

Continuous Intention of Entry-Level MIS Professionals to Stay Working in the MIS Field: The Effect of *Wasta* and Skill-Job Fit

Kamel Rouibah, College of Business Administration, Kuwait University, Kuwait City, Kuwait

Abeer A. Al-Hassan, College of Business Administration, Kuwait University, Kuwait City, Kuwait

ABSTRACT

While many studies focused on what is management information system (MIS) major, how it attracts potential students, and describes needed skills, the perceptions of fresh MIS graduates' continuous intention to stay working in the field, especially in developing countries has not yet been studied empirically. In addition, there seems to be minimal effort investigating the issue from the Arab perspective. This article is the first that develops a continuous model and is built upon the expectation confirmation model and other subsequent efforts. This model links three external variables, among them two new ones: skill-job fit, *Wasta*, and computer self-efficacy. This model was validated using a sample of 105 graduates in Kuwait. Results reveal that the new cultural variable “*Wasta*” has impact on continuous intention through the mediation of satisfaction, while skill job and computer self-efficacy affect continuous intention through the mediation of expectation and confirmation, and the skill-job fit exert the strongest impact on intention. This research is expected to advance both theory and practice.

KEYWORDS

Dissatisfaction, Employment, Expectation Confirmation Theory, Gaps, Graduate Satisfaction, Information System, Job Market Skills, MIS Curriculum, MIS Graduates, MIS Major, MIS Skills, *Wasta*

INTRODUCTION

Recent research suggests that programs dedicated to information systems (e.g. IS/CIS/IT) need to be aligned with market needs in order to prepare students (seen as future employees) for the jobs they will be filling upon their graduation (Joshi et al., 2010a, 2010b; Litecky et al., 2012). The need for well-educated professionals in the field is the basis for a strong link between educational programs and the professional community of information system (IS) practitioners (Abraham et al., 2006). The management information system (MIS) field is undergoing radical changes. In the past, its main role consisted of developing information systems and then changed to delivering IT support. However,

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nowadays these roles have shifted toward a service role and supporting organizational business processes through outsourcing and buying ready-made software packages.

In the past IS employees' satisfaction was a prominent topic in IS research, focusing on different issues including turnover of IS professionals (Moore, 2000; Joseph et al., 2007; McKnight et al., 2009; Chang 2010) and skills of MIS jobs (Cheney et al., 1990; Trauth et al., 1993; Lee et al., 1995; Todd et al., 1995; Gallivan et al., 2004; Yen et al., 2003; Wu et al., 2007). However, and to our knowledge, fewer studies focus on fresh MIS graduates' continuous intention as opposed to their turnover. This raises the issue of whether MIS graduates are ready to fill in these new roles and therefore motivate this study toward understanding the factors that affect graduates' continuous stay in the MIS field since their retention is a key concern within IT organizations today (McMurtrey et al., 2008).

Focus of This Study

Despite the promising future of the MIS field in terms of future employment growth and salary increase, the field suffers from several problems: decline in student enrollment in business schools (Benamati and Rajkumar, 2013; Rouibah, 2016), MIS identity crisis (Rouibah, 2016), and dissatisfaction of graduates and willingness to leave and change the field - IT turnover (Moore, 2000; Joseph et al., 2007; McKnight et al., 2009). Accordingly, some MIS programs were dismantled, frustrating managers' attempts in attracting qualified IS/IT employees (Rouibah, 2016). These problems have led many researchers to call for additional studies to understand factors that have contributed to satisfaction vs. dissatisfaction, and thereby resulted in the selection of MIS or alternative programs (Heinze and Hu, 2009; Benamati and Rajkumar, 2013).

Researchers investigated many factors that affect both students (see recent literature in Rouibah, 2016) and graduates. Studies that focused on students highlight several factors, including soft and technical skills (Lewis et al., 2008), attitude (Heinze and Hu, 2009; Rouibah, 2016), subjective norms (Croasdell et al., 2011; Rouibah, 2016), perceived behavioral control (Heinze and Hu, 2009), job availability (Croasdell et al., 2011; Rouibah, 2016), self-efficacy (Heinze and Hu, 2009) and outcome expectation (Heinze and Hu, 2009). Studies that focused on employees in the workplace also include career orientation and task automation (McMurtrey et al., 2002), important skills for entry-level IS professionals (McMurtrey et al., 2008), gender effect on job performance evaluation, job performance attributes and career advancement prospect (Igbaria and Baroudi, 1995), effect of job characteristics and workplace characteristics (structural fairness, trust in senior management, employee information sharing, and job security) on turnover intention (McKnight et al., 2009), importance of job skills roles and non-salary incentives on satisfaction of system analyst (Green, 1989), relationships between IS Webmaster skills and company's performance (Wade and Parent, 2002), and paradoxical need of soft skills versus technical skills in hiring MIS graduates (Litecky et al., 2004).

While these studies contributed to enrich our understanding of issues surrounding IS employees, we note here three limitations that our study aims to address and contribute to the field. First, studies focusing on the perception of fresh MIS graduates are few compared to those that focused on students or IS employees, leaving little knowledge available on how MIS graduates feel after their graduation. Second, while the skill-job fit (skills taught to students compared to those needed by the market/workplace) was well recognized and several studies investigated these skills (Gallivan et al., 2004; Downey et al., 2008; Huang et al., 2009; Joshi and Kuhn, 2007; Joshi et al., 2010b; Litecky et al., 2004; Litecky et al., 2012; McMurtrey et al., 2008; Radermacher et al., 2014), it is surprising to note that it did not receive the due attention in theory-based models. In addition, to our knowledge no empirical study has examined the influences of skill-job fit on intention to continue to stay working in the field, even though IS skills (soft and hard skills) have been proven to affect IS success (Byrd and Turner, 2001). Third, most studies focused on participants from developed countries and little is known about the behavior of those graduates in developing countries. Moreover, it is well known in the IS field that culture plays an important role in shaping the behavior of individuals (Rouibah and Hamdy, 2009) and therefore more studies are needed to include unique factors related to specific cultures.

In this study, Wasta (cronyism/nepotism), a new cultural factor associated with Arab culture in the Gulf countries, will be integrated into the proposed research model for the first time in any IS study.

Addressing these three limitations is in line with the call of some researchers to shed light on the factors that affect behavior toward the MIS field (Benamati and Rajkumar, 2013; Rouibah, 2016). This study develops a research model for continuous intention to stay working in the MIS field. This model is built on the multi-motive information system continuance model-MISC of Lowry et al. (2015), which, in turn, is based on the expectation confirmation theory (Oliver, 1980), and its further enhancements (Bhattacharjee, 2001; Bhattacharjee and Premkumar, 2004). Our model is based on MISC and further enhanced by three dimensions, namely skill-job fit, derived from person-job fit theory and cognitive fit theory (Vessey, 1991), self-efficacy derived from the self-efficacy theory (Bandura, 1982), and Wasta, the new cultural variable introduced that is unique to the Arab context.

LITERATURE REVIEW

A Subset of Western Studies on Skills and Satisfaction

The literature review shows a lack of studies that focused on measuring the perception of satisfaction of MIS graduates and their intention to continue working in the MIS field. In fact, several studies have examined the needed skills and the trends in both MIS and IS jobs since the 1990s, which have evolved since. These studies typically assess the skills needed for IT jobs by a particular respondent group such as IS industry managers and CEOs (Green, 1989; Cheney et al., 1990; Lee et al., 1995; Ahmadi and Brabston, 1997; Byrd and Turner, 2001; McMurtrey et al., 2008), IS consultants (Lee et al., 1995; Joshi and Kuhn, 2007; Joshi et al., 2010b), and software developers (Surakka, 2007), graduate students (Plice and Reining, 2007), or students in the final year of their bachelor degree program vs. perceptions of job market (Joshi et al., 2010a), mapping the IS curriculum with the job market needs (Downey et al., 2008), skill gap and knowledge deficiencies (i.e. skills of IS programs vs. needed skills in the workplace) (Trauth et al., 1993; Byrne and Moore, 1997; Yen et al., 2003; Kim et al., 2006; Radermacher et al., 2014), identification of needed skills in jobs publications (academic studies, practitioner publications and job ads) (Todd et al., 1995; Gallivan et al., 2004; Huang et al., 2009; Litecky et al., 2012) and assessment of needed skills from the perspective of entry level employees (Plice and Reining, 2007; McMurtrey et al., 2008). These studies reported that employers are seeking a number and variety of skills including soft and hard skills, which are increasingly recognized as key to success in IT-related disciplines (McMurtrey et al., 2008). For example, Green (1989) found that system analysts primarily valued their non-technical roles and skills while entry level MIS employees attributed greater importance to the “technical skills”. Joshi et al. (2010a) observed that various stakeholder groups simply expect contemporary IT professionals to know more and be able to do more than in the recent past. These studies reported that employers are seeking a variety of skills (soft and hard) that are increasingly recognized as key to success in IT-related disciplines (McMurtrey et al., 2008).

