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Article *in* Global Business and Organizational Excellence · December 2019

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FEATURE ARTICLE

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The impact of self-efficacy on employees' ability to accept new technology in an Iraqi university

Alhamzah M. R. Alnoor | Hadi Al-Abrrow | Hasan Abdullah | Sammar Abbas

In any environment, but particularly in a developing country such as Iraq, it is essential for institutes of higher education to readily adapt to and make the most productive use of the latest technologies. To assess these organizations' readiness for change, researchers conducted a study of 285 employees at Southern Technical University in Basrah, Iraq. In examining the factors that affect employees' ability to accept new technology, the researchers focused on the interactive role of general self-efficacy. The results show that employees' acceptance of new technology requires a high level of coordination among several external and internal variables that affect employees' engagement with the technology. The study also highlighted the importance of training to enhance employees' belief in their ability to successfully use new systems to achieve organizational goals.

1 | INTRODUCTION

A growing body of research argues that the interaction between humans and information technology (IT) cannot be understood when viewed separately (Montgomery, Sharafi, & Hedman, 2004). Although organizational leaders are well aware of the need to change their structures, procedures, processes, and techniques to maintain and sustain market competitiveness (Kwahk & Lee, 2008), they often face difficulties in convincing stakeholders of the need to change (Al-Abrrow, Alnoor, & Abbas, 2019). One major reason for this is individuals' perception of their interaction with technology (Al-Abrrow, Alnoor, & