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Abstract:

The objective of this study is to understand the factors that might encourage students to continue their studies online once such classes are no longer a requirement after the current pandemic. Based on our results, we aim to provide guidance to faculty and administrators so that they can create the best strategies moving forward.

Keywords: COVID-19, distance learning, online education, pandemic, undergraduate students

I. INTRODUCTION

As we struggle through the current pandemic (and potentially face more of the same) universities around the world have turned to online classes to preserve their revenue streams, keep current students on track for graduation and attract new ones. But are online classes going to be the answer? This time our online classrooms are different – by and large they are filled with people most of whom do not want to be there – this was not what they signed up for!

It will be tempting for universities to scale up the current model, perhaps forgetting that the students in these places to date probably saw some advantages in taking classes this way (work commitments, an extra class, family responsibilities, etc.) and were willing to put up with some, or even considerable inconveniences. However, going forward, our drafted student body is unlikely to be so forgiving.

The research contemplated here is a study of the factors that might encourage students to continue their studies in online environment. We aim to provide guidance to faculty and administrators as to what is important in determining whether students will desire to continue taking online classes once they are no longer required.

The central research question to be addressed is: *What factors will influence undergraduate students' desire to continue with online classes to complete their degrees?*

The remainder of this extended abstract is organized as follows. The next section provides a brief overview of the underlying theory base. A research model is then put forth. The planned research methodology is subsequently outlined. The abstract concludes with a discussion.

II. BACKGROUND AND THEORY

There has been much written in relation to distance learning and online classes over the last 20 years or so. Distance learning offer both advantages and disadvantages to learners and educational institutions. Online classes afford students greater flexibility with respect to the time and location of learning, and may also be more efficient due to reduced transportation time. However, students in online courses may also face technical and environmental barriers to learning, and may suffer from social isolation (Arkorful & Abaidoo, 2015; 2019). Institutions can benefit from increased reach and perceived cost benefits (Webster & Hackley, 1997). However, the increased reach also represents increased competition from other institutions taking advantage of the elimination of distance barriers. So, it seems reasonable that universities will be

concerned about whether students will want to continue to take online courses in a post-COVID-19 world.

In this study we utilize Social Cognitive Theory (SCT) (Bandura, 1986; 1997) to investigate the factors that influence students' desire to continue with online classes. SCT, as illustrated in Figure 1, is a robust and empirically validated model of individual behavior that has been extensively utilized in many disciplines, including the information systems field (Looney & Akbulut, 2009).

SCT views psychosocial phenomena as mutually and reciprocally determined by environmental, personal, and behavioral factors (Bandura, 1986).

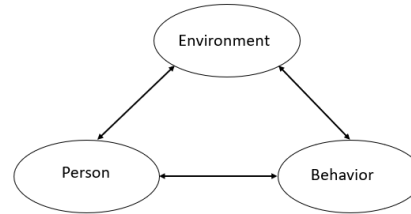


Figure 1: Social Cognitive Theory (Bandura, 1986)

According to SCT, people enter contextual situations with a set of abilities, expectations, traits, histories, emotions, and cognitive resources to deploy during their interactions with the environment. Environmental forces (including supports and barriers) can enable or inhibit certain types of behavior. When considering prospective behaviors, individuals assess their ability to engage in these behaviors by integrating perceptions of themselves, the environment, and the particular behavior in question. Behavior in a given situation is, therefore, mutually determined by environmental and personal components (Bandura, 1986). Focusing on the interplay among these three dimensions have been proven to be helpful in understanding and predicting the development of academic and vocational interests, selection and pursuit of relevant paths, and performance and persistence in academic and vocational endeavors (Lent, et al., 1994).

Personal Factors: Individuals possess certain personal factors such as traits, histories, and cognitive resources to deploy during their interactions with the environment. Students are, of course, the primary participants of any learning environment, including online learning environments. The online learning environment represents a major shift from the traditional face-to-face learning environments, which students are more used to and comfortable with, particularly in terms of control and responsibility (Picolli et al., 2001).

In the context of online classes, we believe self-efficacy, social isolation, self-regulation, and compatibility will be salient personal factors that influence continuance desires.

