From Attribution Theory and IS Success Aspects, Examining How and Why Nostalgia Affects the Introduction of a New IT System

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Abstract

The current era is bursting with new technology; advances are made by crafting new technology from old knowledge. If new beneficial technology is continually rejected by people, it could pose a problem. When a new IT system is introduced, gossip related to the old system being superior could prevail. The voice of "the old one was better" is a nostalgia circumstance, which could prevent the success of new systems. However, this common and critical problem has been ignored in IT literature. According to attribution theory, when outcomes are not as positive as expected, people may attribute the cause to external factors such as challenging tasks or a poor new system. Without proper intervention, nostalgia, which is itself a surrogacy of regression and stress, makes employees perceive new systems as not useful for helping their performance. Ultimately, this can lead to the failure of the new system. This study examined the effects of nostalgia in IT system implementation, with the hypothesis that nostalgia negatively affects perceived usefulness (PU) and intention to continue (CI). The total effects of nostalgia on PU, satisfaction, and CI were −0.42, −0.26, and −0.47, respectively. Finally, strategies for ameliorating nostalgia and management implications are suggested.

Keywords: Attribution theory, IS success model, Nostalgia, Intention to Continue (CI), Perceived Usefulness (PU), Enterprise Information System (EIS) introduction

1 Introduction

Today, new technologies such as cloud IT services, industrial 4.0, artificial intelligence, and business intelligence are constantly emerging and advancing. Innovation and change are the drivers of a prosperous society, and they also bring change to people's lives. People must adapt to these changes; failure to do so could cause a problem. Shih [1] reported that adhering to the past and failing to realize the importance of change may lead to extinction. For example, Wang Laboratories was an IT giant that was famous for mainframes while Apple's personal computer (PC) was born in a garage. Wang Laboratories failed to change from its old technology of mainframes to the new technology of PCs; in 1992, they went bankrupt [1].

Introducing a new enterprise information system (EIS) could be a key change for a company. However, its cost is high if the introduction fails. Failures in EIS implementation have broadly been reported as failure to adapt to a new system's organizational requirements [2-5]. Smithson [6] concluded that EIS projects are rarely failed by technology but by unsuccessful organizational changes. That is, managers must motivate their employees to adopt and embrace the change brought by new technology; otherwise, both organization and new system could be ruined [2, 4-5, 7].

Nostalgia circumstances, in which people express the opinion that an old system was better, are commonly observed when a new system is introduced; users tend to love old systems [8-9]. A common strategy for dealing with nostalgia is to revise the new EIS system and make it look like the old one [10]. Revisions may be made to the interface, process, and even table field adjustment; this will cost a tremendous amount of time and manpower and increase the risk of project delays [10-11]. Moreover, there is no guarantee of successfully ameliorating nostalgia or increasing user satisfaction [12]. Similar findings were reported by Alvarez, whose work showed that a lack of proper handling often leads to the failure of IT implementation projects [8]. Hence, researching how to overcome nostalgia is crucial for the success of new system.

Only two studies have examined the effect of nostalgia on IT implementation [8-9]. Alvarez [8] indicated that the syndrome of nostalgia appears in IT implementation, and Reisenwitz et al. [9] reported that nostalgia-prone older people disliked using the Internet. However, neither of these scholars searched for the root cause of nostalgia or modeled how nostalgia

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affects new IT.

Nostalgia among employees can predict the failure of an IT system; however, the cause of the nostalgia is rooted in the motivation of the individuals. Weiner argued that individuals' motivation is the key factor behind success and failure [13]. People tend to attribute their failure to external factors and their success to internal factors [14]. The external factors include the weather, luck, and difficulty of tasks, whereas the internal factors are personal ability, dedication, and emotion [15]. Scholars following Weiner have also confirmed that when outcomes fall short of users' expectations, individuals tend to attribute the cause to external factors such as task difficulty and bad luck [16-17]. Individuals can lessen the sense of failure and protect their pride and self-esteem because these external factors are beyond their capability [18].

Nostalgia is triggered by stress and regression, which are most commonly activated when people face challenging tasks, such as social change [19-25], personal life change [26-30], organizational change [30-31], and changes in consumers' choices [9, 32-34]. Because nostalgia represents the desire to regress back to old systems [32, 34], the stress and regression involved in nostalgia may prevent new IT systems from succeeding.