A Subset of Arab Studies

Compared to Western studies, very few studies have focused on MIS major perceptions in the Arab world (Al-Imamy and Farhat, 2005; Pepper, 2007; Rouibah, 2016). Al-Imamy and Farhat (2005) focused only on the technical skills required by the market in order to provide modification of the MIS curriculum program at one university in the UAE. Results show the existence of a gap between the market needs and the MIS curriculum preparation, which is among the factors that lead students not to select the MIS field. Pepper (2007) conducted a survey about senior executives' perceptions about hiring local IS graduates from the business universities of the Gulf countries. Results reveal that 72% of senior executives believe the main obstacles to hiring graduates consist of their lack of required skills and qualifications. Rouibah (2016) studied factors that affect undergraduate students in

selecting MIS as their major. Using a sample of 499 participants and analyzed with LISREL, he found that, unlike Western culture, the subjective norms and perceived number of enrolled students in the MIS program (and not attitude) are important drivers toward the major. In addition, job availability and financial considerations (salaries) have indirect effects on intention through the mediation of subjective norms while IT anxiety negatively affects intention.

While these studies have contributed to shed light on obstacles to hiring graduates from the perspective of employers, they did not, however, assess the perception of graduates themselves.

Limitations of Previous Studies

Based on the literature review, we can point to the following remarks. Most studies focused on what MIS skills types (technical, communication, interpersonal, and analytical) are the most important for MIS graduates. Except for Joshi et al. (2010a), who explored the links between students' perception of MIS skills and their intention to select an IT career, no study focused on analyzing the causal relationship between the skills graduates acquired during the MIS curriculum, their satisfaction with what they learnt during the curriculum and their continuous intention to stay working in the IS field (and not exit and change their career). In addition, except for Joshi et al. (2010a), no study used a strong theory model to guide the causal relationship between graduate skill perceptions and their satisfaction, and very few used strong statistical analysis such as the Structural Equation Modeling (SEM) technique. Some studies have focused on constructs from classical theories (e.g. TAM, TPB, TRA and social cognitive career theory (see review in Rouibah, 2016), while important constructs such as skill-job fit between theoretical skills and those needed by the market and their interrelations with intention to stay working in the IS field were understudied. Even though a variety of skills are identified to be crucial to the workplace, some of these skills may not match graduates' skill assimilations, and therefore a gap, also known as "skill deficiency" and "skill gap", may exist, and may lead graduates to leave the MIS field and turn to other traditional fields. Thus, studying the link between skill-job fit and continuous intention is a promising research area. While no study was found that examines the causal effect between skill-job fit and intention to stay working in the MIS field, we also found that no study applied the continuance information system model (Lowry et al., 2015) to the continuous working in the IS field. This is a recent and enhanced model of continuous use based on the expectation confirmation theory. Therefore, this study aims to shed light on this issue from the Arab region perspective through the application of Lowry et al. (2015) and (Bhattacharjee, 2001; and Bhattacharjee and Premkumar, 2004) in another context.

Expectation Confirmation Theory (ECT)

This model focuses mainly on post-acceptance, and it advocates that user satisfaction is the most immediate motivator that determines an individual's intention towards continuous use. An individual's continuance intention use is determined by satisfaction, which is largely affected by the expectation/confirmation of that individual. Expectations refer to one's beliefs about future events (Oliver, 1980). Confirmation is the discrepancy between a user's pre-adoption expectations and perceived performance (Oliver, 1980).

The Improved ECT by Bhattacharjee (2001) and Bhattacharjee and Premkumar (2004)

Since the ECT was not meant for IS continuance use, Bhattacharjee (2001) proposed modification for IS continuance. Bhattacharjee (2001) adapted ECT to IS continuance context through three extensions. They replaced pre-consumption expectations with post-consumption expectations. They replaced expectation with perceived usefulness, and they removed perceived performance. Therefore, continuance use is posited to be directly influenced by satisfaction. Satisfaction is a function of perceived usefulness and confirmation, which is modeled as a direct function of the difference between

pre-adoption expectation (at t_1) and post-adoption performance (at t_2). The Bhattacharjee (2001) did not include the attitude construct in their model.

Bhattacharjee and Premkumar (2004) enhanced the ECT as well as their earlier model (Bhattacharjee 2001) by adding attitude as an important driver toward IS continuance use. They linked initial expectation (usefulness _{t_1}) to attitude _{t_1} , satisfaction to attitude _{t_2} , attitude _{t_1} to attitude _{t_2} , confirmation links initial expectation (usefulness _{t_1}) to potential performance (usefulness _{t_2}), and both actual performance (usefulness _{t_2}) and attitude _{t_2} increase IS' continuance use.

Multi-Motive Information System Continuance Model (MISC) of Lowry et al. (2015)

Lowry et al. (2015) developed the multi-motive information system continuance model, herewith termed as MISC, based on the efforts and limitations of previous continuous models. MISC is designed to explain the shift from initial acceptance to continuance use and improve the three limitations of Bhattacharjee and Premkumar's efforts. First, the model of Bhattacharjee and Premkumar (2004) does not adequately measure expectation (usefulness before experience). Second, it does exhibit low value for R^2 for predicting confirmation compared to other R^2 s for other constructs, which are high (usefulness, satisfaction, attitude and continuance use). Third, it does not account for the fit between the technology and the task. Fourth, it does properly represent the possible range of system motivations that a user may have and accounts only for situations that involve extrinsic motivations. According to Lowry et al. (2015), the link between motivations and expectations is fundamental and motivations are antecedents of expectation. Motivation is an emotional response to needs and desires concerning anticipated experiences. Once these emotions are registered cognitively, then individuals begin to formulate expectations.

Besides the original constructs of the Bhattacharjee and Premkumar (2004), MISC also includes additional factors for measuring expectation and confirmation. Lowry et al. (2015) found that confirmation (usefulness after experience) has a strong positive influence on both satisfaction and expectation (usefulness before experience), and thus a necessary component of predicting system continuance. They also succeeded in increasing the R^2 of confirmation by adding additional external antecedents, which are unique to the use of information systems. Lowry et al. (2015) tested their model in three situations in the university context (hedonic, intrinsic and extrinsic) with a sample of students and they called for future studies to test their model with non-students. "It is likely that this finding may change if non-student participants were sampled" (Lowry et al., 2015 p. 35). They also suggest pursuing investigating additional individual and contextual variables that further affect the relationships in the MISC model such as computer anxiety (Fuller et al., 2006). In line with Lowry et al.'s (2015) desire, this study aims to apply the MISC model to a new field (continuance stay of MIS graduates in the MIS field) in a new context, the Arab culture, by adding additional constructs (intrinsic and external motivation) that fit the context of the new culture understudied by Western researchers.

Extension of MISC's Model and Hypotheses in the Context of Continuous Stay in MIS

The MISC model was not designed to be applied in the context of continuous stay in the MIS field (i.e. after students graduation), but it is suggested that the model could be more generalizable. Its adaptation, therefore, needs appropriate constructs and measures in order to fit the new context since users will be real employees as opposed to students in MISC. According to MISC, expectation must be measured before experience (t_1), whereas perceived performance (usefulness) (t_2) is measured after the experience. Unlike MISC, which assumes time is important and expectation and performance of participants must be collected at two different times (t_1 and t_2), our research model will account for variables only at time t_2 since our target participants are graduates who have already selected their MIS major a few years ago. However, the model tries to assess their perceptions compared to what they can remember about their previous expectations in terms of relevancy of the MIS degree

to their future workplace and performance in the job workplace. In addition, it is well known that perceived usefulness (derived from TAM) is highly related to outcome expectations (Liao et al., 2009). Accordingly, expectation was replaced by perceived usefulness as was done by some past studies (See Liao et al., 2009). In addition, following Bhattacharjee (2001), attitude will be omitted.

The model will also include both intrinsic and extrinsic variables because Lowry et al. (2015, p. 31) concluded that "...continuance model must be designed to account for more motivations than simple extrinsic motivations based on usefulness.... and can also satisfy intrinsic motivations such as the desire to learn, to be in control, or to engage in a challenge..." (Lowry et al., 2015, p. 33). We, therefore, include two intrinsic motivation variables (skill-job fit and computer self-efficacy) and one extrinsic motivation variable (Wasta).

One essential element of the effectiveness of the MIS program is to strive for an appropriate match between the theoretical skills graduates need to possess during the curriculum and the needs of the job market as advocated by the person-job fit concept, which is derived from the cognitive fit theory (Vessey, 1991). The person-job fit refers to the users' fit among knowledge, skill, and capability with their job (Carless, 2005). Person-job fit has received extensive attention (Caldwell and O'Reilly, 1990; Kristof, 1996; Kristof-Brown et al., 2005; Carless, 2005). However, there are fewer studies that focused on the fits between skill- job fit and no study tried to conceptualize this concept in the MIS field even though it has been emphasized by several studies (Igbaria et al., 1991; Ketler et al., 1992; McMurtrey et al., 2002) and the IS skills (IT personnel skills and technical skills) have been proven to affect IS success (Byrd and Turner, 2001). Thus we created a new concept, in our context, which we conceptualized as skill-job fit.