Self-efficacy is a core component of SCT. With respect to online learning, self-efficacy pertains to a student's belief that they can cope with the challenges of online courses. Self-efficacy has been shown to impact outcomes related to online classes (Hill et al., 2009), including satisfaction (Shen et al., 2013; Alqurashi, 2019) and perceived performance (Chemers et al., 2001; Choi, 2005; Bradley et al., 2017).

Students often report that online classes are socially isolating due to the physical separation among students (Herman, 2020). Increasing social presence has been shown to affect the learning climate and perceived academic performance and THE quality of the learning experience (Dang et al., 2018, Weidlich & Bastiaens, 2017).

Self-regulation is thought by many to be especially important in online classes. In the online environment, learning is primarily the responsibility of the student (Dabbagh & Klisantas, 2004). Empirical research indicates that self-regulation affects academic success and performance (Lynch & Dembo, 2004; Sharma et al., 2007; Artino & Stephens, 2009; Lee, et al., 2013).

Compatibility has both personal and environmental dimensions. As a personal factor, we are also concerned with the student's perception of the extent to which online classes fit with their preferred style of learning and values (Van Slyke et al., 2010), which have been shown to impact behaviors related to adoption and continued use of technology innovations, including distance learning (Van Slyke et al., 2010). In our research model, we represent this as learning style compatibility.

Environmental Factors: Environmental factors encompass the temporal and spatial forces beyond an individual's boundaries (Bandura, 1986). According to SCT, individuals do not make educational choices in a vacuum, as they are conscious of particular environmental circumstances. Therefore, environmental factors are expected to pervade every stage of the academic choice (Akbulut, 2012). In the online learning context, we expect three levels of support and two levels of compatibility to be important as suggested by previous research (Akbulut, 2012; Van Slyke et al., 2010).

Students are always more familiar with face-to-face courses than online courses. Therefore, taking classes online represents an elevated level of challenge and complexity. As a result, we expect faculty support, technical support, and institutional support to be important predictors of performance and satisfaction.

In terms of compatibility as a contextual environmental factor, we expect technical and environmental compatibility to be important. Technical compatibility pertains to the extent to which the student's information technology resources are adequate for engaging in online classes. Environmental compatibility, refers to the extent to which the student's physical environment is sufficient for online learning.

Behavior: The behavior-related variable of interest in our study is the student's desire to continue with online classes once they are no longer required due to COVID-19 restrictions. We believe that the aforementioned factors will influence desire to continue through their impact on two perceptual factors – perceived performance and satisfaction with online classes. Studies indicate that these factors play important roles in student learning and satisfaction (Alshare & Lane, 2011; Eom et al., 2006; Chen et al., 2015). Performance-related outcome expectations are especially important to continuance intentions (Venkatesh et al., 2003). It seems reasonable to expect that students who believe that they perform well in online courses will be more satisfied with online classes and will also be more likely to desire to take online classes in the future. Student satisfaction refers to students' judgements about the quality of their learning experience with online learning. Empirical research verifies the impact of satisfaction on continuance intentions (Alavi 1994; Alavi et al. 1995; Wolfram, 1994).

III. RESEARCH MODEL

The variables and relationships discussed in the previous section are represented in our research model, which is shown in Figure 2. As illustrated, we expect personal and environmental factors to independently and cumulatively affect student satisfaction and perceived performance in the online learning environment, which in turn determines students' desire to take future online classes. Support and compatibility are modeled as formative second-order latent variables. We test hypotheses that correspond to the following paths in the model and we expect that all the relationships to be significantly positive.

- Social isolation and self-regulation to self-efficacy
- Support, compatibility, and self-efficacy to performance
- Support, compatibility, self-efficacy, and performance to satisfaction
- Satisfaction and performance to desire to continue

