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Should we teach in hybrid mode or fully online? A theory and empirical investigation on the service–profit chain in MBAs

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Abstract

Should we teach in hybrid mode or fully online? We examine the teaching model's role (hybrid versus fully online) in the service–profit chain in higher education institutions using survey data from 93 faculty members and 366 students from three American universities. We find that faculty members' satisfaction and the MBA program expectations improve MBA word-of-mouth by enhancing the MBA quality, MBA value, class satisfaction, and MBA loyalty. Additionally, we discover that the hybrid teaching model more strongly reinforces this chain of effects than the fully online model. IT creates the integration of differential value into a hybrid teaching style.

Keywords: Higher education institutions, faculty-centric, MBA programs, hybrid teaching, online teaching, word-of-mouth.

1. Introduction

Since the beginning of the 21st century, the existence of a relationship between employee satisfaction and customer satisfaction has been well-documented (Heskett et al., 1994; Brown & Lam, 2008; Hogreve et al., 2017; Wolter et al., 2019) in several empirical settings, such as hotels (Enz et al., 2009), healthcare, retail (Evanschitzky et al., 2012), restaurants (Spinelli & Canavos, 2000), and banking industries (Loveman, 1998; Gelade & Young, 2005), but not in higher education. We note that job satisfaction outcomes require further study in the Information Systems (IS) literature, which has primarily investigated the predictors of job satisfaction (Joshi & Rai, 2000; Thatcher et al., 2002; Jung & Suh, 2019). To investigate this, researchers have used the service–profit chain (SPC) model, which assumes that providing a superior work environment increases employee satisfaction, loyalty, and productivity and results in service value, leading to customer satisfaction, loyalty, and, ultimately, company profits and growth. However, Hogreve et al. (2017) reported that the body of knowledge on SPC remains largely fragmented and ambiguous because most studies do not consider the comprehensive model, focusing instead on specific elements, which leads to omitting, summarizing, or substituting specific elements (Lariviere, 2008; Hogreve et al., 2017).

Recently, certain contextual relationships have attracted significant attention, but others remain under-researched. For instance, studies on the relationship between customer loyalty and profitability are scarce (Hogreve et al., 2017). Loyalty was not found to be associated with profit and growth (Homburg et al., 2009; Evanschitzky et al., 2012), especially for service providers; this suggests word-of-mouth (WOM) would be a suitable substitute. Consequently, few studies fully examine the comprehensive SPC model and the richness of the entire set of relationships.

The SPC model would be particularly meaningful to best appraise the feedbacks from students in higher education (Young & Jerome, 2020; Winstone et al., 2021) to increase their satisfaction and its direct and indirect impacts and determinants (Muijs & Bokhove, 2017). Still, we can only acknowledge a few studies on faculty satisfaction (Fredericksen et al., 2000; Stickney et al., 2019; Webber, 2019; Marasi et al., 2020; Jensen et al., 2020) and student satisfaction (Clemes et al., 2007; Gibbons et al., 2015; Lenton, 2015; Ramsey & Lorenz, 2016; Weerasinghe et al., 2017; Rueda et al., 2017). However, studies do so separately. Emerging literature exists about (a) the relevance of faculty attitudes on student implications (Kuh & Hu, 2001; García-Aracil, 2009; Sojkin et al., 2012; Mitchell et al., 2015) and (b) the link between faculty satisfaction and performance (Bolliger & Wasilik, 2009; Weerasinghe et al., 2017; Stickney et al., 2019). Nevertheless, the correlation between faculty satisfaction and student satisfaction requires further study (Al-Samarraie et al., 2018). On that point, Stickney et al. (2019) called for "future research about [the] consequences of faculty satisfaction" (p. 534). Consequently, we intend to address the theoretical gap neglected in past studies.

It should also be emphasized that empirical studies on student and faculty satisfaction have been typically based on a "single faculty-multiple students" model (Stickney et al., 2019, p. 511). Additionally, Bolliger and Wasilik (2009) called for a "multi-institutional research study" (p. 113). The use of SPC, a comprehensive model, to investigate all relationships across several institutions—including faculty satisfaction and student satisfaction—is vital, especially in a complex, competitive, and evolving environment, such as higher education institutions (HEIs).

Indeed, the report from Allen and Seaman (2017) indicates that online education is increasing. Nearly seven million students are enrolled in distance courses at American HEI. Similarly, and based on Federal data, Lederman (2019) argued that in 2018, 65% of students were engaged in the

face-to-face delivery method (13,071,185 students), 18.4%, in the hybrid delivery method (3,677,689 students), and 16.3% in the online delivery method (3,259,560 students). Online teaching and technology matter and influence students from HEI concerning their perceptions and expectations (Ashour, 2020).

In 2018, 34.7% of undergraduates and 40% of graduate students took at least one online course. So, face-to-face teaching remains the most used delivery method over time. Furthermore, Lederman (2019) suggests that the environment remains stable since the evolution of those percentages remains small. Indeed, while 33.1% of college students took at least one online class in 2017, this percentage increased by only 1.6 points in a year—to 34.7%. Although HEIs are slowly adopting new technologies, Losh (2014) contended that universities are not transforming their delivery methods to adjust to students born in the digital age. Ashour (2020) further argued that "the digital age is not 'transforming' the nature of universities. Additionally, traditional teaching methods and conventional 'in-the-box' student thinking and practices with technology still prevail" (p. 2513).

In a paper published in *Information System Research*, Alavi and Leidner (2001) underscored: "What is striking is the seeming assumption that the options are either virtual or traditional, with little room for hybrid programs. For example, rather than applying the principles of the digital economy to their own business programs, business schools are content either to teach the principles in traditional format or in a digital format (online). Why not use the power of modern IT to customize a program for individual students? […] In this way, a hybrid system that avails itself of the convenience of online learning for fairly standardized services (such as a core) is used to free up the faculty resource to customize the value-added service of any given program (its electives) to the students. Is such a model feasible? Would it improve the overall quality of the degree

program?" (p. 7). Two decades later, the path for further study suggested by Alavi and Leidner (2001) remained mostly uncovered until the recent health crisis.

Due to the current COVID-19 pandemic, HEIs are witnessing substantial changes regarding educational delivery methods. So, most institutions have shifted their classes to online and hybrid formats (Carugati et al., 2020; Marinoni et al., 2020). Hybrid models of teaching vary in their scope and form. For example, a hybrid format may be based on online lectures and face-to-face discussions. Or it may incorporate multiple materials from online content as a complement to face-to-face classes (Alavi, 1994; Chingos et al., 2017). With the rise of COVID-19, another mode of hybrid teaching was introduced: a classroom that connected both on-site and online students during synchronous teaching (Bergdahl & Nouri, 2020).

The satisfaction level among different delivery methods, such as face-to-face, hybrid, and online delivery, is not a novel debate (Alavi et al., 1995; Alavi & Leidner, 2001; Sharda et al., 2004; Rueda et al., 2017). However, existing studies have investigated those three methods separately regarding faculty satisfaction and student satisfaction (Bolliger & Wasilik, 2009; Hu & Hui, 2012; Martirosyan, 2015; Stickney et al., 2019). Stickney et al. (2019), Bolliger and Wasilik (2009), Richardson (2012), and Jobu Babin et al. (2020) considered only online courses. Martirosyan (2015), Remedios & Lieberman (2008), and Guo et al. (2020) investigated solely face-to-face courses. And Bowen et al. (2014) restricted their studies to hybrid courses. Similarly, the IS literature investigated students' satisfaction only with face-to-face (e.g., Rueda et al., 2017) or online (e.g., Lu et al., 2013; Rodríguez-Ardura & Meseguer-Artola, 2016) delivery methods, but did not compare several delivery methods (Stickney et al., 2019). Furthermore, past IS empirical research has reported mixed results: positive (Alavi et al., 1995; Chiu et al., 2007; Chu & Robey, 2008), negative (Piccoli et al., 2001; Franceschi et al., 2009; Hu & Hui, 2012), or insignificant

(Alavi et al., 1995; Piccoli et al., 2001) impact of technology-mediated learning (TML; Alavi, 1994; Alavi & Leidner, 2001) on learning and satisfaction. Therefore, further study is required.

Therefore, we argue that the current literature is suffering from the following six deficiencies: (1) studies investigating the entire spectrum of the SPC model (Hogreve et al., 2017); (2) empirical studies of SPC in higher education (Hogreve et al., 2017); (3) joint studies of faculty satisfaction and student satisfaction (Stickney et al., 2019); (4) multi-faculty–multi-student investigations (Stickney et al., 2019); (5) multi-institutional studies (Bolliger & Wasilik, 2009); and (6) comparative studies of various class-delivery methods (Bolliger & Wasilik, 2009; Martirosyan, 2015; Stickney et al., 2019). To address these deficiencies, we propose the following research question: Does the comprehensive—multiple faculty members, students, institutions, and delivery methods—SPC model apply to HEIs?

Using seven validated constructs from the literature and nine control variables, our paper used structural equation modeling to conduct a cross-sectional study of a comprehensive SPC by testing seven hypotheses. More precisely, we independently surveyed 93 professors and 366 students from three regionally accredited schools offering graduate programs using different delivery methods between July 2013 and April 2014. Our results indicate that (1) faculty satisfaction does not relate with MBA program quality, (2) MBA program expectation positively relates with MBA program quality, (3) MBA program quality positively relates with MBA program value, (4) MBA program value positively relates with class satisfaction, (5) class satisfaction positively relates with MBA program loyalty, (6) MBA program loyalty positively relates with MBA program WOM, and (7) the delivery method moderates the positive effect, such that the effect is stronger when the delivery method is a face-to-face–hybrid rather than an online one.

We intend to first respond to Hogreve et al.'s (2017) call by investigating the comprehensive SPC model in HEIs because HEIs place a greater emphasis on satisfying their students (DeShields et al., 2005), as they are operating in an increasingly competitive global market, and HEIs recognize the importance of meeting students' expectations and needs (Aguinis et al., 2019; Dobija et al., 2019). Thus, we will further explore the outcomes of job satisfaction to complement the early study made by Thatcher et al. (2002). Second, we intend to investigate faculty satisfaction and student satisfaction to contribute to Stickney et al.'s (2019) research by conducting a robust study of multiple faculty members paired with multiple students. Furthermore, we plan to investigate several institutions, as advocated by Bolliger and Wasilik (2009). Third, we aim to contribute to the original SPC model (Heskett et al., 1994) by investigating the role WOM plays as an alternative to revenue growth and profits, as suggested by Hogreve et al. (2017). Fourth, we will compare delivery methods that strongly matter in HEIs, including face-to-face, hybrid, and online delivery methods, as suggested by Lakhal et al. (2014). Consequently, we will contribute to the TML stream of research in IS (Alavi & Leidner, 2001) by further exploring the hybrid delivery method, a blend between face-to-face (Rueda et al., 2017) and online teaching (Lu et al., 2013; Rodríguez-Ardura & Meseguer-Artola, 2016) by reporting the significant impacts of the delivery method on the SPC model.

2. Theoretical background

2.1. Service–profit chain model

This study investigates the comprehensive SPC model defined by Heskett et al. (1994, p. 1) as the following relationships:

> Profit and growth are stimulated primarily by customer loyalty. Loyalty is a direct result of customer satisfaction. Satisfaction is largely influenced by the value of services provided to customers. Value is created by satisfied, loyal, and productive employees. Employee

satisfaction, in turn, results primarily from high-quality support services and policies that enable employees to deliver results to customers.

Heskett et al. (1994) argued that satisfied employees create value because they are loyal and more productive and can, therefore, deliver excellent service and results to customers. Although the SPC model has served service firm practitioners for several decades, this model remains fragmented in the academic literature, and the empirical conclusions are ambiguous (Hogreve et al., 2017). Based on their empirical studies of individual companies, several researchers, such as Loveman (1998) and Silvestro and Cross (2000), only partially supported the comprehensive SPC model. And later studies by Homburg et al. (2009) and Kamakura et al. (2002) focused on fewer elements and only specific segments of the SPC, which generated mixed results. Moreover, some segments of the SPC model received substantial attention, but others were mostly ignored. This prompted Hogreve et al. (2017) to argue for the need for further studies considering the comprehensive SPC model.

Hogreve et al. (2017) also indicated that results across studies remain inconclusive. For example, Babin and Boles (1998) found a positive relation between employee satisfaction and employee retention within the SPC. However, they failed to support the relationship with the other remaining elements. Similar studies conducted by Loveman (1998) and Pritchard and Silvestro (2005) did not find a significant relationship between employee satisfaction and employee retention in the banking and retail industries. Additionally, Loveman (1998) did not find a positive relation between customer satisfaction and employee satisfaction, and no significant relation between growth in profitability and customer loyalty. Alternatively, Harter et al. (2002) and Schneider et al. (2005) found a weakly positive effect between employee satisfaction and revenue. Similarly, Chi and Gursoy (2009) noted a significant positive relation between customer satisfaction and financial performance. But employee satisfaction had an insignificant effect on customer satisfaction.

Other studies, such as those by Bernhardt et al. (2000) and Homburg et al. (2009), failed to find a significant positive relationship between employee satisfaction and financial performance, and Tornow and Wiley (1991) and Wiley (1991) concluded that their relationship is nonexistent. Similarly, based on a longitudinal study of a European retailer's 119 outlets, Evanschitzky et al. (2012) concluded that the outcome of employee satisfaction on financial performance is nearly nonexistent. More recently, Hogreve et al. (2017) also challenged the SPC's implicit rationale that firms should always maximize employee satisfaction to optimize firm performance and, consequently, argued an imperfect relationship between employee satisfaction, customer satisfaction, loyalty, and revenue growth.

2.2. Job satisfaction and students' satisfaction in the IS literature

Job satisfaction has been tackled by the IS literature (Joshi & Rai, 2000; Thatcher et al., 2002; Jung & Suh, 2019). For instance, Joshi and Rai (2000) studied the impact of information quality on job satisfaction. The results from their study of 368 users from organizations in the Midwestern United States indicate that the quality of information positively relates with job satisfaction. Similarly, and more recently, Jung and Suh (2019) argued that "there is still a lack of studies on identifying employees' job satisfaction factors" (p. 1). Then, they identified the factors affecting job satisfaction at different levels, including industry, company, and group levels. Their study on ten different industries notes that the education industry obtained the largest number of "cons" regarding the job satisfaction and lowest overall job satisfaction rate (Jung & Suh, 2019), which highlights the need for further research to better understand the impact of such job dissatisfaction in academia. In the IS literature, the only empirical study on job satisfaction outcomes was executed by Thatcher et al. (2002) on 191 IT workers. Their results indicate that job satisfaction impacts (1) organizational commitment, (2) turnover intent, and (3) turnover. While the predictors of job

satisfaction have mostly been studied in the IS literature (e.g., Joshi & Rai, 2000; Jung & Suh, 2019), the outcomes of job satisfaction have been studied less (e.g., Thatcher et al., 2002). Consequently, we aim to fill this research gap.

Student satisfaction has also been studied in the IS literature (Lu et al., 2013; Rodríguez-Ardura & Meseguer-Artola, 2016; Rueda et al., 2017). From their quantitative study on 94 Spanish students attending a 60-hour face-to-face management course, Rueda et al. (2017) argued that the use of technology in education, such as Moodle-based teaching platforms and emails, relates positively with students' engagement, learning performance, and satisfaction. Those relationships become amplified with the use of social media applications like Twitter. Investigating a different delivery method, Lu et al. (2013) studied 174 MBA students engaged in online learning. They argued that online learning enables the formation of social capital, which, in turn, impacts students' satisfaction. The authors argued that "Instructor–learner interactions through both public and private access to selected asynchronous and synchronous media in our study reveal that community membership, development of trust, sociability, and smoothing of communication are especially out-standing elements of social capital" (p. 516). Additionally, Rodríguez-Ardura & Meseguer-Artola (2016) studied online students' attitudes, intentions to continue, and actual continuance behavior. They collected data from 2,530 students of an open distance university to investigate the mechanisms explaining e-learning interactivity. Rodríguez-Ardura and Meseguer-Artola (2016) encourage further study on hybrid programs. Indeed, "further investigation is suggested to test the proposed model on other independent educative environments (purely online and blended)" (Rodríguez-Ardura & Meseguer-Artola, 2016, p. 512). From the empirical studies conducted by Lu et al. (2013), Rodríguez-Ardura and Meseguer-Artola (2016), and Rueda et al. (2017) in the IS literature on students' satisfaction, we identify two deficiencies: First, the absence of a study of the

hybrid delivery method, and second, the absence of comparison between different delivery methods. Our study will contribute to addressing those two deficiencies by anchoring our paper in the vital TML stream of research in the IS literature.

2.3. Technology-mediated learning

In her early paper, Maryam Alavi investigated computer-mediated collaborative learning in HEI to go beyond the lectures and class discussion and catalyze a collaborative learning process as well as students' learning (Alavi, 1994). Seven years later, in their seminal paper published in *MIS Quarterly*, Alavi and Leidner (2001) defined TML as "an environment in which the learner's interactions with learning materials (reading, assignment, exercises, etc.), peers, and/or instructors are mediated through advanced information technologies" (p. 2). Alavi and Leidner (2001) called for greater depth and breadth of research on TML. Specifically, they encouraged further studies on the impact of technology on learning.

Following such calls, numerous empirical studies have been conducted, frequently comparing TML with traditional teaching. Indeed, multiple forms of TML have been empirically investigated by the IS literature, such as desktop video conferencing in support of collaborative telelearning (Maryam Alavi et al., 1995), virtual learning (Piccoli et al., 2001), asynchronous learning networks (Coppola et al., 2002), virtual worlds (Franceschi et al., 2009), or online social networking (Lu et al., 2013; Rueda et al., 2017), among others.

For instance, Leidner and Jarvenpaa (1993) studied "how computer-based teaching differs from traditional teaching methods in terms of class interaction and in-class learning" (p. 24). Similarly, Piccoli et al. (2001) studied the effectiveness of learning in a virtual learning environment compared with a traditional classroom. More recently, Söllner et al. (2018) argued that "TML is a major trend in education since it allows to integrate the strengths of traditional- and IT-based

learning activities" (p. 233). The findings from their empirical study on 161 participants of TML vocational software training programs highlighted the value of the TML process quality aspects. The authors acknowledge that they used the same questionnaire to measure the dependent and independent variables, which can create common method variances. They encourage further studies to better dissociate dependent and independent variables in the research design. We aimed to address this call for further study in our research design.

Most of the existing IS literature investigates the role of technology on individual learning (Leidner & Jarvenpaa, 1995; Arbaugh & Benbunan-Fich, 2007; Filippou et al., 2016). Considering the results from those IS empirical studies, it appears unclear whether TML catalyzes the learning and satisfaction of students. Some authors mention some positive impacts (Alavi et al., 1995; Chiu et al., 2007; Chu & Robey, 2008), negative impacts (Piccoli et al., 2001; Franceschi et al., 2009; Hu & Hui, 2012), or no significant difference (Alavi et al., 1995; Piccoli et al., 2001).

Initially, Alavi et al. (1995) compared three environments: distant collaborative telelearning, local collaborative telelearning, and face-to-face learning. The authors argued that the MBA students were equally satisfied across those different environments. However, they argued that MBA students attending distant desktop video conferencing were more critical thinkers and more committed to their groups. Additionally, Chiu et al. (2007) studied the students' satisfaction with the use of web-based learning. From their empirical study on 289 learners from web-based learning services, Chiu et al. (2007) argued that information quality, system quality, system use, distributive fairness, and interactional fairness have a positive impact on satisfaction. They also confirmed the relation between satisfaction and web-based learning continuance intention. Moreover, Chu and Robey (2008) revealed in their study of the adoption and implementation of online learning, that

"offline learning was more apt to be situated in practice rather than consumed in the classroom" (p. 95).

Alternatively, Piccoli et al. (2001) argued that no significant difference in learning exists between a virtual learning environment and a traditional classroom. Additionally, they argued that students are less satisfied with virtual learning than traditional learning. Similarly, Franceschi et al. (2009) mentioned the shortcomings of e-learning technologies, considered a "poor support for group-oriented learning" (p. 74). Furthermore, Hu and Hui (2012) also studied the impact of TML on learning and satisfaction. The findings from their study on 212 university students learning Adobe Photoshop indicated that "the use of preprogrammed video contents to deliver learning materials negatively affects learning engagement, which in turn reduces perceived learning effectiveness and satisfaction." (p. 782). Consequently, the current IS literature calls for further research on the debate about the positive, negative, or insignificant impact of technology on learning.

3. Hypotheses development

The study of satisfaction in academia has become increasingly critical regarding institutional, cultural, and social changes occurring in HEIs (Webber, 2019). Consequently, faculty satisfaction has been recognized as one of the five pillars of quality online education in the Online Learning Consortium's (2017) quality framework. Two decades earlier, Heskett et al. (1997) had already suggested higher levels of employee satisfaction result in better service, and employees who benefit from resources and support are more likely to provide excellent service. Recent studies have also suggested that faculty satisfaction and course quality relate positively (Bolliger & Wasilik, 2009; Weerasinghe et al., 2017; Stickney et al., 2019).

HEIs fear that faculty dissatisfaction could lead to lower program quality. For instance, Bexley et al. (2013) highlighted how increasing academic work stress relates to pressure to publish, staff reduction, the increased use of part-time contractors, and intensified competition between HEIs. These lead to a drop in faculty satisfaction, which may result in decreased work performance (Shin & Jung, 2014) and course quality. Additionally, such dissatisfaction may also cause reduced individual productivity affecting the entire organization through lower quality courses, academic work, and student–faculty relationships (Dobija et al., 2019).

Marasi et al. (2020) studied faculty satisfaction in online teaching in 26 US HEI in different states. Their results indicate that faculty are satisfied with online teaching. Conversely, Jensen et al. (2020) studied faculty satisfaction with both face-to-face and online delivery methods. From their qualitative exploration of 15 teachers from six Swedish universities, they argue that student–teacher relationships change according to the delivery method and influence student engagement and motivation. Based on this understanding, we offer the following hypotheses:

Hypothesis 1: Faculty satisfaction positively relates with MBA program quality.

Parasuraman et al. (1985) initially defined customers' expectations as "desires or wants of consumers, i.e., what they feel a service provider should offer rather than would offer" (p. 43). Adding to that, Yi (1990) argued that high expectations might lead to a higher evaluation of the service, pushing companies to raise expectations. Zeithaml and Bitner (1996) suggested that customer expectations refer to the pre-existing beliefs about a given service, which often constitute a reference point against performance evaluations. Such phenomenon has been documented by Oliver (1997), who argued expectations may also positively affect perceived quality because "expectations may have already predisposed the consumer to respond to the product in a certain way" (p. 89). Thus, the higher the expectation, the higher the perceived quality. To illustrate that,

Mostaghimi et al.'s (2017) study, conducted in Iran, found that customers' expectations have a positive impact on customers' quality evaluations. However, limitations to this mechanism exist, such as rising expectations regarding service quality, which may create negative evaluations (Yüksel & Yüksel, 2001). In the HEI context, program expectations and program quality received little attention and were restricted to investigate the expectation-quality gap (Yeo & Marquardt, 2011). Consequently, Sultan and Yin Wong (2010) called for further research on "the role of importance, expectation, and performance on service quality in higher education" (p. 268). That call is investigated here with Hypothesis 2.

Hypothesis 2: MBA program expectations positively relate with MBA program quality.

Following the SPC model, Hogreve et al. (2017) discussed the relationship between external service quality and perceived value. Kuo et al. (2009) defined a customer's perceived value from the perspective of money, benefit, and quality. From a monetary standpoint, value is generated when people pay less for goods and services, creating a difference between the highest price consumers are willing to pay and the amount actually paid. Besides the money aspect, the benefit perspective includes non-monetary aspects, such as time, psychological, and transaction cost (Zeithaml, 1988; Cronin et al., 2000). Existing studies are consistent and suggest that service quality positively influences perceived value (Turel & Serenko, 2006; Kuo et al., 2009). This relationship is significant and positive across different industries and sectors, including banking (Hsu et al., 2006), telecommunications (Turel & Serenko, 2006), and tourism (Wang et al., 2009). Similarly, within the higher education context, existing studies support the existence of a relationship between the program's quality and perceived value. For instance, Dlacic et al. (2014) found a positive relationship between quality and perceived value in a study based on 735 respondents. Consequently, we propose Hypothesis 3 based on these findings.

Hypothesis 3: MBA program quality positively relates with perceived MBA program value.

There is a close relationship between individuals' value judgments of a product or service and their overall experience of satisfaction (Grimmelikhuijsen & Porumbescu, 2017). This notion arises from the adaptation level theory by Harry Helson (1948), which proposed that subjective judgments are relative to the prevailing norm (or adaptation level). Thus, the phenomenon is a type of contextual effect. Recent studies often refer to adaptation level theory in the context of employment satisfaction (Ritter et al., 2016) and work engagement (Sun et al., 2021).

Based on this theory, Oliver (1980) argued satisfaction depends on the function of an adaptation level component or expectations and the perception of disconfirmation. The disconfirmation degree is often analyzed by comparing performance with expectations. This comparison serves as a point of reference to facilitate a comparative conclusion or judgment. When the product's performance significantly exceeds the expected service, a positive disconfirmation occurs. If product performance does not meet expectations, a negative disconfirmation occurs (Oliver, 1980; Grimmelikhuijsen, & Porumbescu, 2017).

Oliver (1993) argued a customer's feeling of fulfillment involves both cognitive and affective components: the customer's cognitive experience of having met or unmet expectations leads to an affective experience of satisfaction or dissatisfaction. Hogreve et al. (2017) argued that within the SPC model, the maximization of perceived value implies an increase in customer satisfaction. Studies in e-commerce (Yang & Peterson, 2004) and telecom (Kuo et al., 2009; Wang et al., 2004) have confirmed the existence of a positive relationship between perceived value and customer satisfaction. However, the value–satisfaction relationship has not been studied concerning HEIs; existing studies are limited to the study of students' satisfaction and dissatisfaction (Douglas et al., 2015) related to the role the lecturer plays in the educational experience (Kuh, 2001). More

precisely, the course content quality, the faculty feedback quality, and the student–faculty and student–student relationship were found to be vital elements of student satisfaction (Kuh & Hu, 2001; Arbaugh & Benbunan-Fich, 2007; Chiu et al., 2007; Remedios & Lieberman, 2008; García-Aracil, 2009; Hu & Hui, 2012; Sojkin et al., 2012; Lu et al., 2013). However, we lack empirical support regarding HEIs, which leads to Hypothesis 4.

Hypothesis 4: MBA program value positively relates with class satisfaction.

The SPC model implies that customer satisfaction, which is dependent on the perception of external service quality (Heskett et al., 1994), primarily leads to customer loyalty. The concept of loyalty, which has evolved over the years, is one consumer behavior concept resulting from satisfaction. However, loyalty is not only a behavioral dimension associated with repurchase (Caruana, 2002) but also incorporates the cognitive dimension (Caruana, 2002), which reflects emotional and psychological attachment (Dlacic et al., 2014). Zeithaml and Bitner (1996) argued that consumers with a higher level of satisfaction tend to have a stronger repurchase intention and emotional attachment and develop loyalty towards a service. In contrast, other scholars have argued customer loyalty can be enhanced by customer dependence and identification (Cronin et al., 2000; Scheer et al., 2015). But loyalty is not necessarily dependent on satisfaction, as Heskett et al. (1994) have suggested. For instance, Homburg et al. (2009) found customers' identification with a company has a greater effect on loyalty than on satisfaction. In the HEI context, Dlacic et al. (2014) conducted a study on 735 students from universities in Bosnia and Herzegovina and Croatia and found a significant and positive impact of class satisfaction on program loyalty and repurchase intention. Similarly, Li (2013) found a positive relation between student satisfaction and student loyalty. Consequently, this leads to Hypothesis 5.

Hypothesis 5: Class satisfaction positively relates with MBA program loyalty.

Within the SPC model, Heskett et al. (1994) considered revenue growth and profit as the last element. However, past studies failed to support the association of loyalty with revenue growth and profit (Wiley, 1991; Loveman, 1998; Bernhardt et al., 2000; Homburg et al., 2009; Evanschitzky et al., 2012). Furthermore, firm profitability and revenue are not overly relevant in HEIs because they are frequently supported by the state (Mizrahi, 2020). So, an HEI's purpose is not usually to generate income and make profits. Rather, they exist to promote excellence in teaching and research (Dobija et al., 2019).