This study was inspired by attribution theory and sought to determine the reasons for nostalgia occurring when a new IT system is introduced; hence, it focused on how nostalgia affects the success or failure of a new technology. This study proposed that nostalgia can be addressed by combining attribution theory with the IS success model. From DeLone (1989) and Bhatechjer (2001), common constructs in the IS success model are perceived usefulness (PU), satisfaction, and intention to continue (CI). According to attribution theory, nostagia was integrated into common constructs of IS success model. This study is one of the first to trace nostalgia's root causes from the perspective of attribution theories. In addition, with a formal research model, this study articulates the effects of nostalgia to illustrate how it negatively affects the success of EIS implementation. The empirical result showed that nostalgia undermines the success of EIS implementation because of its negative effects on PU, satisfaction, and CI.

The remainder of this paper is organized into four sections. Section 2 reviews the concepts of attribution theory and nostalgia in detail. Section 3 presents the research methodology and proposes a research model and hypotheses. Section 4 shows the data analysis results. Section 5 presents the discussion and implications. Section 6 presents the conclusions and limitations.

2 Theoretical Background

2.1 Attribution Theory

Heider was the first scholar to propose attribution theory (1958). He argued that people assess their experience of any situation to infer causes for the outcomes of that situation. These causes can be divided into external factors (e.g., external stress, luck, and weather) and internal factors (e.g., personal character, attitude, and ability) [35]. Specifically, people tend to infer their failure to be a consequence of high external stress, bad luck, and bad weather, and tend to infer their success to be the result of personal character, personal ability, and attitude [16, 35-37].

Weiner (1985) extended Heider's causal attribution theory into three primary dimensions of what individuals' infer causes from: the locus of causality, the stability of causality, and the controllability of causality. Weiner argued that the controllability of causality is the degree to which people feel they can make efforts to improve their own ability. Regarding the locus of causality for external factors such as weather, luck, and the difficulty of a task, people would feel that they cannot make efforts to change them [13, 16]. People tend to attribute their failure to the uncontrollability of causality, for example, bad weather, bad luck, and high task difficulty [14, 16]. This allows people to relieve themselves from pressure and anxiety [15]. They may experience excessive stress if they attribute the controllability of causality to their own low ability, poor attitude, or depressed personality [15].

Attribution theory suggests that personal perspective is an antecedent that leads a person to infer a particular cause for an outcome. In situations with a negative outcome, a person infers its cause to be an uncontrollable external factor [38-39]. When attribution theory is applied to new IT system implementation, workers often encounter motivational problems in dealing with the workflow change caused by a new system as well as operational change caused by the the new IT environment [40].

A new IT system changes the manner in which employees used to work. If the new environment is beyond the users' capability, they could experience challenge and anxiety. Similar to attribution theory, users could attribute their difficulties to the new system [16-17]. Users express these complaints to hide their anxiety. According to attribution theory, employees hesitate to express their difficulty in adopting the change, but stating the new system as an excuse is not good engough. Without proper handling, nostalgia could ultimately lead to the failure of the new system.

2.2 Nostalgia

Regression is the most commonly activated mechanism to cope with problems related to change [41-43]. Regression is named nostalgia in various fields of research, such as in personal motivation problems when facing a social change [19-25], personal life change [26-30], organizational change [30, 31], and change in consumer choices [9, 32-34]. Many relevant studies have focused on how to help people cope when facing changes in society and life [19-25], and some have examined how to capitalize on emotions [9, 32]. Nostalgia is a common and critical problem during change [26-28]; however, only few papesr applied nostalgia to the field of new technology [8, 9].

When a new IS system is introduced, nostalgia can generate disfavor toward the new system. Nostalgia is a favorable affection toward objects pertaining to past personal experience [32-33]. It is a desire to return to an original state or system [34]. Nostalgia-prone elderly rarely use the Internet but of TV [9]. Employees with nostalgia believe, and even insist, that an old system is superior to a new one [8-9].

When a new technology system is beyond users' capability, users could attribute their difficulties to the new system [16-17]. Employees with nostalgia claim an old system to be superior to a new one because they are afraid of revealing that they cannot operate the new one as required [8]. Being unable to operate new systems well becomes an emotional problem. When employees encounter this problem, they attribute their shortfall to the new system not being good enough for them to use. People may not admit they can make more effort to these situations because they do not want to receive stress from their managers [16, 17]. This is how nostalgia circumstances happen. Users state the new system to be poor and uncontrollable, which stops them using the new technology. New IT systems could fail if users resist using them. Therefore, finding a method of reducing the effects of nostalgia is crucial. Managers must act to stop nostalgia before it becomes monolithic resistance and derails changes.