Self-efficacy was introduced to the IS field by Compeau and Higgins (1995) based upon Social Cognitive Theory (Bandura, 1982). This theory suggests that two factors affect the behavior: expectations related to outcomes of the behavior and beliefs about one's capability to perform that behavior.

Wasta is a new cultural variable similar to Guanxi. However, while guanxi has received extensive research (Hutchings and Weir, 2006a, 2006b; Ou et al., 2014), the Arab World's Wasta has not been researched by the IS community. These three constructs (Wasta, skill-job fit and self-efficacy) were added because they emerged from the qualitative study undertaken with a sample of graduate students as important drivers of their satisfaction and intent to stay in the MIS field (Rouibah and Al-Hassan, 2016). We also added skill-job fit because Benbassat and Barki (2007) criticized the focus on TAM and suggested the continuation of future research based on the task-technology fit and person-job fit theory.

The research model (Figure 1) is designed for modeling user behavior toward intention to continue working in the MIS field, i.e. focuses mainly on post-graduation. This model considers that continuous use is a function of user satisfaction and expectations. User satisfaction toward the MIS major/program is determined by both expectation (perceived usefulness of the skills of the MIS program) and the confirmation. This refers to the difference between a graduate's pre-adoption expectations (usefulness of the MIS major after getting the MIS degree and before getting a job at the workplace) and perceived performance (i.e. perceived usefulness and benefits of the skills of the MIS program at the workplace). Expectation (perceived usefulness) and satisfaction both lead to increase a graduate's intention to continue an MIS career and not switch to other fields, and therefore our focus is on retention of IS graduates. The path hypotheses can be represented as a set of structural equations as follows:

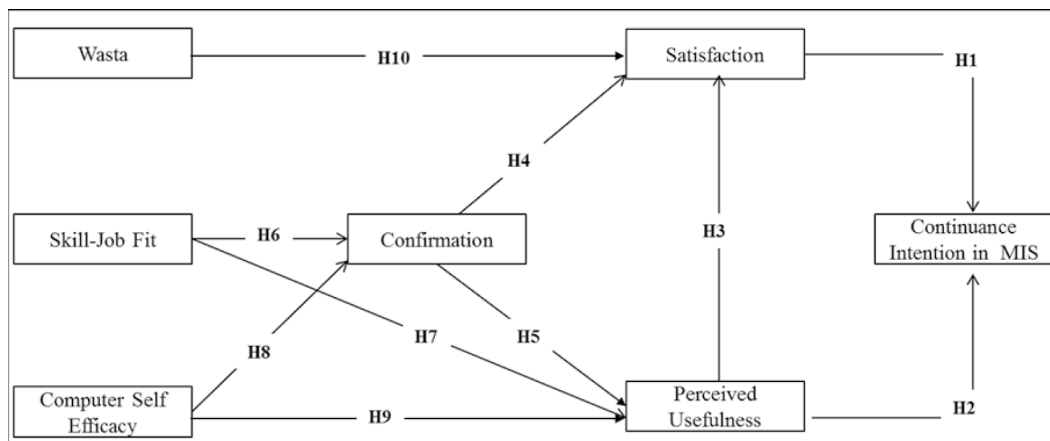
Confirmation = f (skill-job fit, computer-self efficacy)

Perceived usefulness = f (skill-job fit, computer-self efficacy, confirmation)

Satisfaction = f (Wasta, confirmation, perceived usefulness)

Intention = f (perceived usefulness, satisfaction,)

Figure 1. The research model¹



The path hypotheses are listed as well. The justifications for the fourth hypothesis (H1 to H5) follows from the model of MISC as well as the discussion earlier. In this paper, we define perceived usefulness as beliefs of graduates about how their MIS degree is useful and helps them to perform better in their jobs at the workplace. We also define confirmation as the discrepancy (difference) between a user's pre-adoption expectations (perceptions about the MIS major when he/she graduates) and perceived performance (how the graduate feels the MIS curriculum/degree is useful for his/her job). Confirmation is positive when perceived performance is higher than pre-adoption expectations; as a result, the user is satisfied. Unlike past studies (Igbaria et al., 1991), this study focuses on satisfaction with the MIS degree and not with job satisfaction.

H1: Satisfaction will positively affect behavioral intention.

H2: Perceived usefulness will positively affect behavioral intention.

H3: Perceived usefulness will positively affect satisfaction.

H4: Confirmation will positively affect satisfaction.

H5: Confirmation will positively affect perceived usefulness.

Next, we will provide the effect of the three variables that were added to the MISC.

Skill-Job Fit

This concept refers to the suitability of the graduate for the job/activities they need to perform with the skills they possess. Increasing the satisfaction of graduates with regard to their degree requires putting more emphasis on the skill-job fit. This is important because graduates do not face problems regarding the degree they got; the main challenge they face is to possess the skills and competencies required for the jobs they want to get and occupy. The skill-job fit will be achieved when job requirements meet with graduates' skills (Kristof-Brown et al., 2005). This construct is inspired from past studies on the fit between the artifact end-users and the artifacts (different technologies used by end-users) such as the concept compatibility derived from the diffusion of innovation theory (Rogers, 1983), job relevance derived from the technology acceptance model (Venkatesh and Davis, 2000), and job fit from PC utilization (Thompson et al., 1991). This construct is also similar to the "appropriate challenge" defined as the degree to which the perceived positive challenge of an activity matches the perceived skills of the user (Chung and Tan, 2004). The appropriate challenge has been shown to be a significant predictor of intrinsic interest (e.g. Gottfried, 1985; Amory et al., 1999) and deeper levels of attention and engagement.

Accordingly, we define the skill-job fit as an individual's perception regarding the degree to which the theoretical skills he/she learned during the MIS program are applicable to his/her job or match those needed by the market place. Thus, the concept of fit is a function of the importance within one's job of the set of skills he/she acquired during the curriculum as well as the possession of the needed skills once he/she got the job. Taking into consideration the similarity between the fit, as defined in this study, and compatibility/ job relevancy as introduced by past studies, we added this construct to our research model because what we advocate is a key construct that indirectly affects satisfaction and intention to stay in the MIS field through direct effect on perceived usefulness and performance, which are the main constructs of the Lowry et al. model (2015). Therefore, more perceptions of skill-job fit will be translated into more satisfaction about the degree graduates get at their business school and will contribute to increase their intention to stay working in the MIS field and job retention of entry-level IT professionals (McLean et al., 1991). Past studies have found that the more employees feel the skills they got fits well with the job they perform, the more they perform well and this translated into more feeling of satisfaction in completing their activities (Kristof, 1996; Cable and Judge 1996; Kristof-Brown et al., 2005; Erdogan and Bauer, 2005). Benamati and Rajkumar (2013) reported several factors that may cause MIS graduate dissatisfaction. Among them the skills possessed by graduates do not match the needs of the market. McKnight et al. (2009) found that job characteristics (i.e. lack of fit) affect IT turnover. Therefore, we advocate that skill-job fit will have a positive impact on their performance (Caldwell and O'Reilly, 1990) since the fit between skills and the job will require less training for employees as was shown by an Arab study (Rouibah et al., 2009) as well as their confirmation. This leads to the following two hypotheses:

H6: The skill-job fit is positively related to confirmation.

H7: The skill-job fit is positively related to perceived usefulness.

Computer Self-Efficacy

Self-efficacy refers to the beliefs and confidence of an individual (a graduate) regarding his or her ability to learn the computer skills necessary to conduct technical work (Rouibah, 2016). People with high self-efficacy will tend to lessen their computer anxiety (Fuller et al., 2006) which Lowry et al. (2015) suggest should be included in future studies. We advocate that a graduate's performance and confirmation would be affected by that individual's self-efficacy or confidence that they could apply the skills and knowledge they got at the workplace. Compeau and Higgins (1995) created a 10-item measure for computer self-efficacy, which is widely used in the IS literature and which we used in this study. Building on these ideas, the following are inferred for the first time:

H8: Computer self-efficacy is positively related to confirmation.

H9: Computer self-efficacy is positively related to perceived usefulness.

Effect of Wasta

Wasta is a form of extrinsic motivation, i.e. driven by external reward in terms of people's usefulness. Extrinsic motivation is a behavior induced through a desire for external factors such as positive external motivation (e.g. speeding up the process of a promotion or participation in training). We consider Wasta as a new cultural variable that is typically unique to the Arab world and never studied in any IS study compared to fewer studies in business (Hutchings and Weir, 2006a, 2006b). Wasta is derived from the Arabic word (قُطْسْ) and we define it as using one's personal connections to gain something, and/or influence to get things done quickly, including transactions such as the quick renewal of a passport, waiving of traffic fines, and getting hired for or getting promoted in a job or participating in a training. It refers also to strong ties (with friends, relatives, classmates, and others), and a network of social ties that emphasize reciprocal favor as an obligation (positive benefits based

on each other's kind actions). Wasta is therefore seen as a force in every significant decision in an individual Arab life (Cunningham and Sarayrah 1993).