Following Hogreve et al. (2017), we argue other outcomes, such as WOM, could be considered replacements for firm profitability and revenue and would be more meaningful in the HEI empirical setting. In line with Oliver (1997), we assume customer satisfaction, which includes cognitive and emotional factors, leads to positive recommendations. Furthermore, Athanassopoulos et al. (2001) studied the impact of customer satisfaction on future behaviors and concluded that satisfied customers affect not only the decision to stay with the brand (and, thus, increase the revenue as within the SPC), but also engage in communication about the brand, including WOM. Additionally, WOM is a good substitute because it strongly influences customer choice, which may increase market share (Casaló et al., 2008). WOM conveys people's perceptions, feedbacks, and opinions (Helm, 2000) and is considered a key medium for transmitting customer satisfaction from past or current customers to potential customers (Brown et al., 2007). Consequently, WOM was found to be particularly important for service providers because their offers are intangible and often do not lead to repurchase (Ng et al., 2011).

Richins (2001) argued loyalty is a key component of WOM because loyal customers are more likely to make recommendations. Thus, loyal customers encourage other customers to purchase products and services through positive WOM. Johnston (2010) argued that WOM is of particular

importance in HEI because assessing the quality of the service through repurchase is hazardous. Thus, according to Mazzarol and Soutar (2002), WOM is extremely powerful because HEI applicants are greatly influenced by advice from friends and family members. In the context of higher education, studies show loyal students tend to engage in positive WOM (Li, 2012; Dlacic et al., 2014). This was supported by Li (2012), who found a positive relationship between loyalty and the WOM of students in Taiwanese private HEIs. This leads to the following hypothesis.

Hypothesis 6: MBA program loyalty positively relates with MBA program WOM.

Studies on the importance of the educational delivery method employed on faculty satisfaction, student satisfaction, and perceived course quality remain inconclusive. Stickney et al. (2019) argued no extant studies have compared faculty satisfaction and student satisfaction when using online, hybrid, and face-to-face course delivery methods. However, a delivery method's success for satisfaction can depend on different elements. In a face-to-face method, institutional factors are crucial to student satisfaction (Appleton-Knapp & Krentler, 2006). In blended-learning studies, the essential determinant of student satisfaction relates to face-to-face activities and textbook quality (Popa & Bochis, 2015). In an online delivery method, student satisfaction depends on the student's relationship with the faculty and other students (Marks et al., 2005; Arbaugh & Benbunan-Fich, 2007; Hu & Hui, 2012; Lu et al., 2013; Fillipou et al., 2016) as well as the interactivity of the course (Rodriguez-Ardura & Meseguer- Artola, 2016) and students' efficacy with IT tools (Leidner & Jarvenpaa, 1995; Piccoli et al., 2001).

In a face-to-face method, institutional factors are crucial to student satisfaction (Appleton-Knapp & Krentler, 2006). In blended-learning studies, the essential determinant of student satisfaction relates to face-to-face activities and textbook quality (Popa & Bochis, 2015).

In an online delivery method, student satisfaction depends on the student's relationship with the faculty and other students (Marks et al., 2005; Arbaugh & Benbunan-Fich, 2007; Hu & Hui, 2012; Lu et al., 2013; Fillipou et al., 2016; Eom & Ashill, 2016), as well as the interactivity of the course (Rodriguez-Ardura & Meseguer- Artola, 2016) and students efficacy with IT tools (Leidner & Jarvenpaa, 1995; Piccoli et al., 2001). The existence of the social capital in learner–learner and learner–instructor interaction is crucial in online learning, which is enhanced by a study by Lu et al. (2013) on the use of asynchronous and synchronous media (Bargeron et al., 2002) and social media (Lu et al., 2013; Rueda et al., 2017).

Vos & Page (2020) studied the teaching role of UK business schools and the current challenges. They argued that business schools should play a new role: "edutainment" (p. 75), aimed at providing teaching focus while simultaneously entertaining to best satisfy the students. Such an objective highly depends on "the willingness and ability of educators to develop their teaching practice and to take risks in terms of innovation in teaching" (p. 75), including the development of the hybrid delivery method, flipped classrooms, and capture lectures, among others (Joseph-Richard et al., 2018). Unlike Vos & Page (2020), Fillipou et al. (2016) argue that to increase student satisfaction, learning environments should be "as engaging as possible, yet not to the point that they are distracting" (p. 900), which may be dependent on the delivery mode (Hu & Hui, 2012; Zacharis, 2015).

Although some scholars have argued no significant differences exist across delivery methods (Alavi et al., 1995; Grandzol, 2004; Friday et al., 2006; Lakhal et al., 2014), others have found that substantial differences exist (Hay et al., 2004; Means et al., 2010; Bowen et al., 2014; Chingos et al., 2017). First, Grandzol (2004) and Friday et al. (2006) observed no significant evidence that satisfaction differs between online and face-to-face delivery methods. Similarly, Lakhal et al.

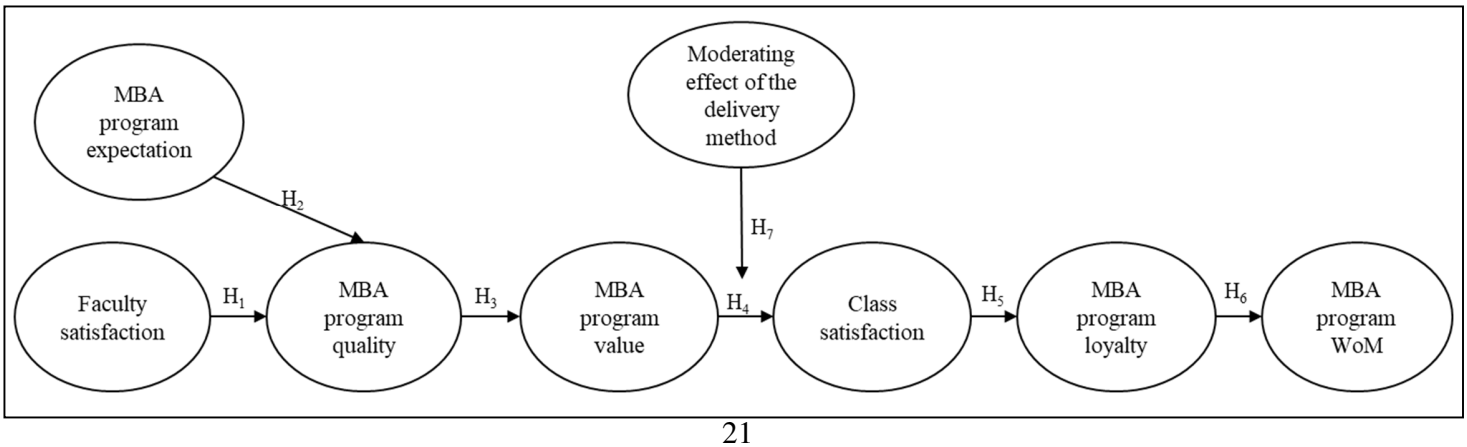
(2014) surveyed 376 students and discovered no significant differences between student's satisfaction across delivery methods. However, they called for more research. Second, Chingos et al. (2017) and Bowen et al. (2014) concluded that students are more satisfied with face-to-face than hybrid delivery methods. However, Means et al. (2010) determined that students who took hybrid classes were more satisfied and performed better than students who took traditional face-to-face courses. Although Alavi et al. (1995) did not find any significant differences between the student's knowledge acquisition or satisfaction between the online, face-to-face, and hybrid courses, their study suggests that online course students gained higher critical-thinking skills than other students. Similarly, studies indicate that interactivity elicited by e-learning unleashed imagery resulted in greater "flow" (Rodriguez- Ardura & Meseguer- Artola, 2016, p. 512).

Still, Popa and Bochis (2015) have argued face-to-face and hybrid courses are linked. Therefore, we will consider the hybrid method a supplement to the existing face-to-face method, which significantly differs from fully online teaching methods. Consequently, we propose Hypothesis 7.

Hypothesis 7: The delivery method moderates the positive effect of all hypotheses, such that the effect is stronger when the delivery mode is a face-to-face–hybrid rather than online.

Based on the previous hypotheses, the development of the SPC model in the specific context of HEIs, we propose the following model (Figure 1):

Figure 1: Research model



4. Research methodology

4.1. Questionnaire development

The questionnaire was developed through a multistage process following Churchill (1979), Anderson and Gerbing (1988), Hazan and Shaver (1994), and Hazan and Zeifman (1999). More specifically, we followed a ten-step procedure: (1) conduct preliminary interviews with seven HEI experts; (2) find seven validated constructs in the literature; (3) generate the sample of items; (4) present the draft questionnaire to another three experts in the field of marketing and HEIs; (5) collect data regarding the pre-test base on 42 responses; (6) purify the constructs with the use of Cronbach's alpha and factor analysis; (7) collect the main data set; (8) assess reliability with the use of Cronbach's alpha and factor analysis; (9) assess the validity (content validity, construct validity, convergent validity, discriminant validity, and measurement model validity); and (10) proceed with the statistical analysis and the test of our hypotheses in our confirmatory analysis.

4.2. Measurements

Two separate electronic surveys were distributed to the professors and students of the same class. We aimed to measure the independent variables by the professors and the dependent variables by the students within a comprehensive SPC. The list of constructs and their descriptions are presented in Table 1.