Some research may employee nostalgia to spur sales, amount as nostalgia representing a glorious and happy past era [44-45]. Pajoutan (2014) reported that sport organizations can employee nostalgia of "back to glory" as a strategy to increase national fan. However, such a strategy is not suitable for an organization that intends to introduce a new technology or system, because "back to old glory" involves regression to the old system. This category of nostalgia is not relevant to this research.

3 Research Model

The research model in this study included the constructs of nostalgia, PU, satisfaction, and CI. The nostalgia construct and its measurements were adopted from Holbrook (1993). The constructs of PU, satisfaction, and CI as well as their measurements were adopted from the most popular aspects of IS success model from Bhattacherjees' ECT [46] and DeLone and McLeans' [47-48] IS success model. The purpose of the research is to facilitate the success of IS implementation; hence, the study integrated nostalgia into ECT and IS success model.

3.1 Nostalgia and PU

PU is a commonly shared construct in contemporary IT adoption research [46, 49-54]. It is users' expectations of enhancing their job performance by using a particular instrument [53-54].

Nostalgia suffocates the PU of a new system. Nostalgic employees cannot operate new system smoothly; hence, they cling to the legacy system, remembering it positively, and then perceive that the new EIS system is not useful for their future performance [25]. Alvarez [8] reported that users directly expressed that the new system was not useful when nostalgia appeared. Nostalgia causes users to resist system change, and then directly makes them perceive that the new system as not being very useful [55]. Bhattacherjee and Hikmet (2007) declared that resistance to change negatively and directly affects PU. According to attribution theory, when employees are unable to acquire new skills and knowledge, unable to adopt new processes; employees grow nostalgic and attribute the cause of their problems to the new system being inferior to the old one, and in turn perceive the new system to not be helpful to their new job. Thus, this study proposed the following hypothesis:

H1: Nostalgia negatively affects PU.

3.2 Nostalgia and CI

CI indicates the success of an EIS system [46, 49, 52-54, 56]. It can predict behavior with a high degree of accuracy [57-59]. In marketing, CI precisely predicts customers' repetitive purchase behavior [60]; in EIS, it means the intention of a user to continue using a particular system [46, 49, 53-54].

CI is a primary concept in three popular theories: the technology acceptance model (TAM) [54], ECT [49], and the theory of planned behavior (TPB) [57]. Expanding the concepts of CI from the TAM, ECT, and TPB, this study considered CI to be a predictor of EIS success.

Nostalgia negatively affects CI [9, 61-63]. Reisenwitz et al. (2007) revealed that nostalgia proneness negatively affects mature older peoples' use of the Internet: the higher the level of nostalgia, the less the Internet is accessed by elderly consumers. Hussain and Lapinshi [64] reported that nostalgia for returning to a healthier lifestyle negatively affects users' CI for smoking. In Australia, the intensity of

individual consumers' CI is significantly affected by the level of personal nostalgia; the more nostalgia exists, the less intention people have to buy a new product [62]. Nostalgia negatively affected consumers' CI for the recreational behaviors of buying books and watching movies and sports [65]. Hence, this study proposed the following hypothesis:
H2: Nostalgia negatively affects CI

3.3 PU, Satisfaction, and CI

PU represents subjective user perceptions of job performance enhancement through using a particular instrument. Users' PU affects their satisfaction [46]. When users perceive that an EIS system is useful to their job, it makes them happy with the system, and higher PU leads to higher satisfaction [46, 49]. According to Bhattacherjee [46, 49], this study proposed the following hypothesis:
H3: PU positively affects user satisfaction.

PU positively affects users' CI to use a system if the system increases their job performance [49]. PU is an advantage gained from using a new EIS system, and directly affects CI [66]. Hence, this study proposed the following hypothesis:
H4: PU positively affects CI.

Oliver [67] reported that consumers who are more satisfied are more willing to continue to repurchase products. By the same logic, higher levels of a user's system satisfaction will lead to increased CI to use the system [49]. Thus, this study proposed the following hypothesis:
H5: User satisfaction is positively correlated with CI.