According to the Hofstede index of culture, the Arab culture has a strong collectivism dimension that impacts life and the decisions of managers. Since Wasta means getting personal connections to gain something (such as getting fast promotions or participating in trainings), MIS graduates will feel more dissatisfied when they perceive that others use Wasta to bypass them and get some benefits. Thus, for the first time we posit the following hypothesis:

H10: Wasta has a negative impact on satisfaction.

RESEARCH DESIGN

In order to empirically test the research models and hypotheses, a survey of MIS graduates from a leading public business school in Kuwait was carried out. This study is part of a larger project that combines both qualitative and quantitative data collection to investigate factors affecting MIS graduates at their workplace. However, this study concerns only the quantitative approach. The construct measurement, sampling methods, and scale validation process are described next.

Construct Measurement

We adapted validated items of constructs from prior and rigorous studies (Bhattacharjee and Premkumar, 2004; Compeau and Higgins, 1995). An exception is made for skill-job fit, which we draw from a prior qualitative study by the authors (Rouibah and Al-Hassan, 2016). Slight wording modifications were applied to fit the research context. Perceived usefulness (PU), confirmation (CONF), satisfaction (SAT), and continuous intention (CINT) were adapted from Bhattacharjee and Premkumar (2004) using 4, 4, 4, and 3-item scales, respectively. Wasta was measured with 3 new items derived from the qualitative study. Computer self-efficacy (CSE) was measured by 10 items of Compeau and Higgins (1995). Finally, skill-job fit (SJF) was measured using 9 new item scales. Each item was measured using a 5-point Likert scale. To fit the context of this study, wording modifications were applied. The measurement items are included in Table 1. In addition, the questionnaire instrument was pretested with four active IS researchers.

The instrument consisted of two parts: the first part asked demographic questions about the respondent, while the second part included items to measure the theoretical constructs of the research model. Demographic information included gender, age, citizenship, educational level, years since graduation, working sector (private vs. public), management level, and intention to pursue post-graduate studies.

Data Collection: Sample and Respondents

To complete this study, we used an online survey for data collection based on Qualtrics.com. Target participants were MIS graduates from a leading and public business school in Kuwait. Their contacts were stored in a database maintained by authors of this study. Participants were invited to provide their responses in English, the official language of teaching at their college. Five hundred e-mails were and included the invitation messages, which contained the URL of our online questionnaire as well as a letter explaining the objectives of the study. The questionnaire was kept running for one month, and an e-mail reminder was sent, two weeks after, for those who did not respond. At the end of the survey, 108 people completed the questionnaires. After initial examinations, 3 responses were deleted for inconsistency and for not passing "attention trap", questions designed to see whether the participants were carefully reading and answering all the questions. For example, the questionnaire requires participants to select neutral, while they select other scales (strongly disagree, disagree, agree, and strongly agree). Therefore, a total of 105 usable data were used leading to a response rate of 21%,

among them female (N=68) and male (N=37). For the final sample, reliability of data collected was checked using Cronbach's alpha, and results showed excellent reliability since all factors depicted an alpha comprised between 0.710 and 0.972, which was very satisfactory (Table 1).

Demographic data indicated that the respondents were 63% female (vs. 34% males); their age varied between 22 and 45 years, with an average of 28 years; 90% were Kuwaiti (vs. 10% non-Kuwaiti); 75.2% held a bachelor's degree (vs. 24.2% with a master's). Sixty-seven percent had been in the labor force for more than 2 years and 32% were fresh graduates with less than 2 years of working experience. Fifty-one percent worked in the public sector (vs. 49% in the private), 52.8% intended to pursue postgraduate studies. They belonged to a wide range of management levels (entry level: 45.5%, middle: 37.4%, senior: 12.1%, consultants: 5.1%). They occupied various roles (system analyst: 40.9%, project manager: 20.9%, database administrator: 15.2%, web developer/webmaster: 12.3%, computer/IT support: 10%, software application developer: 8.5%, etc.). They were working in various departments (IT/MIS: 37.2% against 62.8% in non-MIS/IT), and most of them were very satisfied with their MIS curriculum, given that 70% agreed and strongly agreed to recommend the program to their family members and relatives.

ANALYSIS AND RESULTS

Data Analysis and Scale Validation

This study uses SPSS version 22 in conjunction with LISEREL tool to test the proposed SEM. SPSS was used to achieve factor analysis and reliability of the measures/constructs. VARIMAX rotation was used to remove redundancies and interrelationships between items measuring variables of the research model. LISREL was used to validate the research model. After that, and to avoid possible interaction between the measures of SEM, we performed the following steps: (1) we first assessed and fixed the model before applying SEM; (2) we modified the model and created the best measurement model; (3) we analyzed and tested the SEM relationship between the model constructs.

We conducted several tests to ensure scale validity. First, the measurement model was built by including all of the constructs and their items. The items of the construct of the research model were allowed to freely correlate with each other. The seven latent variables including PU, CONF, SAT, INT, CSE, WAST, and SJF were originally composed of 4, 4, 4, 3, 10, 3, and 9 items, respectively. Factor analysis (Table 1) resulted in eight factors instead of 7 because SJF was split into two separate sub-constructs. These eight factors accounted for 85.22% of the variance and guided by Hair et al. (1998) each of these factors met the base criteria for retention as follows: Items defining the various factors all had communalities greater than 0.50 (that is 50% or more of their variance is explained by the underlying factors); extracted factors accounted for greater than 50% of the variance in their sets of items; all factors had Eigen-values greater than 1.0; and all item loadings were greater than 0.50. Of the 37 items in the original list of items, 7 were deleted since they did not satisfy the above criteria. Table 1 shows the items retained and their factor loading. The resulting eight factors were composed of PU (4), CONF (3), SAT (3), INT (3), CSE (6), WAST (2) and SJF (8) item, respectively. The first SJF sub-construct included five items and was related to the importance, compatibility and relevancy of the skills to the workplace. We labeled it "skill-workplace relevancy". The second sub-construct included 3 items and was related to the fit between the three types of skills (soft, business, and technical) and their jobs; and we kept the same construct name "skill-job fit". It is also surprising to note that the SJF 9 related to programming skill item "When I got the job I had the programming skills the company required (e.g. Current Languages such as Visual Basic, SQL, etc.)" did not load, which reflects the lack of this skills among MIS graduates.

LISREL software was used to perform various analyses. Using the correlation matrix as the input, the data was fitted to several competing models. Measures of goodness of fit for the final model were obtained and showed acceptable fitness between the data and the model ($\chi^2 = 380.24$, $df = 233$, χ^2

/ $df = 1.7$, $GFI = 0.80$, $AGFI = 0.79$, $NFI = 0.88$, $RFI = 0.84$, $RMSEA = 0.08$, $NNFI = 0.95$, and $CFI = 0.93$). As can be seen, GFI , $AGFI$ and RFI are less than the recommended values. However, they are still valid and reflect a reasonable accepted model (see Hair et al., 1998). The measurement model was first examined for convergent and discriminant validity and then the structural models were assessed.

Measurement Model

Testing the model also included estimation of the convergent validity and discriminant validity. Convergent validity is measured by Composite Reliability² (CR) and Average Variance Extracted³ (AVE). To achieve sufficient convergent validity, items with CR values higher than 0.7 and with AVE values higher than 0.5 are required (Fornell and Larcker, 1981). After deleting one item from CONF, one item from SAT, 4 items from CSE, and one item from SJF for its low factor loading, we obtained CR values ranging from 0.80 to 0.924, and AVE values ranging from 0.574 to 0.844 (Table 1), which meant that the results were sufficient. Meanwhile, to ensure the discriminant validity, we applied an assessment of the inter-correlation between the measures of the model; the square root of the AVE for each construct had to be greater than the correlation between constructs (Fornell and Larcker, 1981). As shown in Table 1, discriminant validity of the data was also adequate since each construct's AVE was above its squared correlation with other constructs. Thus, the measurement model exhibited a high degree of reliability as well as convergent and discriminant validities (see Table 2).

Evaluation of the Research Models and Hypotheses Testing

The results of the structural model are presented in Figure 2. The variance explained is indicated inside each dependent construct. Table 3 summarizes the hypotheses, the path coefficients (betas, β s), and the t -values for each path. Parameters whose t -values are greater than or equal to ± 1.96 are considered to be significantly different from 0 (Hair et al., 1998).

DISCUSSION

This study focused on factors that affect graduate intention to stay working in the MIS field in an Arab country. This model is based on the previous continuous model of Lowry et al. (2015). This model found that four external factors (Wasta, skill-job-relevancy, skill-job fit and computer self-efficacy) affect continuous intention through the mediation of three latent variables (expectation, confirmation and satisfaction). We validated this model based on a sample of 105 MIS graduates in Kuwait using the LISREL SEM software.

Summary of Results

Out of ten hypotheses, seven were supported by the results. In the context of graduate perceptions in the workplace, satisfaction increased the continuous intention to work in the MIS field (H1); perceived usefulness increased continuous intention (H2); perceived usefulness increased the satisfaction (H3); confirmation increased satisfaction (H4); skill-job relevancy increased the confirmation (H6a) and perceived usefulness (H7a); skill-job fit increased the perceived usefulness (H7b); computer-self efficacy increased the perceived usefulness (H9), and Wasta decreased satisfaction (H10), while the other hypotheses were rejected (H5, H6b, H8).

Continuous intention is directly affected by satisfaction ($\beta = 0.27$, $p < 0.05$) and perceived usefulness ($\beta = 0.22$, $p < 0.05$). The two antecedents of continuous intention contribute to explain 63% of the total variance. Perceived usefulness and confirmation have a direct positive effect on satisfaction successively with ($\beta = 0.15$ and $\beta = 0.10$; $P < 0.05$), while Wasta has a negative effect ($\beta = -0.12$, $P < 0.05$). Results also indicate that among the three variables, perceived usefulness, followed by Wasta, exert the strongest impact on satisfaction. These three antecedents explain 31.6% of the total variance of satisfaction. Among the three variables (skill-job relevancy, skill-job fit, and computer-self efficacy) that hypothesized to affect conformation, only one, "skill-job relevancy" ($\beta = 0.63$, $p < 0.05$), was found

Table 1. Factor loading, Cronbach α , composite reliability, and extracted variance

Constructs / Indicators and Sources	Number of Items Deleted	Factors From Factor Analysis								Cronbach α	Composite Reliability ¹	AVE ²
		1	2	3	4	5	6	7	8			
Perceived Usefulness- PU [Bhattacharjee and Premkumar 2004]	0									0.945	0.842	0.574
PU1: My educational program at college adequately and well prepared me for my career					.808					0.930		
PU2: My MIS degree improves my performance at the workplace					.771					0.930		
PU3: My MIS degree increases my productivity at the workplace					.836					0.928		
PU4: My MIS degree enhances my effectiveness at the workplace					.688							
Confirmation-CONF [Bhattacharjee and Premkumar 2004]	1										0.892	0.736
CONF1: My performance at the workplace was much better than expected				.824						0.946		
CONF2: My Productivity at the workplace was much better than expected				.843						0.928		
CONF3: My effectiveness at the workplace was much better than expected				.825						0.925		
Satisfaction –SAT [Bhattacharjee and Premkumar 2004]	1										0.924	.803
SAT1: I am satisfied with the progression of my career in MIS						.862				0.750		
SAT2: I was extremely satisfied with my overall experience with MIS degree						.863				0.860		
SAT3: I was extremely pleased with my overall experience with MIS degree						.864				0.843		

continued on following page

Table 1. Continued

Constructs / Indicators and Sources	Number of Items Deleted	Factors From Factor Analysis								Cronbach α	Composite Reliability ¹	AVE ²
		1	2	3	4	5	6	7	8			
Continuous Intention–CINT [Bhattacharjee and Premkumar 2004]	0										0.820	0.620
INT1: I plan to stay in the MIS field							.867			0.814		
INT2: I intend to continue working in the MIS field							.879			0.820		
INT3: If I could, I would like to stay working in the MIS field as much as I can							.866			0.820		
Computer-Self Efficacy–CSE [Compeau and Higgins 1995]: I could complete a job using a new software package	4										0.800	0.665
CSE1: If there was no one around to tell me what to do as I go		.680								0.869		
CSE2: If I had never used a package like it before		.561								0.879		
CSE3: If I had only the software manuals for reference		.868								0.865		
CSE4: If I had seen someone else using it before trying it myself		.851								0.857		
CSE5: If I could call someone for help if I got stuck		.845								0.860		
CSE7: If I had a lot of time to complete the job for which the software was provided		.725								0.859		
Wasta -WAST [New from qualitative study by the authors]	1										0.913	0.844
WAST1: Promotions are based on Wasta									.934	0.770		
WAST2: Work recognition is based on Wasta									.938	0.770		

continued on following page

Table 1. Continued

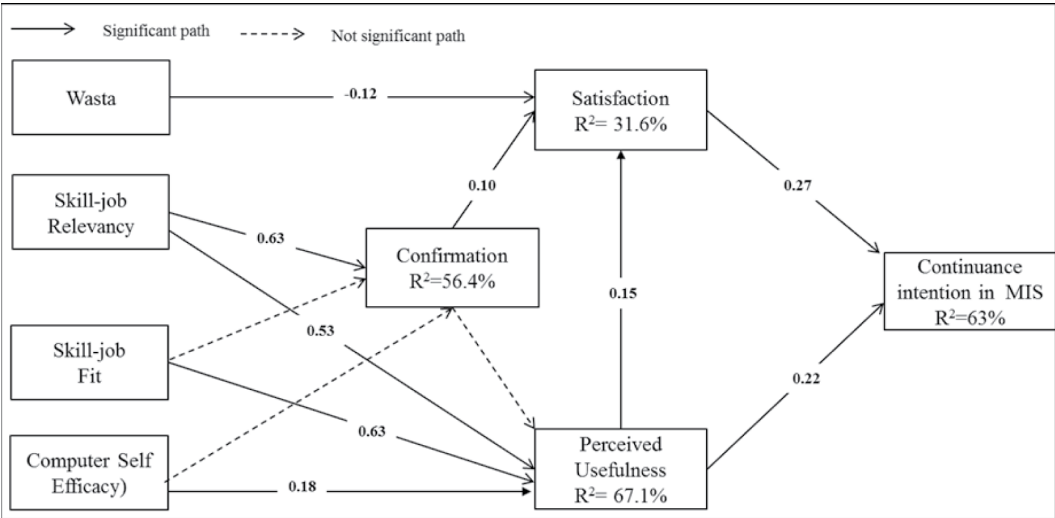
Constructs / Indicators and Sources	Number of Items Deleted	Factors From Factor Analysis								Cronbach α	Composite Reliability ¹	AVE ²
		1	2	3	4	5	6	7	8			
Skill-Job Fit-SJF [New from qualitative study by the authors]	1										0.840	0.639
SJF1: Using the MIS would be compatible with all aspects of my work			.507							0.868		
SJF2: Using MIS Skills would fit well with the way I work or like to work			.610							0.851		
SJF3: Using the MIS skills would fit into my work style and work job			.793							0.852		
SJF4: Use of MIS skills is relevant for my job			.755							0.857		
SJF5: Use of MIS skills is important for my job			.838							0.859		
SJF6: When I got the job I had the soft skills that the company required (e.g. problem solving, interpersonal, work ethics, and language)	0							.868		0.884	0.721	0580
SJF7: When I got the job I had the business skills the company required (e.g. business processing, management skills, project management, and strategy skills)								.754		0.881		
SJF8: When I got the job I had the technical skills that the company required (e.g. software development, business application, information management, and knowledge of hardware)								.510		0.864		
¹ Composite reliability = sum of standardized loading) ² / [(Sum of standardized loading) ² + Sum of indicator measurement error] = $(\sum \lambda_i)^2 / ((\sum \lambda_i)^2 + \sum \delta_i)$ ² Average Variance Extracted (AVE) =(sum of squared standardized loadings) / (sum of squared standardized loadings +Sum of indictor measurement error) = $(\sum \lambda_i^2) / (\sum \lambda_i^2 + \sum \delta_i)$												

to have a positive effect on confirmation. Skill-job fit relevancy contributes to explain 56.4% of the variance in confirmation. The three variables (skill-job relevancy, skill-job fit, and computer-self efficacy) that were hypothesized to affect conformation have a positive effect on perceived usefulness with ($\beta=0.53, 0.63$, and $0.18, p<0.05$) successively. These variables collectively contribute to explain

Table 2. Correlation structure between constructs [^aComposite reliability, ^bAVE, ^cCorrelation, ^dSquare correlation]

	1	2	3	4	5	6	7	8
1-Wasta	0.913 ^a 0.844 ^b							
2-Skill-Job Fit 1	0.60 ^c 0.36 ^d	0.840 0.639						
3-Skill-Job Fit 2	0.29 0.09	0.40 0.16	0.721 0.580					
4-Computer Self-Efficacy	0.20 0.04	0.25 0.07	0.36 0.13	0.800 0.665				
5-PU	0.27 0.07	0.65 0.42	0.60 0.36	0.53 0.28	0.842 0.574			
6-Confirmation	0.33 0.10	0.57 0.32	0.46 0.22	0.20 0.04	0.35 0.12	0.892 0.736		
7- Satisfaction	0.45 0.20	0.49 0.24	0.51 0.26	0.25 0.06	0.37 0.514	0.44 0.19	0.924 0.803	
8-Continous Intention	0.43 0.10	0.60 0.36	0.63 0.40	0.45 0.20	0.72 0.51	0.50 0.25	0.700 0.490	0.820 0.620

Figure 2. The final structural model and path coefficient



67.1% of the variance in perceived usefulness. We also found that age, education level, and type of working sector have no effect on continuous intention.