Table 1: Study constructs

Construct/Subconstructs	Description	Representative Literature
Faculty satisfaction: 6 subconstructs: work on present job (5 items), pay (6 items), opportunities for promotion (6 items), supervision (6 items), people in present job (6 items), and job in general (8 items). Yes (1), No (2), I cannot decide (3)	Smith et al. (1969) initially developed the job descriptive index (JDI), then, it was completed by the measurement of job in general (JIG). Stanton et al. (2002) developed the abridged Job Descriptive Index (aJDI) and JIG	Balzer et al., (2000); Kinicki et al., (2002); Stanton et al., (2002)
MBA program expectation: 2 items (5-point Likert scale)	This construct is based on the disconfirmation paradigm from Oliver (1997, 1993) and another research study (Parasuraman, Zeithaml, & Berry, 1988; Westbrook & Oliver, 1981).	Churchill & Surprenant (1982); Oliver & DeSarbo (1988); Zeithaml et al., (1990); Zeithaml et al., (1993); Fornell et al., (1996); Serenko (2011)
MBA program quality: 5 sub-constructs: MBA program empathy (7 items), MBA program assurance (9 items), MBA program responsiveness (6 items), MBA program reliability (5 items), and MBA program tangibles (5 items). (5-point Likert scale)	SERVQUAL is a service quality measurement tool developed by Parasuraman et al. (1988). It is used to appraise customer desires and opinions on the quality of service in the retail and service industries.	Parasuraman et al. (1985); Parasuraman et al. (1988); Zeithaml (1988); Zeithaml et al. (1990); Cronin, and Taylor (1992); Zeithaml et al., (1993); Silvestro & Cross (2000); Kara & Deshields (2004); Stodnick & Rogers (2008); Lonial et al., (2010); Udo et al., (2011)
MBA program value: 3 items (5-point Likert scale)	Customers seek value for their money and, hence, seek excellent service. External service comprises monetary and non-monetary factors (Zeithaml, 1988; Woodruff, 1997).	Stodnick & Rogers (2008).
Class satisfaction: 2 items (5-point Likert scale)	Customers decide if they are satisfied or dissatisfied. When services or products meet or exceed the customer's expectations, customer satisfaction is achieved (Oliver, 1980, 1993, 1997; Oliver & DeSarbo, 1988; Westbrook & Oliver, 1981).	Kara & Deshields (2004); Serenko (2011)
MBA program loyalty: 3 items (5-point Likert scale)	This construct is based on the scale of perceived loyalty (Reichheld, 1993; Heskett et al., 1994, 1997; Fornell et al., 1996).	Fornell et al., (1996); Oliver (1997); Reichheld et al., (2000); Serenko (2011)
MBA program WOM: 3 items (5-point Likert scale)	WOM is a key medium for transmitting customer satisfaction from past or current customers to future potential customers (Tax et al., 1998; Helm, 2000).	Brown & Broderick (2007); Cheema & Kaikati (2010); Serenko (2011)

Our study used a perceptual measurement based on the points of view of faculty members and students. The chosen unit of analysis was individuals' perceptions based on opinions and feelings. The subjective measurement allowed rational comparisons between firms of different sizes, resources, and market environments. Subjective performance correlates highly with respective objective performance indicators (Dess & Robinson, 1984). We used nine control variables: professor's gender; professor's age; professor's teaching experience; professor's tenure status; professor's tenure track; professor's perceived academic preparation of the students enrolled in the MBA courses; professor's course size; student's gender; and student's age.

4.3. Data collection

A pretest was performed in February and March 2012 and yielded 12 responses from faculty and 42 responses from students from different universities offering Master's programs in business administration using three delivery methods (face-to-face, online, and hybrid). The results of the pilot study were satisfactory regarding the scale's reliability.

We aimed to survey regionally accredited schools offering graduate programs using different delivery methods. We identified six schools that met our criteria. Of those, two schools refused. One school initially accepted and then could not proceed with the data collection. Consequently, three schools participated in the data collection. Each of the participating schools delivered its program through different methods: face-to-face (School A), hybrid (School B), and online (School C).

The names of the schools will remain anonymized to comply with the signed school confidentiality agreements. School A is a private liberal arts university located in southern California. It offers graduate business education (MBA) instruction using a traditional format (WASC accredited). School B is a public university located in Tennessee. It provides executive

education programs employing a combined mixed-method face-to-face and online delivery program (SACS and AACSB accredited). School C is a not-for-profit university located in Florida. It provides graduate education in business (MBA) through an online delivery format (SACS and ACBSP accredited).

MBA-specific programs have been investigated in the IS literature, for instance, regarding the use of distant desktop video conferencing (Alavi et al., 1995), the development of knowledge-based systems (Lee & O'Keefe, 1996), the participants' interaction in online environments (Arbaugh & Benbunan-Fich, 2007), and the development of online social capital (Lu et al., 2013). From the study of 40 online MBA courses, Arbaugh and Benbunan-Fich (2007) argued that "while collaborative environments were associated with higher levels of learner–learner and learner–system interaction, only learner–instructor and learner–system interaction were significantly associated with increased perceived learning." (p. 853). The link between a faculty member and student is a salient aspect of learning in an online MBA program.

To conduct data collection within American universities, a formal agreement is necessary. We underwent an extensive review process assessed by each school's internal review board (IRB) system to ensure the protection of individuals' privacy and respect of ethical standards. In this process, the documents required were a recommendation letter from the paper's lead author's research institution and evidence of the researchers' capabilities. For example, School A required the researchers to obtain a certificate of completion of the course entitled "Protecting Human Research Participants" from the National Institutes of Health's (NIH) Office of Extramural Research. Additionally, School B required the researchers to earn a certificate from the Collaborative Institutional Training Initiative (CITI) Program entitled "Protecting Human Subjects While Doing Business Research." These certificates required taking and passing classes on (a)

students in business research, (b) history and ethical principles, (c) defining research with human subjects, (d) the regulations and the social and behavioral sciences, (e) assessing risk in social and behavioral sciences, (f) informed consent, (g) privacy and confidentiality, and (h) internet research.

The entire study was conducted between July 2013 and April 2014. We acknowledge that our data were collected 7 years ago. As argued by Allen and Seaman (2017), Lederman (2019), and Ashour (2020) in recent studies, the proportion of face-to-face, hybrid, and online delivery methods slightly increases over time, suggesting that our findings are still meaningful today. Indeed, while distance learning represented 13.9% in 2014, it grew to 17.6% in 2019. In 2014, 14.2% of students attended some distance learning courses, and in 2019, this number grew to 19.7%. (Statista, 2021). Franceschi et al. (2009) argued, "Imagine that a time machine were to bring an observer from the 19th century to our time. If this person would visit a hospital, things would be entirely different. However, a visit to the average university would probably be more familiar. The physical classroom has not changed much." (p. 96). Those numbers and the arguments made by scholars indicate that the context remained stable during the past decade.

Data for School A were collected between February and April 2014, for School B, between July and October 2013, and School C, in September 2013. With the support of those three participating schools, the questionnaires were sent via email to faculty members and students: 105 e-mails were sent to faculty members and 1,156 e-mails were sent to students. Over the data collection period, three reminders were sent by the participating schools.

Within the e-mail, a survey link was provided using Qualtrics. Due to each school's IRB's requirements, a consent form to be signed was included as the first item on both surveys. Only respondents providing consent could proceed with the questionnaire. The response rate was 31.6% with 366 student respondents and 88.6% (a high rate) with 93 professor respondents (see Table 2

for the sample description). The professors' responses (filling the independent variables) and the students' responses (filling the dependent variables) were matched using the course-/class-specific code.

5. Empirical analysis

5.1. Descriptive statistics

Seven higher education experts and three marketing experts judged content validity. All the academic experts agreed the measurement scales were appropriate for measuring constructs. Then, content validity was assessed and confirmed by referring to the literature (Babbie, 2001), including *Journal of Marketing*, *Journal of Service Research*, and *Marketing Science*, which confirmed all the measurement scales are widely used. Finally, reliability tests assessed the content validity (Zwick, 1988; Rust & Cooil, 1994).

Using Cronbach's alpha, the seven constructs' reliability was examined. Twenty-two items were deleted during the scale purification. Afterward, Cronbach's alpha was greater than 0.70 (Nunnally & Bernstein, 1994) for all factors, which indicates an acceptable consistency of the measurement items (Nunnally, 1978). All the study items converge by sharing a high proportion of common variance. Based on correlation and factor loadings, we assessed the convergent validity.

Skewness and kurtosis tests were performed and assessed the normal distribution of our data. Based on the bivariate correlation and variance inflation factor (VIF), we assessed the absence of multicollinearity in our data collection. Table 3 presents the means, standard deviations, and correlation.