Figure 1 is based on the aforementioned research hypotheses and illustrates the research model for nostalgia and EIS.

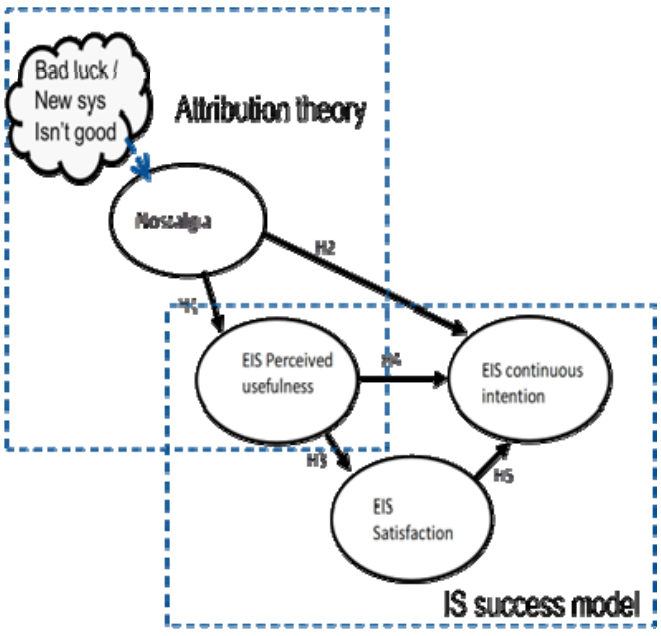

Figure 1. Research model

This study adopted Holbrook's (1993) definition and measurements of nostalgia. Measurements of individuals' proneness were excluded to concentrate exclusively on the measurement of collective nostalgia. The definition and measurements of PU were adopted from Bhattacherjee [46]. The definition and measurements of satisfaction were adopted from Doll and Torkzadeh (1988). The CI construct was adopted from Bhattacherjee's followers Moon and Kim [68], who measured users' CI to use the Internet. Table 1 lists the operational definitions and measurement items for each research construct.

Table 1. Operational definition and measurement items

Nostalgia (Holbrook, 1993)	A favorable affection toward objects based on past personal experiences N1: The new system doesn't produce the same results as the legacy system. N2: The use of EIS was better in the old system. N3: In the legacy system, "all my EIS troubles seemed so far away"
Perceived usefulness [46]	Users' perception of the enhanced benefits of EIS usage. PU1: Using the EIS helps me improve my job performance. PU2: Using the EIS increases my productivity. PU3: Using the EIS will enhance my effectiveness in my job.
Satisfaction [49]	User satisfaction is conceptualized as the attitude toward an EIS of someone who interacts with the application directly. SA1: Does the system provide sufficient information? SA2: Is the system accurate?
Intention to continue [68]	Continuing intention to use an EIS. CI1: I will use this EIS on a regular basis in the future. CI2: I will frequently use this EIS in the future. CI3: I will strongly recommend that others use this EIS.

4 Model Analysis and Results

4.1 Data Collection

Survey questionnaires were developed based on a literature review, construct operational definitions, and previous research questionnaires. The survey questionnaires used in this study gathered basic user data and measurement information. A five-point Likert scale, ranging from disagree strongly to agree strongly, was adopted.

Because Enterprise Resource Planning (ERP) is a backbone EIS of a company's infrastructure involving manufacturing human resources, material and financial

[69]. A failure in ERP could bring disaster to an enterprise [70]. Hence, ERP systems are a good representative of a EIS [70]. The sample population of this study included ERP system end users and IT officers working at factories in China and Taiwan, with the Taiwan-based companies having adopted a new ERP system that had gone live within the previous 1-4 years. The samples of users were randomly picked from different departments of a company, and their IT officers were selected to ensure a multidata source to minimize common method bias. Additionally, this study distributed questionnaires using two methods to control common method bias: by a Google-based website and by emailing Microsoft Excel-based questionnaires. The previous 1-4 years of implemented customer lists were provided by the consultant departments of IBM, HP, Abeam, and Accenture, who implement the ERP software of the SAP, Oracle, and Data systems. We obtained approval from project managers before conducting the survey.

