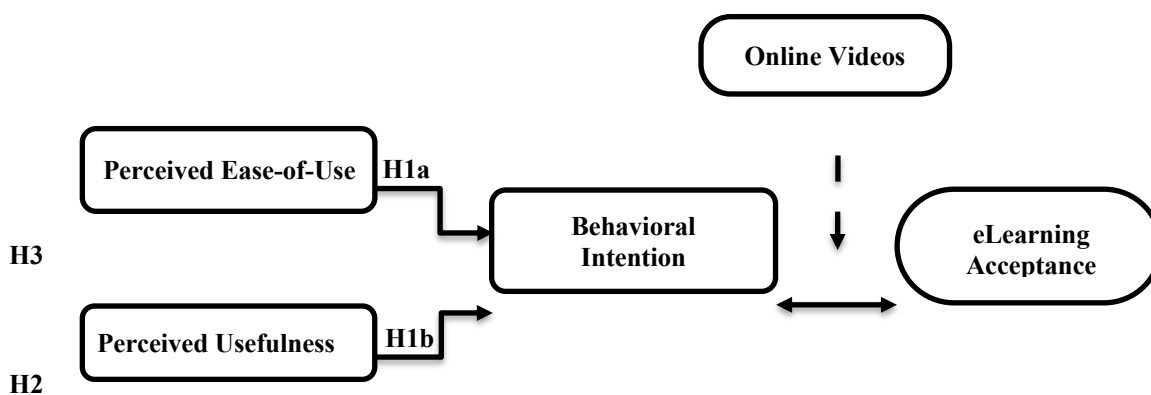


Fig. 1: Research conceptual model.

H1a: Perceived ease of use has a significant influence on behavioral intention.

H1b: Perceived usefulness has a significant influence on behavioral intention.

H2: Behavioral intention has a significant influence on eLearning acceptance.

H3: Online videos significantly mediate the relationship between behavioral intention and eLearning adoption.

websites during the past few years. These videos are chopped into different chunks that can be paused, resumed, forwarded, and reversed by the students. These videos are seen as a helpful platform as they are similar to formal lectures with the additional benefit of personalized operations [48]. As noted by Habes et al. [9] accepting internet technology is due to the perceived outcomes and benefits attributed to educational purposes. Students consider eLearning as a source of improving their academic performance; these online videos serve these eLearning purposes in the best possible manner.

Here Pappas and colleagues [50] attributed this active adoption of online videos to the behavioral intention directly associated with the perceived benefits such as easily available educational material and perceived academic success. They further cited an example of video assignments for Norwegian students. Norwegian students are more likely to prefer video assignments as it helps them attain supporting study material every semester that also improves their educational performance in general. In particular, Nagy [22] note that the development of multimedia reproduction equipment, internet technology, and online video streaming services all are equally liable for motivating and helping students regarding their education. Today, students actively switch to online video streaming platforms as they are sufficiently aware of the potential outcomes of using these educational videos. Hence, eLearning is a whole area for both formal and informal learning purposes. Although informal learning also involves eLearning, formal educational institutions also motivate their students to take web-based learning

under consideration. Here, online platforms provide different online video lectures that help students focus on their standard learning syllabus and the additional material that can further improve their educational and learning skills [19].

2.4 Behavioral Intention and the ELearning Acceptance

Technology plays a vital role in persuading us to facilitate our lives in the best possible manner. Significantly for communication, entertainment, and education, technology adoption plays a crucial role in benefitting us at maximum level. For example, technology helps both teachers and students to prepare and share slideshows and video lectures. It allows institutions to conduct online classes and facilitates students' and students' communication with instructors [18]. When students consider eLearning as a significant part of their education, they actively adopt it. Here they feel both ease of use and perceived important outcomes as the primary factors that help in eLearning adoption. Indeed, both previously described factors influence one's behavior, and that is why educational institutions are closed due to Covid-19, students are adapting eLearning actively [54].