Table 2: Sample description

		Professors n = 93		Students n = 366	
Dimension	Items	Frequency	Percentage	Frequency	Percentage
Age		Mean = 51.72		Mean = 38.45	
		Std. Dev. = 9.87		Std. Dev. = 8.80	
Gender	Female	33	36.30	194	53.00
	Male	58	63.70	172	47.00
University	University A	33	36.30	70	19.10
	University B	29	31.90	76	20.80
	University C	29	31.90	220	60.10
Delivery method	Face-to-face and Hybrid	62	68.10	146	39.90
	Online	29	31.90	220	60.10
Tenure status	Tenured	26	28.60		
	Non-Tenured	65	71.40		
Course preparation	Below college level	1	1.20		
	Slightly below college level	4	4.80		
	College level	31	37.3		
	Slightly above college level	35	42.2		
	Above college level	12	14.50		
Teaching experience	1–5 years	11	12.40		
	6–10 years	20	22.50		
	11–15 years	20	22.50		
	16–20 years	16	18.00		
	21–25 years	5	5.60		
	26–30 years	15	16.90		
	More than 30 years	2	2.20		
Largest enrollment	1–30 students	47	56.60		
	31–60 students	10	12.00		
	61–90 students	6	7.20		
	91–120 students	7	8.40		
	121–150 students	6	7.20		
	151–180 students	0	0.00		
	181–200 students	1	1.20		
	>200 students	6	7.20		

Table 3: Means, standard deviations, and correlations

	Mean	Standard deviation	1	2	3	4	5	6
1. Faculty satisfaction	1.703	1.09						
2. MBA program expectation	4.360	0.820	ns					
3. MBA program quality	4.122	0.803	ns	0.364***				
4. MBA program value	3.735	1.022	ns	0.401***	0.639***			
5. Class satisfaction	4.290	0.894	ns	0.287***	0.803***	0.57***		
6. MBA program loyalty	4.145	0.920	ns	0.341***	0.787***	0.746***	0.788***	
7. MBA program WOM	4.207	0.836	ns	0.349***	0.795***	0.672***	0.765***	0.891***

***Correlation is significant at the 0.001 level (two-tailed)
ns: Correlation is not significant
N=366

5.2. Confirmatory factor analysis

The confirmatory factor analysis (CFA; see Table 4) of the measurement model showed an acceptable fit (CMIN/df = 3.585, CFI = 0.833, IFI = 0.834, RMSEA = 0.084). The results of the measurement model were favorable in that all items loaded significantly on their appropriate factor. All standardized factor loadings were over 0.5 and highly significant at p-value < 0.001, which indicates good convergent validity among the instruments of each construct (Bagozzi & Yi, 1988).

Cronbach's alpha and composite reliability (CR) facilitate assessing the construct measures' reliability (Benitez et al., 2020). CRs of all constructs are greater than the 0.60 threshold (Bagozzi & Yi, 1988), which ensures the reliability of our constructs. In our data, the CRs range from 0.812 to 0.977, which ensures reliability. In our study, the standardized loadings are above 0.5 and significant. The results of the measurement model were favorable in that all items loaded significantly on their appropriate factor.

Fornell and Larcker (1981) argued that if the average variance extracted (AVE) is greater than 0.50 of the total variance, convergent validity is established; this is our case. To assess the discriminant validity, the Fornell and Larcker (1981) criterion compare the square root of the constructs' AVEs with the construct correlations. This analysis shows that across all model setups and constructs, each latent variable shares more variance with its own block of indicators than another latent variable representing a different block of indicators. The measurement model showed acceptable discriminant validity for all constructs. Considering the CFA results, we assessed validity and reliability based on Fornell and Larcker's (1981) recommendations.

Table 4: Results from the confirmatory factor analysis

Construct items	Factor loadings	AVE	CR	Cronbach's alpha
Faculty Satisfaction		0.812	0.525	
Faculty_Work	0.855			0.910
How well does "Fascinating" describe your work?	0.971			
How well does "Exciting" describe your work?	0.861			
Faculty_Pay	0.534			0.830
How well does "Well-paid" describe your present pay?	0.706			
How well does "Comfortable" describe your present pay?	0.878			
How well does "Enough to live on" describe your present pay?	0.798			
Faculty_Promotion	0.76			0.941
How well does "Good opportunities for promotion" describe the opportunities for promotion?	0.918			
How well does "Good chance of promotion" describe the opportunities for promotion?	0.995			
How well does "Regular promotions" describe the opportunities for promotion?	0.836			
Faculty_Supervision	0.713			0.866
How well does "Praises good work" describe supervision?	0.59			
How well does "Tactful" describe supervision?	0.705			
How well does "Influential" describe supervision?	0.86			
How well does "Up-to-date" describe supervision?	0.73			
How well does "Knows job well" describe supervision?	0.805			
MBA_Program_Expectation		0.977	0.955	0.976
Prior to enrolling in the MBA program at ___, my expectation of the program's quality was high	0.991			
Prior to enrolling, my overall expectation for the MBA program at ___ was high	0.963			
MBA_Program_Value		0.840	0.724	0.838

The cost of tuition for the MBA program at _____ is fair, given the quality of the program itself.	0.834			
I am getting my money's worth by taking classes at the MBA program at _____.	0.867			
Class_Satisfaction		0.931	0.871	0.930
I am satisfied with the professor's performance.	0.905			
Overall, I am satisfied with the quality of the class.	0.961			
MBA_Program_Loyalty		0.916	0.846	0.909
If I could go back in time, I would choose to enroll in the MBA program at _____ again.	0.869			
I made the right choice by enrolling in the MBA program at _____.	0.968			
MBA_Program_WOM		0.947	0.858	0.945
In conversations with others, I typically talk positively about the MBA program at____	0.874			
I would recommend the MBA program at___ to potential applicants who seek my advice.	0.963			
I would encourage potential applicants to apply to the MBA program at_____.	0.939			
MBA_Program_Quality		0.967	0.856	
MBA_Program_Empathy	0.919			0.924
The faculty often seems concerned about my learning.	0.682			
I usually feel comfortable in my interactions with the faculty.	0.859			
The faculty has the student's best interest in mind.	0.901			
The faculty usually understands the student's needs.	0.902			
The faculty instills confidence in me.	0.869			
When I have a problem, the school staff usually shows a sincere interest in solving it.	0.707			
MBA_Program_Assurance	0.955			0.924
The faculty is knowledgeable with regard to current issues in his/her discipline.	0.675			
The faculty's grading policies are fair.	0.721			
The faculty usually has the knowledge to answer student questions effectively.	0.812			
When the faculty promises to do something by a certain time, they usually do it.	0.757			
The MBA classes at _____ provide "real-world" experience.	0.761			
Most of my courses are intellectually stimulating.	0.837			
I usually learn a lot in classes in the MBA program at _____.	0.82			
The school's staff usually has the knowledge to answer students' questions effectively.	0.826			
The school maintains accurate records.	0.668			
MBA_Program_Responsiveness	0.938			0.932
The faculty efficiently responds to student needs.	0.876			
The faculty is usually accessible to me.	0.794			
The faculty usually gives me adequate feedback about my performance.	0.825			

The faculty usually provides comments to help me improve my work.	0.807			
I feel that the faculty has my best interests at heart.	0.916			
The school as a whole responds to student-raised concerns.	0.808			
MBA_Program_Reliability	0.954			0.896
I can rely on the school's promises.	0.86			
The school understands my requests from the beginning.	0.837			
School information is error-free.	0.681			
The faculty consistently provides good lectures.	0.791			
The faculty is dependable.	0.853			
MBA_Program_Tangibles	0.856			0.839
The school facilities are up-to-date.	0.582			
The online platform is up-to-date.	0.686			
The physical environment of the classroom aids in learning.	0.502			
The school provides additional resources.	0.84			
The school website is accurate in content (regarding the MBA program at _____).	0.832			
CMIN/df = 3.585, CFI = 0.833, IFI = 0.827, RMSEA = 0.084; AVE = average variance extracted; CR = composite reliability				

5.4. Structural equation modeling

In our structural equation models, we simplified the *faculty satisfaction* and *MBA program quality* by replacing the subconstructs with the average of the constituting items. Consequently, faculty satisfaction is composed of four items: work, pay, promotion, and supervision. MBA program quality includes five items: empathy, assurance, responsiveness, reliability, and tangibles. In Model 1, we include the two delivery methods: (a) face-to-face and (b) hybrid and online (see Table 5). Model 1 is overidentified (492 degrees of freedom). The chi-square value is 2,010,230 with a probability level equal to 0.000. This model identification is coherent for two reasons: (1) each observed variable in the model measures only one latent factor and (2) there is one observed variable per factor fixed to 1.

We assessed the measurement model validity. The overall model fit was acceptable (X^2/df = 4.086, CFI = 0.897, IFI = 0.897, RMSEA = 0.065). CMIN/DF is acceptable because it should be below 5 and preferably below 3 (Hu & Bentler, 1999). All standardized factor loadings were over 0.5 and highly significant at p-value < 0.001, which indicates good convergent validity among the

instruments of each construct (Bagozzi & Yi, 1988). Because our model's fit is acceptable, we analyzed the maximum likelihood of estimates, checked the feasibility of parameter estimates, and verified the appropriateness of standard errors to reflect the precision of the estimation of the parameter.

Our analysis led to the following determinations. We do not validate Hypothesis 1. Faculty satisfaction does not significantly relate with MBA program quality, although the relationship tends to be weakly significant for the face-to-face–hybrid delivery method (0.156^{*}). We validate that Hypothesis 2: MBA program expectation positively relates with MBA program quality (0.376^{***}). We validate Hypothesis 3: MBA program quality positively relates with MBA program value (0.897^{***}). We validate Hypothesis 4: MBA program value is positively related with class satisfaction (0.895^{***}). We validate Hypothesis 5: class satisfaction positively relates with MBA program loyalty (0.895^{***}). We validate Hypothesis 6: MBA program loyalty positively relates with MBA program WOM (0.901^{***}).

In Model 2, we added the control variables. We controlled for the effects of professor gender (1: male; 2: female); professor age, professor teaching experience (1–5; 6–10; 11–15; 16–20; 21–25; 26–30; over 30), professor tenure status (1: tenured; 2: non-tenured), professor tenure track (0: tenured; 1: tenure track; 2: non-tenure track), the professor's perceived academic preparation of the students enrolled in the MBA courses (below college level; slightly below college level, college level, slightly above college level; above college level), professor course size (1–30; 31–60; 61–90; 91–120; 121–150; 151–180; 181–200; >200), student gender (1: male; 2: female), and student age.

We note many control variables are significant in Model 2. Starting with the most significant control variables ($^{***}p < 0.001$), we observed that tenured professors are much more satisfied than non-tenured professors. Also, we observed that non-tenure-track professors are more satisfied than professors during their tenure-track time. Male students are much more positive about the MBA program value evaluation than female students. However, female students are much more positive about the MBA program WOM than male students.