Contributions to Research and Practice

This study has made several contributions that have important implications for increasing the enrollment of students in MIS programs and therefore increasing the satisfaction of graduates in the workplace. It also suggests some avenues for further research.

This study has made four new contributions. It is the first study that investigated the factors that affect MIS graduates “continuous intention to stay working in the MIS fields” by applying the MISC

Table 3. Results of the hypothesis test of the research model

Tested Model Paths	Estimate β Factor	<i>t</i> -Value	Supported? Newness of Hypotheses	R ²
H1: Satisfaction → Continuous Intention	0.27	5.74	Yes	
H2: Perceived usefulness → Continuous Intention	0.22	5.33	Yes	
H3: Perceived usefulness → Satisfaction	0.15	6.63	Yes	
H4: Confirmation → Satisfaction	0.10	4.40	Yes	
H5: Confirmation → Perceived usefulness	0.20	0.49 (n/s)	No	
H6a: Skill-Job Fit 1 → Confirmation	0.63	4.74	Yes / (New)	
H6b: Skill-Job Fit 2 → Confirmation	0.27	1.11 (n/s)	No	
H7a: Skill-Job Fit 1 → Perceived usefulness	0.53	3.15	Yes / (New)	
H7b: Skill-Job Fit 2 → Perceived usefulness	0.63	6.54	Yes / (New)	
H8: Computer-Self Efficacy → Confirmation	0.30	1.50 (n/s)	No	
H9: Computer-Self Efficacy → Perceived usefulness	0.18	4.05	Yes / (New)	
H10: <i>Wasta</i> → Satisfaction	-0.12	2.22	Yes / (New)	
Confirmation				56.4%
Perceived usefulness				67.1%
Satisfaction				31.6%
Continuous Intention				63%

Bold: Significant relationship; NS: not significant relationship

model of Lowry et al. (2015) in another context and outside the IS continuous use, which adds more generalizability to the MISC model. Second, it succeeded in linking three external variables, two of them for the first time (skill-job fit, and *Wasta*), besides computer self-efficacy, to continuous stay working in the MIS fields through the mediation of perceived usefulness, confirmation and satisfaction. Third, unlike Lowry et al. (2015), this study uses a sample of employees instead of students, which adds more validity to the MISC model. Many studies have stressed the importance of skill-job fit for the workplace (Gallivan et al., 2004; Downey et al., 2008; Litecky et al., 2004; Litecky et al., 2012; McMurtrey et al., 2008; Radermacher et al., 2014). However, this is the first study that shows the direct and indirect impact of the skill-job fit on satisfactions and continuous stay. Third, this study shows the relative impact of three external factors (*Wasta*, skill-job fit, and computer self-efficacy), either directly or indirectly, on graduate satisfaction and continuous intention to stay working in the MIS field and the application of LISREL, a rigorous statistical technique. Fourth, this model could be used by business colleges to increase graduates' satisfaction in the workplace and therefore boost student enrollment in the MIS field.

These findings will be of interest in practice for several reasons. First, this study is expected to enrich the state of knowledge about graduates' perceptions in Kuwait, and it offers mechanisms

to increase MIS graduates' satisfaction and continuous intention to work in the MIS field. Second, academics and those responsible for the MIS majors are encouraged to enhance the curriculum and make it more aligned with the market needs so that graduates from the MIS field will possess the right and adequate skills (soft and hard skills) that match those needed by the job descriptions in the workplace. Soft skills are those related to an individual's personality traits, work ethics, interpersonal skills, problem-solving skills, and language skills, while hard skills are defined as skills specific to a particular task or that produce an immediately visible result. Soft skills include controlling and using one's emotions (emotional intelligence), dealing with team issues and stress (coping strategies) and talking the language of business. Accordingly, it is expected that this research will help those responsible for MIS curricula in Kuwait to improve existing courses or propose new ones that give students superior skills in order to adapt to the market needs. Third, managers and upper management in organizations should realize that fair treatment of employees based on qualifications, not Wasta, will lead to a healthier work environment and retention of employees, and tackling this issue should be one of their priorities. Furthermore, understanding the factors that shape the satisfaction of MIS graduates will allow educators to design recruitment and retention strategies to tackle the enrolment challenges.

Limitations and Future Research

The findings of this study contribute to a better understanding of the antecedents and consequences of MIS degrees in terms of satisfaction and continuous intention to work in the MIS field in Kuwait. Despite the study's contributions, it also suffers from limitations. These include: First, this study suffers from those associated with surveys, including unsystematic and inadequate sampling procedures and low response rates. Our sample is small (105) and the percentage of those who graduated since more than 1 year is high (67%). Accordingly, future studies are encouraged to include larger sample sizes with diverse experience (fresh graduates vs. experienced graduates) in order to test the effect of MIS experience in the workplace on the different paths of the research model, i.e. creating two models for fresh graduates (less than 1 year vs. experienced employees, i.e. those with more than 1 year) as well as to test the effect of gender in order to provide more generalizability of the research model as some studies have done (Liao et al., 2009).

Second, our data was measured in a single time period to explain and predict behavioral continuous intention. On the other hand, MISC referred to earlier postulates that user satisfaction has a strong relationship with disconfirmation, which is a function of the difference between user expectations (t_1) and perceived performance (t_2). This requires data collections at two different times, which was not the case in this study. Accordingly, future studies are encouraged to perform a longitudinal study that aims to track the behavior of a sample of MIS students since they are at their college until the final stage where they get hired.

Third, our results also indicate that the squared multiple correlation coefficients of the structural equation (R^2) are 63%, 31.6%, 67.1%, and 56.4% for continuous intention, satisfaction, expectation, and confirmation, respectively. Therefore, remaining variance in the four variables respectively (27%, 68.4%, 32.9%, and 43.6) is still unexplained, which undoubtedly calls for further investigations to include additional variables. We suggest and encourage future research that includes other extrinsic motivation variables, such as recognition among peers in the workplace (Igbaria et al., 1991; Igbaria and Baroudi, 1995) and other antecedents of Wasta. This is the first study in IS that succeeded in including a new cultural variable, namely Wasta, and succeeded to show its effect on satisfaction and the continuous intention to stay working in the MIS field. Wasta, as was defined in this study, is somehow similar to the concept of Guanxi in China, defined as "networks, connections, contacts and even nepotism" (Hutchings and Weir, 2006a; Ou et al., 2014), which received extensive recent research in the IS field. Moreover, in this study, we focused on Wasta more as an output than the process that leads to the outcome and we do not try to investigate its antecedents. Hutchings and Weir (2006b) found differences in the continuing relevance of guanxi in China and Wasta in Arab

culture and suggest that while *guanxi* is adapting to internationalization, *Wasta* remains traditional in its influence on business and social life. Therefore, this study calls for more studies to investigate the antecedents of *Wasta* and its effect on continuous intention, as well as to compare similarities and differences with the effect of *guanxi*. Accordingly, a comparative study between the effect of *guanxi* in China and *Wasta* in Arab culture would be an interesting research topic that would add more validity and parsimony to the MISC of Lowry et al. (2015).

Last, while this study focused only on graduate perceptions, it also calls for future studies that cover the subject from the perception of IS managers about fresh MIS graduates. This investigation is important to shed light on the effectiveness of how well MIS programs prepared the graduates for market needs (Ahmadi and Brabston, 1997; Plice and Reinig, 2007).