A study conducted by Tang and colleagues [51] affirmed a strong link between behavioral intention and eLearning acceptance in Taiwan. Findings from employing the cross-sectional study design indicated that eLearning in Taiwan is due primarily to learners' active participation in accepting and integrating eLearning in their educational journey. For this purpose, the Taiwanese are updating their policies focused on the well-being and development of students through eLearning. As noted by Almajali [55], today, using information technology in education is a significant trend aimed at educational reforms and developments worldwide. Factors such as the role of teachers to motivate their students, informing them about the benefits of eLearning in both formal and informal learning processes. Providing them with authentic evidence of eLearning adoption fulfilling the students' interests, all are the primary factors

that influence the students' behavior to adopt eLearning [2]. Thus, during the current healthcare crisis, students' in-depth consideration and persuasion regarding eLearning immensely helped them switch to the digital learning environment. The role of teachers also played an essential role as they motivated their students and accelerated the adoption behavior among them [56].

2.5 Behavioral Intention and the Online Videos Acceptance

Today, the Internet is a vital source of learning and research for both teachers and students. In digital learning, eLearning offers more than just learning as, despite the geographical distance, it is accessible for most students. Also, the videos can be downloaded and utilized by the students to sustain their education. Even if the students are unavailable to attend the lectures, recorded videos on both learning management systems and video sharing sites enable such students to access the educational content whenever they want [57]. Here Ansong and colleagues [52] consider that students' eLearning adoption as considering the multidimensional perspectives. For example, both students and teachers from the University of Ghana feel that online video lectures are accompanied by ease of access, simple operationally, and improving academic performance, further determining digital learning acceptance.

A study conducted by Gerasimova validated the impact of online video on behavioral intention regarding eLearning adoption in Russian [58]. Data gathered from $n=940$ teachers and professors indicted those students are readily adopting eLearning through online videos provided by the university. These videos are accessible, comprehensive, and readily available for the respondents, which further helps them adapt and sustain eLearning. Once again, we can find a technology adoption model describing the learners' primary reasons behind technology acceptance. When students find the online videos as easy to use and ensure improved academic assistance, they accept eLearning as part of their educational journey, reflecting their persuasion as a complex psychological process caused by behavioral factors [59]. Therefore, today's online videos help accelerate digital learning among students. These videos' content is a new era of education that involves modernized tools to deliver instruction at every doorstep in a digitalized manner [12].

3 Research Methods

Our research consists of a cross-sectional design, as we utilized structured, close-ended questionnaires for data gathering purposes [60]. We visited the selected institutions and distributed questionnaires among the potential

respondents. After data gathering, we used descriptive and inferential statistics to calculate the frequencies and test the proposed relationships between study variables [61]. For this purpose, we utilized both the SPSS and AMOS 23 to analyze our gathered data.

3.1 Study Population and Sampling

The population of this research involves all the university students currently enrolled in higher education institutions in Jordan. However, due to study limitations and requirements, we used a purposive sampling approach and selected a sample of $n=332$ from Yarmouk University, Jordan. The descriptive analysis of demographical data of respondents revealed that a majority (55.4%) of participants were females, and 44.6% were males. Their age ranged from those aged 18 to 22 years old (50.3%), 23 to 26 years old (33.4%), 27 to 30 years old (10.8%), and 31+ (5.4%). Lastly, regarding their educational level, 51.5% were undergraduate, 34.0% were pursuing their graduate level, 9.9% were MA, and 4.5% were PhD level.

Moreover, we conducted a one-way analysis of variance (ANOVA) to find discrepancies based on respondents' demographical backgrounds [62]. We found that with the significance level at $p \leq .722$ and $p \leq .143$, there were no differences based on the gender and age of the study participants. However, at the significance level at $p \leq .000$, we found apparent differences based on the study level of the participants. Table 2 provides a summary of demographical calculation and Analysis of Variance.

3.2 Validity and Reliability of the Study Model

To assess the validity and reliability of the research model, we first conducted the construct reliability analysis. As shown in Table 3, the Cronbach Alpha (CA) values of all the study items range from .745 to .812, indicating that all the values are higher than the designed threshold value of 0.7, construct reliability is partially affirmed.

Moreover, the Composite Reliability (CR) of all the constructs ranges from .844 to 5.10, indicating that these values are higher than the threshold value of 0.7, so the construct reliability of the research model is fully established. Further, all the factor loading (FL) values are higher than the threshold values of 0.7, ranging from 0.709 to .887 the convergent validity is partially established. Besides, all the averaged variance extracted values are also higher than the designated value of .0.5; it claims that the convergent validity of the research model is sufficiently established.