Other control variables are moderately significant ($^{**}p < 0.01$). Professor teaching experience negatively relates with job satisfaction. Male students are more loyal to their MBA program than female students. Older students are more positive about the MBA program WOM than younger students. Finally, some control variables are weakly significant ($^{*}p < 0.05$). Students attending classes given by professors not in a tenure track were more satisfied than those students attending classes given by a professor currently in a tenure track. Students attending larger classes tended to be more satisfied with the class. Older students were more loyal to their MBA programs than younger students.

5.5. Moderation analysis

Based on the z-score of Model 5, we compared two groups according to their delivery mode: Model 3 (face-to-face–hybrid) and Model 4 (online). Face-to-face–hybrid and online deliveries were not significantly different ($p > 0.10$) on how faculty satisfaction relates with MBA program quality. Still, we found that the path is weakly significant and positive for face-to-face–hybrid (0.156^{*}), but it is not significant for online.

Face-to-face–hybrid and online differ significantly ($p < 0.01$) concerning how MBA program expectation relates with MBA program quality. The delivery method moderates the relationship between MBA program expectation and MBA program quality. MBA program expectation and

MBA program quality relate twice as strongly for face-to-face–hybrid (0.649***) than online (0.303***).

Face-to-face–hybrid and online are significantly different ($p < 0.05$) regarding how MBA program quality relates with MBA program value, and the delivery method moderates the relationship between MBA program quality and MBA program value. MBA program quality and program value relate slightly more strongly for face-to-face–hybrid (0.918***) than online (0.906***).

The face-to-face–hybrid and online methods differ significantly ($p < 0.01$) concerning how MBA program value relates with class satisfaction. The delivery method moderates the relationship between MBA program value and class satisfaction. The way MBA program value and class satisfaction relate is stronger for face-to-face–hybrid (0.93***) than online (0.879***). Face-to-face–hybrid and online are weakly significantly different ($p < 0.1$) regarding how class satisfaction relates with MBA program loyalty. The delivery method moderates the relationship between class satisfaction and MBA program loyalty. Class satisfaction and MBA program loyalty relate slightly more strongly for face-to-face–hybrid (0.862***) than for online (0.854***).

Face-to-face–hybrid and online are not significantly different ($p > 0.10$) regarding how MBA program loyalty relates with MBA program WOM. Based on the moderation, we validate H7. We argue the delivery method moderates the positive effect of most hypotheses, such that the effect is stronger when the delivery method is face-to-face–hybrid compared with online.

Table 5: Structural equation modeling results

	Model 1 n = 366	**Model 2 n = 366**	**Model 3 Face-to-face–Hybrid n = 146**	**Model 4 Online n = 220**	**Model 5 z-score n = 366**
Path Description					
Faculty satisfaction → MBA program quality (H1)	ns	0.136**	0.156*	ns	-1.3

MBA program expectation → MBA program quality (H2)	0.376***	0.363***	0.649***	0.303***	-5.17***
MBA program quality → MBA program value (H3)	0.897***	0.892***	0.918***	0.906***	-1.984**
MBA program value → Class satisfaction (H4)	0.895***	0.898***	0.93***	0.879***	3.351***
Class satisfaction → MBA program loyalty (H5)	0.845***	0.839***	0.862***	0.854***	-1.757*
MBA program loyalty → MBA program WOM (H6)	0.901***	0.915***	0.902***	0.914***	0.398
Control Variables					
Professor gender → Faculty satisfaction		ns			
Professor gender → Class satisfaction		ns			
Professor age → Faculty satisfaction		ns			
Professor age → Class satisfaction		ns			
Professor teaching experience → Faculty satisfaction		–0.078**			
Professor teaching experience → Class satisfaction		ns			
Professor tenure status → Faculty satisfaction		–0.638***			
Professor tenure status → Class satisfaction		–0.088**			
Professor tenure track → Faculty satisfaction		0.616***			
Professor tenure track → Class satisfaction		0.072*			
Professor's perceived preparation of the students → Faculty satisfaction		ns			
Professor's perceived preparation of the students → Class satisfaction		ns			
Course size → Faculty satisfaction		ns			
Course size → Class satisfaction		0.029*			
Student gender → MBA program quality		ns			
Student gender → MBA program value		–0.176***			
Student gender → Class satisfaction		ns			
Student gender → MBA program loyalty		–0.1**			
Student gender → MBA program WOM		0.119***			
Student age → MBA program quality		ns			
Student age → MBA program value		ns			
Student age → Class satisfaction		ns			
Student age → MBA program loyalty		0.081*			
Student age → MBA program WOM		0.074**			
Model Fit Statistics					
X^2	2,010,230	2,799,555	719,867	520,806	2,010,230
df	492	356	164	164	492
CMIN/df	4.086	7.864	4.389	3.176	4.086
GFI	0.785	0.721	0.670	0.811	0.785
CFI	0.897	0.728	0.824	0.921	0.897
IFI	0.897	0.729	0.825	0.921	0.897
NFI	0.869	0.702	0.784	0.889	0.869
RMSEA	0.065	0.137	0.153	0.100	0.065

* p<.05, ** p<.01, *** p<.001, n.s.: not significant Z-score: *** p-value < .01; ** p-value < .05; * p-value < .10

6. Discussion of results

6.1. Faculty satisfaction: Good actors in SPC?

Our findings suggest that faculty satisfaction does not significantly relate with MBA program quality. This finding is counter-intuitive. Unlike past studies (e.g., Bolliger & Wasilik, 2009; Heskett et al., 1997; Stickney et al., 2019; and Weerasinghe et al., 2017), our data suggest that faculty satisfaction and MBA program quality do not relate, meaning neither a satisfied professor nor unsatisfied professor has a significant effect. It could mean that faculty members somewhat consider teaching activities routine and, thus, are unaffected by the degree of satisfaction. It could also mean faculty members might distinguish between their job satisfaction and the role they play in HEI. Professors would not hold students responsible for their satisfaction or dissatisfaction. Also, given the emotional stress faculty members may face from publication pressure and an increasingly competitive environment, professors want to avoid an additional burden of guilt from a decrease in MBA program quality, regardless of their own degree of job satisfaction.

This absence of significance in the case of HEI, compared with other industries, could come from the acting skills professors have. If one were to attend the same play multiple times, it would be difficult to notice a difference in the actors' performances if they maintained the same enthusiasm daily, regardless of their daily mood. This is particularly true when the audience is far from the scene. The closer they are to the scene, the more impactful the verbal and non-verbal aspects are. On that point, our results suggest faculty satisfaction weakly relates with MBA program quality in a face-to-face–hybrid delivery method. It is harder for faculty members to hide their satisfaction or dissatisfaction when physically facing students in class online.

We observed tenured professors are much more satisfied than non-tenured professors, and non-tenure-track professors are more satisfied than professors during their tenure tracks. This indicates existence of the tenure-track systems negatively relates with job satisfaction in academia. Being in a tenure track matters at the beginning of one's career, but experience is not synonymous with greater satisfaction. The opposite is true: our data suggest that teaching experience negatively relates with job satisfaction, and this means that over time, the professor's satisfaction erodes.

6.2. The SPC's core holds true in HEIs

In line with Yi (1990), we argue that the higher the expectations, the higher the evaluation of the service. Indeed, our data reinforce that MBA program expectation positively relates with MBA program quality. Students registering in MBA programs have some pre-existing beliefs about them; these constitute their reference points. Related to our study's geographical setting, American students are well-acquainted with MBA programs' content, alumni influence, extended firm networking, etc. Our study complements Yeo and Marquardt's (2011) study by going beyond the investigation of the expectation-quality gap. Particularly, our findings contribute to the call from Sultan and Yin Wong (2010) by investigating the role of expectation on service quality in HEI using different delivery methods, finding that the relationship is twice as strong for face-to-face–hybrid delivery than for online delivery. This might mean that students who register for an online MBA are much less engaged in their studies, and their expectations do not fully condition their satisfaction, as is the case for face-to-face–hybrid programs.

The next link of the SPC is the relation between MBA program quality and MBA program value. As per Dlacic et al.'s (2014) findings, our data support a positive relation. We found the MBA program quality has an impact on (a) the monetary aspect: by paying less for program enrollment than the amount students would be ready to pay and (b) the non-monetary aspect: by

not committing to full-time study, students limit transaction cost by keeping their positions in firms. Our findings also indicate that male students are much more positive about the MBA program value evaluation than female students. The relationship between MBA program quality and program value is influenced by the delivery method: the relationship is stronger for face-to-face–hybrid than online. This may be explained by the fact that in face-to-face and hybrid courses, students must dedicate more effort and time to attending the course (Popa & Bochis, 2015) (e.g., transportation, etc.), which, in the end, makes the degree more valuable (Kuo et al., 2009). Moreover, the firm employing the MBA student sees a greater value in the degrees granted by brick-and-mortar institutions, although the employee must be physically absent occasionally.

Our paper is also consistent with Grimmelikhuijsen and Porumbescu (2017) and Oliver (1980) concerning the positive relation between MBA program value and class satisfaction. Ours is the first empirical study investigating such a link and complements other studies done in various sectors (Wang et al., 2004; Yang & Peterson, 2004; Kuo et al., 2009). Students who have a positive judgment about an MBA's value also judge the class satisfaction positively. It means positive disconfirmation occurred in HEIs; the class performances were meeting the students' expectations (Oliver, 1980; Grimmelikhuijsen & Porumbescu, 2017). Such positive disconfirmation was stronger for face-to-face–hybrid deliveries than for online deliveries, which contributes to Hogreve et al. (2017). It also means the positive disconfirmation is weaker for online studies. Thus, an HEI may have difficulty pleasing an MBA student, even if the MBA program value is comparable with that delivered by brick-and-mortar institutions.