Of the 875 surveys distributed, 420 responses were returned from 94 companies from the electronics industry, mechanical industry, trading companies, insurance companies, and the banking sector. The large sample volume and random sampling covering various sectors of industry to ensure sampling data is at normal distribution (Central Limit Theory) and minimized the non-response bias of this study [71]. 20 of 420 observations were excluded because of incompletely answered questionnaires. The remaining 400 useful responses represented a valid return rate of 45.7%. The response group primarily comprised individuals ranging in age from 26 to 45 years (83.6%); most were college and university graduates (66.8%); and computer use experience mostly exceeded 3 years (83.9%). Table 2 presents the demographic statistics of the sample population.

Table 2. Sample demographic table

Measure items	Frequency	Percent	Measure items	Frequency	Percent
Users' age			Gender		
< 25 years old	50	12%	Male	149	37%
26-35 years old	227	57%	Female	251	63%
36-45 years old	107	27%			
> 46 years old	16	4%	ERP working experience		
			<1 year	46	12%
Educaton background			1-3 years	140	35%
High school	53	13%	3-5 years	80	20%
University	267	67%	5-9 years	81	20%
master and above	80	20%	>9 years	53	13%
Ponsition rank			Computer working experience		
high level managers	10	3%	<1 year	8	2%
middle level managers	110	28%	1-3 years	57	14%
engineers, staffs and chief engineers	280	70%	3-5 years	73	18%
			5-9 years	89	22%
			>9 years	173	43%

4.2 Reliability and Validity Test

4.2.1 Sample Homogeneous Test

Because the sample data were collected using two methods (website and email), a homogeneous test was adopted to assure error-free sampling for the two sample groups. A chi-squared test were conducted on the categorical variables sexes, educational background, and professional background. The p-value exceeded the level of significance (P = 0.05), supporting the hypotheses and confirming that the two sample groups were the same.

Table 3. Sample homogeneous test

variables	Sampling approach	Observed qty	Chi-square	Degree of fredom	P-Value
Gender	Excel Google	158 242	0.033	1	0.856*
Euduation	Excel Google	158 242	6.768	3	0.080*
Position level	Excel Google	158 242	9.563	11	0.570*

4.2.2 Convergent Validity

A research model possesses convergent validity if it meets the following three criteria [72]. First, all factor loadings (λ) must be significant and exceed 0.7. Second, the composite reliability of construct values must exceed 0.7. Third, the average variance extracted (AVE) for each construct should exceed 0.50. In the proposed model, these indicators exceeded the recommended values, proving that this research model possesses convergent validity. Table 4 lists indicators of convergent validity in this study.

Table 4. Convergent validity test

Constructs	Obs.	Mean	S.D.	Loadg	SMC	CR	AVE
Nostaglia	NST1	2.75	1.08	0.87	0.75	0.92	0.78
	NST2	2.59	1.08	0.91	0.83		
	NST3	2.73	1.02	0.88	0.77		
Perceived usefulness	PU1	3.72	0.90	0.91	0.83	0.93	0.83
	PU2	3.68	0.90	0.92	0.85		
	PU3	3.72	0.96	0.89	0.80		
Satisfaction	SA1	3.70	0.86	0.89	0.79	0.80	0.81
	SA2	3.67	0.89	0.91	0.83		
Intention to continue	CI1	3.55	0.99	0.94	0.89	0.93	0.81
	CI2	3.52	0.97	0.91	0.82		
	CI3	3.51	0.96	0.85	0.73		

4.2.3 Discriminate Validity

Discriminate validity is the ability to distinguish between two constructs. Indicators with high discriminate validity represent precise measurements of the construct targets. Discriminate validity was tested by comparing the root means of AVE and correlation coefficients; the √AVE for each construct should exceed the squared correlation between every other construct [73]. Table 5 presents the results of this test; the diagonal √AVE for each construct is higher than the squared correlation between every other construct, which is in horizontal rows or vertical columns. This shows that this study possesses discriminate validity.

Table 5. Discriminate validity for latent variables

	PU	Sat	CI	Nostalgia
Perceived usefulness	0.91			
Satisfaction	0.61	0.90		
Intention to continue	0.73	0.72	0.90	
Nostalgia	- 0.42	- 0.34	- 0.42	0.89

Note. diagonal √ AVE values were higher than the correlation coefficient values in the lower triangle

4.3 Structural Model Analysis

The first step in structural model analysis is to estimate the goodness-of-fit between the structural model and observation data. Hair et al. (1998) indicated that a consensus structure model should cover three indexes of goodness-of-fit: absolute fit measures, incremental fit measures, and parsimonious fit measures. The goodness-of-fit of the structural model employed in this study is shown in Table 6.