Table 1: Summary of cited literature on YouTube use by year.

| Source | Design & Method | Description |
|--------|--|---|
| [27] | A cross-sectional design, Survey method | Students widely prefer YouTube-based learning tutorials to get help in their formal learning process. This higher acceptance is due to easily available videos that can be downloaded and watched quickly whenever they want. |
| [51] | Case study, Structural equation modeling | Implementation of eLearning in Taiwan is mainly due to learners' active participation in accepting and integrating eLearning in their educational journey. |
| [52] | A cross-sectional design, Survey method | Students and teachers from the University of Ghana consider online video lectures as accompanied by ease of access, simple operationally, and improving academic performance that further determine digital learning acceptance. |
| [50] | Case study, Survey method | This active adoption of online videos is due to the behavioral Intention directly associated with the perceived benefits such as readily available educational material and perceived academic success. |
| [46] | Case study, Structural equation modeling | Online platforms have the most extensive online video streaming repositories that enable students to access their required content with just an internet connection and internet devices such as mobile, tablet, or laptops. |
| [53] | A cross-sectional design, Survey method | During the current healthcare crisis, students' in-depth consideration and persuasion regarding eLearning immensely helped them switch to the digital learning environment. |
| [31] | Case study, quantitative survey | Today, the Internet is preferred mainly due to its ease of availability, usage, and positive outcomes. These factors play an essential role in its acceptance, particularly among the young generation. |
| [35] | Case study, Structural equation modeling | As students are aware of the use and results of adopting the online videos in terms of education, content richness strengthens this acceptance as these videos also keep them updated about the recent trends in teaching and learning. |

Table 2: Demographics and analysis of variance.

| Variables | Constructs | <i>N</i> | % | <i>M</i> | <i>SD</i> | <i>f</i> | <i>Levene Statistics</i> | <i>Sig.</i> |
|-------------|---------------|----------|-------|----------|-----------|----------|--------------------------|-------------|
| Gender | Male | 148 | 44.6% | 1.55 | .498 | .519 | 4.734 | .722 |
| | Female | 184 | 55.4% | | | | | |
| Age | 18-22 | 167 | 50.3% | 1.71 | .865 | 1.730 | 8.458 | .143 |
| | 23-26 | 111 | 33.4% | | | | | |
| | 27-30 | 36 | 10.8% | | | | | |
| | 31+ | 18 | 5.4% | | | | | |
| Study Level | Undergraduate | 171 | 51.5% | 1.67 | .832 | 7.661 | 8.253 | .000 |
| | Graduate | 113 | 34.0% | | | | | |
| | MA | 33 | 9.9% | | | | | |
| | PhD | 15 | 4.5% | | | | | |

Table 3: Internal consistency analysis of the constructs.

| Variables | Constructs | FL | CA | AVE | CR |
|-----------------------|------------|-------|------|------|------|
| Perceived Ease of Use | PEUE1 | 0.827 | .812 | .842 | 5.10 |
| | PEUE2 | 0.878 | | | |
| | PEUE3 | 0.823 | | | |
| Perceived Usefulness | PUFS1 | 0.830 | .768 | .782 | 1.43 |
| | PUFS2 | 0.709 | | | |
| | PUFS3 | 0.808 | | | |
| Behavioral Intention | BHIN1 | 0.849 | .745 | .841 | 1.21 |
| | BHIN2 | 0.884 | | | |
| | BHIN3 | 0.792 | | | |
| Online Videos | OVID1 | 0.882 | 801 | .871 | .937 |
| | OVID2 | 0.865 | | | |
| | OVID3 | 0.868 | | | |
| E-Learning Acceptance | LAE1 | 0.816 | .793 | .859 | .844 |
| | ELAE2 | 0.874 | | | |
| | ELA3 | 0.887 | | | |

Table 4: Fornell-Larcker criterion scale.

| | PEUE | PUFS | BHIN | OLVD |
|------|------|------|------|------|
| PEUE | .708 | | | |
| PUFS | .512 | .611 | | |
| BHIN | .540 | .421 | .707 | |
| OVID | .430 | .411 | .638 | .758 |
| ELAE | .654 | .569 | .590 | .494 |

PEUE: Perceived Ease of Use, PUFS: Perceived Usefulness, BHIN: Behavioral Intention, OLVD: Online videos, ELAE: eLearning acceptance.