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REFERENCES

- Abraham, T., Beath, C., Bullen, C., Gallagher, K., Goles, T., Howland, J., & Simon, J. et al. (2006). IT Workforce Trends: Implications for IS Programs. *Communications of the Association for Information Systems*, 17(50), 1147–1170.
- Ahmadi, M., & Brabston, M. (1997). MIS Education: Differences in academic practice and business managers expectations. *Journal of Computer Information Systems*, 38(2), 18–25.
- Al-Imamy, S. & Farhat, N. (2005). The MIS Expectation Gap in the UAE: Industry Expectations versus Academic Preparation. *Journal of American Academy of Business*, 7(2), 78–85.
- Amory, A., Naicker, K., Vincent, J., & Adams, C. (1999). The use of computer games as an educational tool: Identification of appropriate game types and game elements. *British Journal of Educational Technology*, 30(4), 311–321. doi:10.1111/1467-8535.00121
- Bandura, A. (1982). Self-Efficacy Mechanism in Human Agency. *The American Psychologist*, 37(2), 122–147. doi:10.1037/0003-066X.37.2.122
- Benamati, J., & Rajkumar, T. M. (2013). Undergraduate Student Attitudes Toward MIS: Instrument Development and Changing Perceptions of the Field Across Gender and Time. *Communications of the Association for Information Systems*, 33(1), 241–266.
- Benbasat, I., & Barki, H. (2007). Quo vadis TAM? *Journal of the Association for Information Systems*, 8(3), 211–218. doi:10.17705/1jais.00126
- Bhattacharjee, A. (2001). Understanding Information Systems Continuance: An Expectation-Confirmation Model. *Management Information Systems Quarterly*, 25(3), 351–370. doi:10.2307/3250921
- Bhattacharjee, A., & Premkumar, G. (2004). Changes in Belief and Attitude: Toward Information Technology Usage: A theoretical model and longitudinal test. *Management Information Systems Quarterly*, 28(2), 229–254. doi:10.2307/25148634
- Byrd, T. A., & Turner, D. E. (2001). An exploratory analysis of the value of the skills of IT personnel: Their relationship to IS infrastructure and competitive advantage. *Decision Sciences*, 32(1), 21–54. doi:10.1111/j.1540-5915.2001.tb00952.x
- Byrne, D. J., & Moore, J. L. (1997). A comparison between the recommendations of computing curriculum 1991 and the views of software development managers in Ireland. *Computers & Education*, 28(3), 145–154. doi:10.1016/S0360-1315(97)00006-7
- Cable, D. M., & Judge, T. A. (1996). Person-Organization Fit, Job Choice Decisions, and Organizational Entry. *Organizational Behavior and Human Decision Processes*, 67(3), 294–311. doi:10.1006/obhd.1996.0081
- Caldwell, D. F., & O'Reilly, C. A. (1990). Measuring Person-Job Fit with a Profile-Comparison Process. *The Journal of Applied Psychology*, 75(6), 648–657. doi:10.1037/0021-9010.75.6.648
- Carless, S. A. (2005). Person-Job Fit versus Person-Organization Fit as Predictors of Organizational Attraction and Job Acceptance Intentions: A Longitudinal Study. *Journal of Occupational and Organizational Psychology*, 78(3), 411–429. doi:10.1348/096317905X25995
- Chang, C. H. (2010). The study of the turnover of MIS professionals—The gap between Taiwanese and US societies. *International Journal of Information Management*, 30(4), 301–314. doi:10.1016/j.ijinfomgt.2009.11.002
- Cheney, P., Hale, D., & Kasper, G. (1990). Knowledge, skills, and abilities of information systems professionals: Past, Present and Future. *Information & Management*, 19(4), 237–247. doi:10.1016/0378-7206(90)90033-E
- Chung, J., & Tan, F. B. (2004). Antecedents of perceived playfulness: An exploratory study on user acceptance of general information-searching websites. *Information & Management*, 41(7), 869–881. doi:10.1016/j.im.2003.08.016
- Compeau, D., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *Management Information Systems Quarterly*, 19(2), 189–211. doi:10.2307/249688

- Croasdell, D. A., McLeod, A., & Simkin, M. G. (2011). Why Don't More Women Major in Information Systems? *Information Technology & People*, 24(2), 158–183. doi:10.1108/09593841111137340
- Downey, J. P., McMurtrey, M. E., & Zeltmann, S. M. (2008). Mapping the MIS curriculum based on critical skills of new graduates: An Empirical Examination of IT professionals. *Journal of Information Systems Education*, 19(3), 351–363.
- Erdogan, B., & Bauer, T. N. (2005). Enhancing Career Benefits of Employee Proactive Personality: The Role of Fit with Jobs and Organizations. *Personnel Psychology*, 58(4), 859–891. doi:10.1111/j.1744-6570.2005.00772.x
- Fornell, C. R., & Larcker, D. F. (1981). Structural Equation Models with unobservable variables and measurement error. *JMR, Journal of Marketing Research*, 18(3), 39–50. doi:10.2307/3151312
- Fuller, R. M., Vician, C., & Brown, S. A. (2006). E-Learning and Individual Characteristics: The Role of Computer Anxiety and Communication Apprehension. *Journal of Computer Information Systems*, 46(4), 103–115.
- Gallivan, M., Truex, D. III, & Kvasny, L. (2004). Changing Patterns in IT Skill Sets 1988-2003: A Content Analysis of Classified Advertising. *The Data Base for Advances in Information Systems*, 35(3), 64–87. doi:10.1145/1017114.1017121
- Gottfried, A. (1985). Academic intrinsic motivation in elementary and junior high school students. *Journal of Educational Psychology*, 77(6), 631–645. doi:10.1037/0022-0663.77.6.631
- Green, G. I. (1989). Perceived importance of systems analysts' job skills, roles and non-salary incentives. *Management Information Systems Quarterly*, 13(2), 115–133. doi:10.2307/248918
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Prentice Hall.
- Heinze, N., & Hu, Q. (2009). Why college undergraduates choose IT: A multi-theoretical perspective. *European Journal of Information Systems*, 18(5), 462–475. doi:10.1057/ejis.2009.30
- Huang, H., Kvasny, L., Joshi, K. D., Trauth, E. M., & Mahar, J. (2009). Synthesizing IT Job skills identified in academic studies, practitioner publications and job ads. In *Proceedings of the ACM SIGMIS Computer Personnel Research Conference*, Limerick, Ireland, May 28–30. doi:10.1145/1542130.1542154
- Hutchings, K., & Weir, D. (2006a). Understanding networking in China and the Arab World: Lessons for international managers. *Journal of European Industrial Training*, 30(4), 272–290. doi:10.1108/03090590610673641
- Hutchings, K., & Weir, D. (2006b). Guanxi and Wasta: A comparison. *Thunderbird International Business Review*, 48(1), 141–156. doi:10.1002/tie.20090
- Igbaria, M., & Baroudi, J. J. (1995). The impact of job performance evaluation on career advancement prospects: An examination of gender differences in the IS workplace. *Management Information Systems Quarterly*, 19(1), 107–123. doi:10.2307/249713
- Igbaria, M., Greenhaus, J.H. & Parasuraman, S. (1991). Career orientations of MIS employees: an empirical analysis. *MIS Quarterly*, 15(2), 151–169
- Joseph, D., Ng, K. Y., Koh, C., & Ang, S. (2007). Turnover of information technology professionals: A narrative review, meta-analytic structural equation modeling, and model development. *Management Information Systems Quarterly*, 31(3), 547–577. doi:10.2307/25148807
- Joshi, K. D., & Kuhn, K. M. (2007). What it takes to succeed in information technology consulting: Exploring the gender typing of critical attributes. *Information Technology & People*, 20(4), 400–424. doi:10.1108/09593840710839815
- Joshi, K. D., Kuhn, K. M., & Niederman, F. (2010b). Excellence in IT consulting: Integrating multiple stakeholders' perceptions of top performers. *IEEE Transactions on Engineering Management*, 57(4), 589–606. doi:10.1109/TEM.2010.2040742
- Joshi, K. D., Kvasny, L., McPherson, S., Trauth, L., Kulturel-Konak, S., & Mahar, J. (2010a). Choosing IT as a career: exploring the role of self-efficacy and perceived importance of IT skills. In *Proceedings of the International Conference on Information Systems 2010*. Retrieved from http://aisel.aisnet.org/icis2010_submissions/154