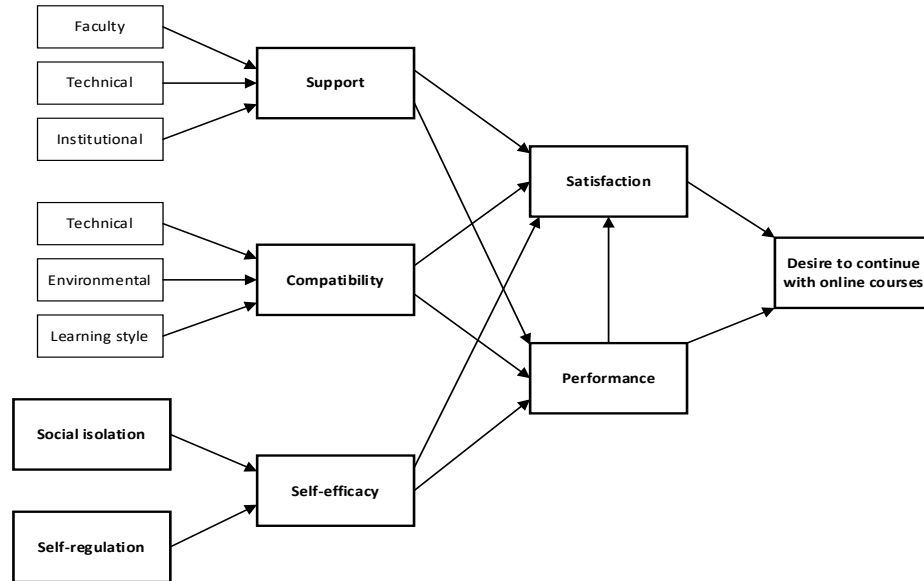


Figure 2: Research Model

IV. RESEARCH METHODOLOGY

The current study is being conducted as a part of a larger research study that investigates the factors influencing students' decisions in distance learning environments. The sample for this larger study is composed of adult higher education students, currently residing in the United States. To participate, subjects had to 1) have been enrolled in one or more online courses in their current or most recently completed academic term, 2) be 18 years of age or older. The final sample size was 525. A web-based survey was used to collect the data for the study. The scales for the study have been developed based on previously validated ones and were measured on a seven-point scale (strongly agree to strongly disagree).

Approximately 90% of the participants in the study classified themselves as full-time students. The sample was skewed towards female participants, with approximately 60% of the respondents identifying as female. The sample was comprised of 86.5% undergraduate students. The mean age was 22 years. Most (71%) of the respondents rated their computer expertise as above average. 86.5% of the respondents were undergraduate students. The average number of online courses was 3.6.

Partial least squares (PLS), using SmartPLS 3.0 software, will be used to analyze the data and test our hypotheses. Initial analysis indicates that the reliability and validity of all scales is acceptable. Further, the preliminary analysis indicates general support for the research model.

V. DISCUSSION

We hope that this study will yield a valid model for assessing the desire of students to commence or continue with their studies online and identify the factors contributing to that desire (or otherwise). Armed with this information, university administrations and faculty will be able to identify actions to take, and the set of students who would most benefit from these actions, to facilitate and encourage the use of online classes for a large proportion of students. Early identification of students at risk due to the prevalence of certain causal factors as identified in the model should enable action to be taken in a timely manner and encourage students to better engage with the learning material and the format.

Because of their reliance on specialty software, information systems courses may be especially challenging for students who are forced by circumstances beyond their control to take these courses online. For example, classes that rely on resource intensive software may be problematic for students who have mediocre computing equipment at home. Even classes that utilize cloud-based software may prove frustrating for students without high-quality, reliable Internet access. Although many people may believe that such access is ubiquitous in the United States, many individuals who live in isolated rural areas lack reliable Internet access, which may be available only through high-cost satellite services. Despite their high cost, these services are less reliable than common alternatives. IS faculty who teach technology-intensive courses would be well-advised to consider these factors. In addition, these faculty may find it necessary to provide a higher level of technical support than that typically provided by their institutions. Further, IS faculty should be mindful of technical and environmental compatibility concerns when designing their online courses, when advising students, and when evaluating students.

The AIS, particularly through CAIS and SIGED and other similar outlets, encourages research in IS Education. As IS professors the authors believe that in our profession we have something to offer here – we teach our students that IS is comprised of hardware, software, data, procedures and people. This study concentrates on the latter two, identifying issues that will enable IS online education to better achieve its objectives. We believe this understanding can then be extended more broadly to other disciplines.

As such, we anticipate that the model and the causal factors identified will guide those involved in the development and use of online material. It should provide some guidance as to the importance of the factors identified to administrations, faculty and students. It is possible that current pandemic will alter the way in which we provide higher education for many of our institutions and programs. We hope that the model, once analyzed, will be a basis for further research in this area.

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