Similarly, we also conducted discriminant validity analysis to authenticate the internal consistency of the research model fully. Here we utilized both the Fornell-Larcker criterion scale (Table 4) and the Heterotrait-Monotrait ratio scale (Tables 5) to examine the discriminant validity [63]. The square roots of all the average variance extracted (AVE) values are higher than the given correlation matrix values, our discriminant validity is partially affirmed. Also, we found that the calculated HTMT value is 0.521, indicating that obtained value is lower than the designated value of 0.85, our decisional validity is fully established (Table 5).

3.3 Coefficient of Determination R^2

Further, to assess the predictive power of our proposed study model, we conducted coefficients of determination R^2 [64]. Table 6 summarizes the results of the coefficients of determination R^2 . We observed that all the latent variables have R^2 values ranging from .749 to .884, indicating that our research model has strong predictive power.

3.4 Hypotheses Testing: Path Analysis, Regression Analysis

We conducted Structural Equation Modelling (SEM) to examine the validity of our research propositions; Table 7

summarizes the results of path analysis and regression. Besides, we also noted down f -values, t -values, and significance values to highlight the strength and significance of the proposed variables [65]. We can see that all the path values and significance values validate the affirmative nature of all the study hypotheses. However, the relationship between Behavioral Intention, Perceived Ease of Use ($t = 4.938$, $p \leq .007$), Behavioral Intention and Perceived Usefulness and eLearning acceptance ($t = 5.541$, $p \leq .012$) are moderately significant. At the same time, the relationship between Behavioral Intention and Perceived Usefulness is enormously meaningful ($t = 4.529$, $p \leq .000$). Likewise, the mediation analysis also affirmed a significant mediating role of online videos in the relationship between Behavioral Intention and Perceived Usefulness ($t = .461$, $p \leq .011$). Thus, we found that all the proposed relationships in our study model are significantly validated.

During the emergencies like the covid-19 pandemic, the ease of access to the Internet proved highly beneficial for people worldwide. As mentioned earlier, the rapid transition from conventional to digital systems created several issues for the students; still, eLearning adoption proved highly beneficial [66]. Significantly, technology adoption accelerated among students in the Jordanian context as the purpose was identical for all. According to Mumtaz and colleagues [67], eLearning adoption mainly relies on the attributed benefits that further influence

Table 5: Heterotrait-Monotrait scale.

| | | | | |
|------|------|------|------|------|
| | PEUE | PUFS | BHIN | OLVD |
| PEUE | | | | |
| PUFS | .485 | | | |
| BHIN | .463 | .502 | | |
| OVID | .500 | .515 | .443 | |
| ELAE | .321 | .543 | .588 | 348 |

Table 6: Coefficients of Determination R^2 .

| | | |
|----------------------|-------|-------------------|
| Variables | R^2 | Strength |
| Behavioral Intention | .749 | Moderately strong |
| Online videos | .812 | Strong |
| Online videos | .884 | Strong |

Table 7: Hypotheses test results.

| S/R | Relation | <i>path</i> | <i>t</i> -value | <i>f</i> -value | Sig. |
|-----|-----------------|-------------|-----------------|-----------------|---------|
| H1a | PEUE>BHIN | .638 | 4.938 | 7.630 | .007** |
| H1b | PUFS> BHIN | .665 | 4.529 | 12.424 | .000*** |
| H2 | BHIN >ELAE | .542 | 5.541 | 4.446 | .012** |
| H3 | BHIN >OLVD>ELAE | .461 | 1.439 | 5.719 | .011** |

one's behavior to adopt the digital platforms for learning purposes. However, along with the perceived ease of use and perceived usefulness. The role of online videos remained prominent concerning eLearning acceptance among Jordanian higher education students.