- Ketler, K., Smith, R. D., & Weinroth, J. (1992). Recruiting fourth generation programmer: Matching people to job environments. *Information Systems Management*, 9(4), 64–67. doi:10.1080/10580539208906903
- Kim, Y., Hsu, J., & Stern, M. (2006). An update on the IS/IT skills gap. *Journal of Information Systems*, 17(4), 395–402.
- Kristof, A. L. (1996). Person-Organization Fit: An Integrative Review of its Conceptualizations, Measurement, and Implications. *Personnel Psychology*, 49(1), 1–49. doi:10.1111/j.1744-6570.1996.tb01790.x
- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of Individuals' Fit at Work: A Meta Analysis of Person-Job, Person-Organization, Person-Group, and Person-Supervisor Fit. *Personnel Psychology*, 58(2), 281–342. doi:10.1111/j.1744-6570.2005.00672.x
- Lee, D., Trauth, E. M., & Farwell, D. W. (1995). Critical skills and knowledge requirements of IS professionals: A joint academic/industry investigation. *Management Information Systems Quarterly*, 19(3), 313–332. doi:10.2307/249598
- Lewis, T. L., Smith, W. J., Bélanger, F., & Harrington, K. V. (2008). Are Technical and Soft Skills Required? The Use of Structural Equation Modeling to Examine Factors Leading to Retention in the CS Major. In *Proceedings of the Fourth international Workshop on Computing Education Research ICER '08* (pp. 91-100). doi:10.1145/1404520.1404530
- Liao, C., Palvia, P., & Chen, J. (2009). Information technology adoption behavior life cycle: Toward a technology continuance theory. *International Journal of Information Management*, 29(4), 309–320. doi:10.1016/j.ijinfomgt.2009.03.004
- Litecky, C., Igou, A. I., & Aken, A. (2012). Skills in the management oriented IS and enterprise system job markets. In *SIGMIS-CPR '12 Proceedings of the 50th Annual Conference on Computers and People Research* (pp. 35-44). doi:10.1145/2214091.2214104
- Litecky, C. R., Arnett, K. P., & Prabhakar, B. (2004). The paradox of soft skills versus technical skills in hiring. *Journal of Computer Information Systems*, 45(1), 69–76.
- Lowry, P. B., Gaskin, J., & Moody, G. D. (2015). Proposing the multi-motive information systems continuance model (MISC) to better explain end-user system evaluations and continuance intentions. *Journal of the Association for Information Systems*, 16(7), 515–579. doi:10.17705/1jais.00403
- McKnight, D. H., Phillips, B., & Hardgrave, B. C. (2009). Which reduces IT turnover intention the most: Workplace characteristics or job characteristics? *Information & Management*, 46(3), 167–174. doi:10.1016/j.im.2009.01.002
- McLean, E. R., Smits, S. J., & Tanner, J. R. (1991). Managing new MIS professionals. *Information & Management*, 20(4), 257–263. doi:10.1016/0378-7206(91)90018-W
- McMurtrey, M. E., Downey, J. P., Zeltmann, S. M., & Friedman, W. H. (2008). Critical skill sets of entry-level IT professionals: An empirical examination of perceptions from field personnel. *Journal of Information Technology Education*, 7, 101–120. doi:10.28945/181
- McMurtrey, M. E., Grover, V., Teng, J. T. C., & Lightner, N. J. (2002). Job Satisfaction of Information Technology Workers: The Impact of Career Orientation and Task Automation in a CASE Environment. *Journal of Management Information Systems*, 19(2), 273–302. doi:10.1080/07421222.2002.11045719
- Moore, J. E. (2000). One road to turnover: An examination of work exhaustion in technology professional. *Management Information Systems Quarterly*, 24(1), 141–168. doi:10.2307/3250982
- Oliver, R. L. (1980). A cognitive model for the antecedents and consequences of satisfaction. *JMR, Journal of Marketing Research*, 17(4), 460–469. doi:10.2307/3150499
- Ou, C. X., Pavlou, P. A., & Davison, R. M. (2014). Swift guanxi in online marketplaces: The role of computer-mediated communication technologies. *Management Information Systems Quarterly*, 38(1), 209–230. doi:10.25300/MISQ/2014/38.1.10
- Pepper, T. (2007). MEED Employment Survey: Unlocking potential. *Meed*, 14(20), 4-7.

- Plice, R. K., & Reinig, B. A. (2007). Aligning The Information Systems Curriculum with the needs of industry and graduates. *Journal of Computer Information Systems*, 48(1), 22–30.
- Radmermacher, A., Walia, G., & Knudson, D. (2014). Investigating the skill gap between graduating students and industry expectations. In *Proceeding ICSE Companion 2014 Companion Proceedings of the 36th International Conference on Software Engineering* (pp. 291-300). doi:10.1145/2591062.2591159
- Rogers, E. M. (1983). *Diffusion of Innovations* (3rd ed.). New York: The Free Press.
- Rouibah, K. (2016). Factors in the Choice of MIS as a Major: The Role of Subjective Norms from the Perspective of an Arab Country. *Journal of Global Information Management*, 24(3), 21–45. doi:10.4018/JGIM.2016070102
- Rouibah, K., & Al-Hassan, A. (2016). A puzzle ON how business graduate perceive MIS major in Kuwait: Perspective from an Arab Country. *Issues in Information Systems*, 17(3), 48–58.
- Rouibah, K., & Hamdy, H. (2009). Factors affecting information communication technologies usage and satisfaction: perspective from instant messaging in Kuwait. *Journal of Global Information Management*, 17(2), 1–29. doi:10.4018/jgim.2009040101
- Rouibah, K., Hamdy, H. I., & Al-Enezi, M. Z. (2009). Effect of management support, training, and user involvement on system usage and satisfaction in Kuwait. *Industrial Management & Data Systems*, 109(3), 338–356. doi:10.1108/02635570910939371
- Surakka, S. (2007). What subjects and skills are important for software developers? *Communications of the ACM*, 50(1), 73–78. doi:10.1145/1188913.1188920
- Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal Computing: Toward a Conceptual Model of Utilization. *Management Information Systems Quarterly*, 15(1), 125–143. doi:10.2307/249443
- Todd, P., McKeen, J., & Gallupe, R. (1995). The evolution of IS job skills: A content Analysis of IS Job Ads. *Management Information Systems Quarterly*, 19(1), 1–37. doi:10.2307/249709
- Truth, E., Farwell, D., & Lee, D. (1993). The IS expectation gap: Industry expectations versus academic preparation. *Management Information Systems Quarterly*, 17(3), 293–307. doi:10.2307/249773
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field. *Management Science*, 46(2), 186–204. doi:10.1287/mnsc.46.2.186.11926
- Vessey, I. (1991). Cognitive Fit: A Theory-Based Analysis of the Graphs Versus Tables Literature. *Decision Sciences*, 22(2), 219–240. doi:10.1111/j.1540-5915.1991.tb00344.x
- Wade, M., & Parent, M. (2002). Relationships between job skills and performance: A study of Webmasters. *Journal of Management Information Systems*, 18(3), 71–96. doi:10.1080/07421222.2002.11045694
- Wu, J., Chen, Y., & Chang, J. (2007). Critical IS professional activities and skills/knowledge: A perspective of IS managers. *Computers in Human Behavior*, 23(6), 2945–2965. doi:10.1016/j.chb.2006.08.008
- Yen, D. C., Chen, H.-G., Lee, S., & Koh, S. (2003). Differences in perception of IS knowledge and skills between academia and industry: Findings from Taiwan. *International Journal of Information Management*, 23(6), 507–522. doi:10.1016/j.ijinfomgt.2003.09.011

ENDNOTES

- ¹ Attitude was not included as it did not load with the research constructs, see the section of the research methodology
- ² CR, construct reliability, is the extent to which a variable or a set of variables is consistent in what it is intended to measure.
- ³ AVE is a measure of reliability of constructs (Hair et al., 1998). It reflects the overall amount of variance accounted for by the original variables (indicators). A high AVE reflects a good representation of the original variable of the corresponding latent constructs.

Kamel Rouibah is a full professor of information systems, College of Business Administration (CBA) at Kuwait University. He holds a PhD in Information Systems from Ecole Polytechnique of Grenoble, France. Before joining CBA, he worked at the Faculty of Technology Management at Eindhoven (Netherlands) and Institut National de la Recherche Scientifique (France). His research interests include Design of Information Systems, Management Information Systems, Engineering Data Management, Workflow Management, Information System and Information Technology Acceptance. He was involved in several European projects and conducted many IS projects in Kuwait. His publications appeared in several leading journals: JSIS, ECRA, IT&P, JGIM, Computers in Industry, Industrial Management & Data Systems, International Journal of Computer Integrated Manufacturing; Robotics & Computer Integrated Manufacturing Journal, etc. He serves as an AE for the Australasian Journal of Information Systems (AJIS) and the Journal of Electronic Commerce in Organizations (JECO), and he is also on the editorial board review of several journals such as, Journal of Global Information Management, Journal of E-Adoption, and a frequent reviewer of the European Journal of Information Systems, Information & Management, and other IS journals. He is the co-editor of "Emerging markets and e-commerce in developing economies" book. He has taught many information systems courses in France, Netherlands, and Kuwait.

Abeer A. Al-Hassan received her doctorate in 2008 from the Volgenau School of Engineering, George Mason University in Information Systems. Her areas of interest are Technical Entrepreneurship, Website Architecture, Data-Mining, Information System Usability, Satisfaction, and Quality Assurance. She is an Assistant Professor in Kuwait University, College of Business Administration. She published in Information & Management, International Journal of Computer Human Interaction, and Issues in Information Systems Journal. She also contributed chapters in Encyclopedia of Operations Research and Management Science and Progress in IS: a Handbook in strategic e-Business Management. Al-Hassan was awarded the Outstanding Teaching Award of KU for the academic year 2015-2016. In addition to teaching she was the Accreditation Director at the International Academic Accreditation Unit, CBA from 2015-2017 in charge of accreditation and quality assurance. In addition to her full-time appointment as a faculty, currently she is also a deputized member of the National Bureau for Academic Accreditation and Quality Assurance (NBAQ) in Kuwait as well as a member of the Association to Advance the Collegial Schools of Business (AACSB International).