Table 6. Structural model analysis

Goodness-of fit	Proposed value		Scholar proposing	This paper
Absolute fitness	χ2	--	(Scott, 1994)	98.045
	d.f.	--	[74]	39
	χ2/d.f.	<3	[75]	2.541
	GFI	>0.9		0.960
	AGFI	>0.8		0.932
	RMSEA	<0.08	[76]	0.062
Incremental fitness	NFI	>0.9	[77]	0.960
	IFI	>0.9	[77]	0.975
Parsimonious fitness	CFI	>0.9	[78]	0.985
	RMR	<0.1	[79]	0.032

4.4 Research Model Analysis

Structural equation modeling was performed using AMOS 17.0. Figure 2 illustrates the research model in this study and presents the correlations between nostalgia, PU, satisfaction and CI.

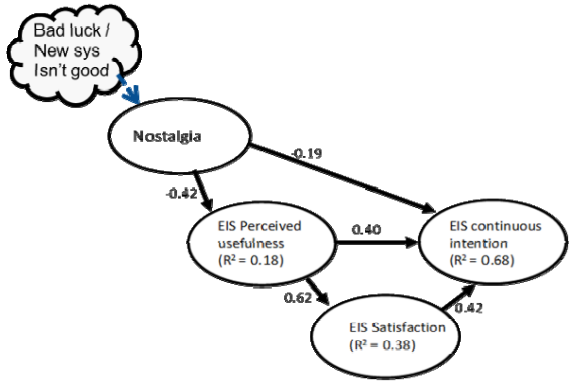

Figure 2. Research results of the effects of nostalgia

The path coefficient from nostalgia to PU was −0.42, with a t value of −8.16, which is significant at the P < 0.001 level. These results support H1. The path coefficient from nostalgia to CI was −0.19, with a t value of −4.85, which is significant at the P < 0.001 level. These results support H2. The path coefficient from PU to CI was 0.40, with a t value of 8.14, which is significant at the P < 0.001 level. The path coefficient from PU to satisfaction was 0.62, with a t value of 12.55, which is significant at the P < 0.001 level. The path coefficient between satisfaction and CI was 0.42, with a t value of 8.66, which is significant at the P < 0.001 level. These results support H3, H4, and H5.

4.5 Total Effects of Nostalgia on CI

The explanation of the effects of nostalgia on PU is R^2 = 0.18 and that on CI is R^2 = 0.68. However, nostalgia plays significant negative roles in EIS success through its negative impact on CI. The negative effects of nostalgia are comprehensive, inasmuch as they are not only direct or indirect, but both, and the sum of both. The direct impacts of nostalgia on CI are significant at a path coefficient of −0.19. The indirect impacts of nostalgia on satisfaction and CI were significant at effects of −0.26 and −0.28, respectively. The total effects of nostalgia on PU, satisfaction, and CI were significant at −042, −0.26, and −0.47, respectively. Table 7 shows the negative effects of nostalgia on PU, satisfaction, and CI.

Table 7. Effects of nostalgia on CI

Latent observations		Nostalgia	PU	SAT	R2
PU	Direct effect	-0.42			
	Indirect effect				0.18
	Total effects	-0.42			
SAT	Direct effect		0.62		
	Indirect effect	-0.26(1)			0.38
	Total effects	-0.26	0.62		
CI	Direct effect	-0.19	0.40	0.42	
	Indirect effect	-0.28(3)	0.26(2)		0.68
	Total effects	-0.47	0.66	0.42	

(1) -0.42 X 0.62= -0.26
(2) 0.62 X 0.42= 0.26
(3) -0.42 X 0.62 X 0.42 + -0.42 X 0.40 = -0.28

5 Discussion and Implication

This study analyzed a dominant yet not fully understood EIS failure factor: nostalgia caused by the pressure of stressful changes from the introduction of new technology. This research integrated attribution theory and nostalgia into the IS success model to explain how nostalgia occurs and how it affects new technology being introduced. When nostalgia occurs with employees gossiping that the old system was superior, per attribution theory, nostalgia is a manifestation of the pressure of change derived from new system, with the new skills being beyond users' controllability. Per attribution theory, users attributed the cause of their poor performance in the name of nostalgia to the external factor of the new system not being good enough for them to use.