As shown in Figure 2, the current research indicated a stronger, significant relationship between technology acceptance regarding perceived ease of use and perceived usefulness as the main determinants of behavioral persuasion [25]. The study found that the relationship between behavioral intention and eLearning is significantly mediated by online videos [23]. In this regard, the first hypothesis assuming the relationship between perceived use and behavioral Intention is strongly consistent with the study conducted by Pappas and colleagues [50]. They found a positive association between perceived ease of use prominent factor behind behavioral intent. Similarly, the second hypothesis assuming a significant relationship between perceived functional and behavioral intention is compatible with the research carried out [19]. They concluded attributed perceived usefulness to technology adoption, is strongly linked with behavioral Intention. Moreover, the third hypothesis proposed a significant relationship between behavioral intent and eLearning acceptance, which also indicated compatibility with the research conducted by [25]. Finally, the third study postulation, assuming the mediating role of online videos in the relationship between behavioral intention and eLearning adopting during Covid-19, was also found consistent with the early studies e.g., [1], [2], [68] showing the proximity and validation of study hypotheses for the eLearning acceptance.

Hence, it is significantly approved that the characteristics of technology acceptance in general scenarios also determined the behavioral intent as influential on the eLearning adoption during the crisis [69]. Additionally, the role of online videos on different video streaming platforms and the learning management system of the relevant institution also strengthens this technology acceptance. As noted by Liu and colleagues [70] students adopt eLearning as a part of their formal learning system. They no longer have to stand still and wait for the healthcare crisis to get over. Instead, they have incorporated digital platforms as a significant source of continuing their education in a better possible manner. This complete acceptance of eLearning shows optimism towards eLearning as a potential pathway to accelerate educational activities even in future crises [68].

4 Discussions and Conclusion

This study examined the role of perceived ease of use and perceived usefulness in terms of their impacts on a behavioral intention for the eLearning adoption in Jordan. We utilized the TAM to further extend the relevant model by adding online videos to mediate the previously presumed relationship between the study variables. We conducted structural equation modeling to examine the strength and predictive power of our study model. The study found that all the variables are significantly associated, indicating that our proposed research

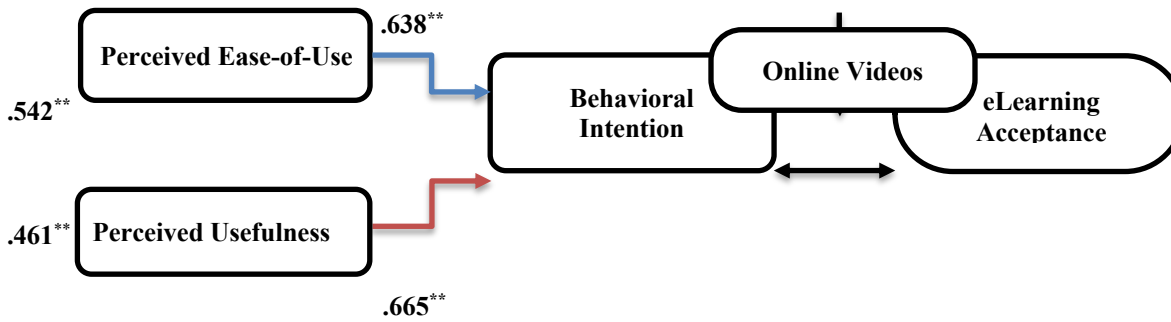


Fig. 2: The structural model.

hypotheses are strongly validated. Notably, this study highlighted the broader acceptance of eLearning as a part of their educational journey. Also, it validated eLearning as a part of the crisis management system. Besides, we also observed the extent to which students have accepted and incorporated digital media technology in their educational journey as a substitute for their formal learning environment [14], which highlights the significance of eLearning and social media environment for the educational gratifications of the young generation.

Limitations and Recommendations

Although this study is novel regarding extending the TAM and effectiveness of digital learning during the Covid-19 pandemic, it has some primary limitations. First, the research is conducted in a Jordanian scenario that further questions the generalizability of results in other countries. Second, we gathered data only from one Jordanian university, so other students' opinions and perspectives may differ. Third, we examined online videos without narrowing down the study on any single platform, limiting our research scope. However, this study still has a more significant contribution to education and learning, especially during a crisis. It gives some practical recommendations for the practitioners such as: (i) more studies regarding the mediating role of other different variables including online videos should be examined in the global context; (ii) eLearning acceptance in terms of gender differences during Covid-19 outbreak should be investigated, and (iii) eLearning acceptance in terms of ease of access should be scrutinized in both Jordanian contexts.

Conflict of interest: The authors declare that there is no conflict regarding the publication of this paper.

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