As per Heskett et al.'s (1994) original SPC model and Dlacic et al.'s (2014) and Li's (2012) studies, the relation between class satisfaction and MBA program loyalty is supported in HEIs. MBA program loyalty can take the form of maintaining close contact with MBA alumni, who may

suggest pursuing a Doctorate of Business Administration or PhD later. HEIs could also consider loyalty from a cognitive perspective, as discussed by Caruana (2002), such as in the form of emotional and psychological attachments. Male students are more loyal to their MBA programs than female students. In line with the other findings regarding the influence of the delivery method, the relationship between class satisfaction and MBA program loyalty is slightly stronger for face-to-face–hybrid than for online.

Contributing to Dlacic et al. (2014), we believe that the emotional and psychological attachments MBA students have with their HEIs can serve to develop positive WOM. Indeed, MBA program loyalty positively relates with MBA program WOM, which confirms Dlacic et al.'s (2014) and Li's (2013) previous findings. WOM can be highly beneficial to HEIs by, for instance, providing positive recommendations (Oliver, 1997) and engaging in communication (Athanassopoulos et al., 2001). These positive recommendations are valuable to HEIs because MBA students are influenced by MBA alumni recommendations. Consequently, our study echoes Mazzarol and Soutar (2002), who found that friends and family members strongly influence HEI applicants. We also note that female students are much more positive about the MBA program WOM than male students, and older students are more positive about MBA program WOM than younger students. Marketing managers of HEI may consider such differences to encourage a particular target to engage in communications.

7. Contributions to research, lessons learned, and core conclusions

Disruptive technologies can be used in the digital economy to improve customer experience, satisfaction, and WOM (e.g., Bhattacharyya & Bose, 2020; Wu et al., 2021). In the digital economy, should we teach in hybrid or fully online mode to maximize programs' reputation? We argue that the comprehensive SPC model applies to HEIs and is strongly influenced by the delivery

methods (i.e., teaching models). Our study holds four contributions and three managerial implications.

First, our article contributes to further investigations into the literature deficiencies by studying the comprehensive SPC model in HEIs in response to Hogreve et al.'s (2017) call. To overcome the SPC literature's deficiencies, which Hogreve et al. (2017) have considered largely fragmented and ambiguous, we considered all SPC elements while replacing profit and growth by WOM. Based on three American institutions, 93 faculty members, and 366 students, our study suggests that, except for the relationship between faculty satisfaction and MBA program quality, the comprehensive SPC model applies to HEIs. Our study also fills an empirical gap by investigating the SPC in higher education; this further complements past studies in other industries (Loveman, 1998; Spinelli & Canavos, 2000; Gelade & Young, 2005; Enz et al., 2009; Evanschitzky et al., 2012).

Second, our paper further adds to the study of faculty and student satisfaction in combination, as encouraged by Bolliger and Wasilik (2009), unlike past studies studying faculty satisfaction and student satisfaction separately (Ramsey & Lorenz, 2016; Weerasinghe et al., 2017; Stickney et al., 2019; Webber, 2019). We investigated job outcomes, as per the previous work of Thatcher et al. (2002). Past empirical studies in the IS literature primarily investigated the predictor of job satisfaction (e.g., Joshi & Rai, 2000; Jung & Suh, 2019) without examining its impact. Therefore, our paper fills an important research gap. Furthermore, our study investigated the consequence of faculty satisfaction in a multi-institutional research study, as recommended by Bolliger and Wasilik (2009) and Stickney et al. (2019), by considering several teaching models, as suggested by Lakhal et al. (2014). Third, our paper contributes to Hogreve et al.'s (2017) call for alternative measures to increase revenue and profits. Considering scholars' past failures to support the link between

loyalty and revenue growth/profit (Wiley, 1991; Loveman, 1998; Bernhardt et al., 2000; Homburg et al., 2009; Evanschitzky et al., 2012), we replaced such outcomes with WOM. It was a satisfactory substitute because MBA program loyalty is positively related with MBA program WOM. This is one differential feature of our study regarding prior HEI research.

Fourth, our paper argues that teaching models strongly matter in HEIs because the SPC model is stronger in face-to-face-hybrid delivery than fully online delivery. The past literature on HEIs was inconclusive about how the delivery method influences faculty and student satisfaction. Furthermore, most studies, like Bolliger and Wasilik (2009), Bowen et al. (2014), Martirosyan (2015), or Stickney et al. (2019), considered a single delivery method. Our paper offers an important comparison between face-to-face–hybrid and online delivery methods; this is consistent with Bolliger and Wasilik's (2009), Lakhal et al.'s (2014), Martirosyan's (2015), and Stickney et al.'s (2019) suggestions. Our findings mostly disagree with past studies that suggest there are no significant differences across delivery methods (Grandzol, 2004; Friday et al., 2006; Lakhal et al., 2014). Our results are more consistent with studies arguing significant differences between delivery methods (Hay et al., 2004; Means et al., 2010; Bowen et al., 2014; Chingos et al., 2017). We find crucial differences between delivery methods, such as the SPC model, stronger in face-to-face-hybrid delivery than fully online delivery. By investigating the hybrid delivery method, we directly contribute to the call made by Alavi and Leidner (2001) 20 years ago. Indeed, the hybrid delivery method has not been studied with the same vigor as face-to-face and online. Our study complements the early studies on students' satisfaction investigated in the IS literature, either face-to-face (Rueda et al., 2017) or online (Lu et al., 2013; Rodríguez-Ardura & Meseguer-Artola, 2016), by offering comparison between delivery methods. Should we teach in hybrid or fully online mode to optimize MBA WOM? We discover that hybrid is a stronger reinforcing teaching model

of the SPC effects chain than the fully online method. IT creates the integration of differential business value (i.e., concerning MBA WOM and MBA loyalty) into a hybrid teaching model (Coppola et al., 2002). Since the emergence of TML (Alavi, 1994; Alavi & Leidner, 2001), the IS community hosted the debate about the role played by technology on learning and satisfaction. We observed that fully online delivery method was unsuitable for MBA students and that it might lead to a negative impact of TML on satisfaction, consistent with past studies in the IS literature, such as Piccoli et al. (2001), Franceschi et al. (2009), and Hu and Hui (2012).

Our paper also holds three managerial implications. First, HEIs should not consider an MBA's program quality assessment an indicator of the satisfaction or the dissatisfaction of faculty members. Instead, those institutions need to deploy other forms of measurement to assess faculty members' job satisfaction. Second, our findings support that MBA program expectation positively relates with MBA program quality. Therefore, we encourage HEIs to raise the expectations of students coming to their universities. A student with high expectations will then rate the MBA program quality higher. Thus, HEIs should massively invest in marketing to induce students to enter programs with high expectations. Third, during the COVID-19 pandemic, HEIs were forced to shift to fully online teaching (Carugati et al., 2020). Based on our findings, we expose that SPC is much weaker in such conditions than face-to-face and hybrid delivery methods. We recommend that HEIs return to face-to-face delivery and that they consider keeping a part of the hybrid model to secure their SPC. HEIs' IT investments should go in this direction. HEIs can carefully select, use, and leverage disruptive digital technologies to develop unique digital capabilities that enhance the hybrid teaching model, which will create business value regarding program reputation.

Should we teach in hybrid or fully online mode to maximize HEIs program reputation? We examine the teaching model's role (hybrid versus fully online) in the SPC in HEIs using survey

data from 93 faculty members and 366 students from three American universities. We find that faculty members' satisfaction and the MBA program expectations improve MBA WOM by enhancing the MBA quality, MBA value, class satisfaction, and MBA loyalty. Also, we discover that hybrid is a stronger reinforcing teaching model of this effects chain than a fully online one. IT creates the integration of differential value into a hybrid teaching model. Indeed, IT matters.

The main limitation of our study lies in its cross-sectional data collection, which prevented us from drawing causality. Still, our intent was to strongly document the rationale of each link of the SPC to derive our research model. Consequently, we could draw conclusions from our confirmatory analysis with solid theoretical foundations. We propose conducting longitudinal quantitative data analysis to assess the causality of the relationships between the SPC data as a path for further study. Also, we encourage replication studies using the same theoretical model and instruments to characterize the effect of COVID-19 on the SPC model. This would offer a new outlook on our moderating effects of the delivery methods and contribute to the early findings from Carugati et al. (2020), which argue that "When looking at changes in IT adoption and use in organisations, our theories rely—for the most part—on slow adoption timespans or—to a lesser extent—abrupt crises of short duration" (p. 762).

Another limitation of our study is the SPC model itself, which only considers a limited number of outcomes. From our empirical study, we argue that faculty dissatisfaction does not relate with a reduction in the quality of teaching. We know that the dissatisfaction of faculty members is critical now because of the current shortage of teachers (Sims, 2020). We assume that such dissatisfaction in teaching may imply other negative externalities, such as lower production in academic research, the search for another job in another institution, and the willingness to quit a job, among others. We encourage future studies to connect our results with the findings from Sims (2020) and

González-Rico et al. (2018). More precisely, Sims (2020) studied the relationship between teacher working conditions, job satisfaction, and workplace mobility. In addition, well-being at the university matters increasingly because of its impact on well-being outside work, as suggested by González-Rico et al. (2018), who conducted a quantitative cross-sectional study on engagement, burnout, happiness, and life satisfaction at the University of Extremadura in Spain. Overall, turnover intention (Sims, 2020), well-being (González-Rico et al., 2018), and other human resources management potential outcomes of the SPC model require meaningful further studies.

8. References

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