The empirical research results indicated that nostalgia significantly diminished PU, satisfaction, and CI using related systems, with total negative effects of −0.42, −0.26, and −0.47. Nostalgia significantly contributed to these three EIS constructs with negative path coefficients, which indicates that nostalgia significantly diminished new EIS success. People with nostalgia emphasized the downsides of a new EIS, and neglected possible performance improvements. Hence, they complained that the old system was superior. With diminished PU and increased dissatisfaction, CI also significantly decreased. The new EIS was deemed to have failed when the employees intended to discontinue using it.

This research explicitly models the effects of nostalgia on EIS implementation by hypothesizing that it negatively affects PU and CI. Therefore, the findings can be applied to implementing new technology systems as well as to organizational changes and reengineering.

The research results showed that nostalgia is rooted in user's emotional problems of unable to perform new system well, they attribute these fall shorts to the external factors of the new system being poor. Nostalgia is rooted in poor learning outcomes and the inability to control a new system. Hence, this study recommends that managers shall offer user training and use support and encouragement to emphasize users' strengths, thereby enhancing their sense of controllability of causality and helping them recover from nostalgia [78].

In contrast to offering a sense of controllability, a common industry practice is to add more features and programs to a new system to make it more similar to the legacy system. Nostalgia cannot be relieved by these efforts. Furthermore, the added programs often result in project delays and difficulty upgrading in the future [12]. Smyth and Nicolaou reported that add-on programs have no guarantee of increasing user satisfaction and in fact increase the risk of buggy systems [12, 79].

Practices that may generate a sense of controllability of causality include encouraging users to participate in the process of implementing a new EIS. Empowerment is another possibility. Chamberlin and Schene define empowerment as enabling people to have the power of decision. Empowering employee means enabling them to exercise options when developing EIS which increases a sense of controllability over the new system [80].

Given these findings, this study contribute to industry and suggests several useful measures through which managers can facilitate the success of new systems. First, managers must address nostalgia when a new EIS is implemented. Nostalgia should not be treated as background noise; instead, it should be treated as a sign that employees cannot cope with the changes and should be considered an unequivocal sign that help is required from the managers. Managers should have the responsibility of preventing employees declining into nostalgia. Because nostalgia can manifest as a sense of being unable to learn and control the new system well [83-84], managers should empower subordinates to increase their sense of controllability. Others management suggestions such as offering more learning courses or implementing a

mentoring system would also boost the pressure of shortfalls in controlling a new system well [80].

This study contributes to academic. The results of the present study suggest that nostalgia be included in IS research because it negatively affects the PU and CI of employees when they are pressured to accept new business processes that accompany the implementation of a new EIS. DeLone and McLean proposed the IS success model and posited that employees' satisfaction and continued use would be affected by information quality, system quality, and service quality [47-48].This study suggests that nostalgia should be added to this success model as an exogenous variable. Even though the TAM and ECT model are designed to describe the factors affecting consumers' adoption of a new EIS implemented in organizations, nostalgia can also be included in the models as one of the obstacles to introducing new systems.

6 Conclusions

This study is one of first to integrate attribution theory, nostalgia, and the IS success model to explain why nostalgia occurs when a new technology is introduced. Moreover, this study is one of the first to explain how nostalgia affects a new system in the context of EIS implementation. Nostalgia negatively affects the success of EIS implementation through its effects on PU, satisfaction, and CI.

Although a solution to nostalgia is not formally proposed in this research, our work does indicate that a sense of control can ameliorate the effects of nostalgia. Possible measures to enhance employees' sense of control when implementing a new EIS include participation, involvement, empowerment, and perceived behavioral control. However, the effects of these approaches have not been formally included in this study and can be addressed in future research to clarify the effectiveness of each method.

This study represents only an initial step toward integrating the effects of nostalgia into EIS success research. Future research can pursue additional nostalgia solutions and examine their influence on EIS success. The study collected data from ERP implementations and suggests that surveys should be extended to other EISs in the future, such as the product lifecycle management system, knowledge management system, and customer relationship management system. Because an ERP system is one of the EIS, user behaviors may not be the same as with other technologies. Thus, this study suggests that surveys be extended to other EISs.

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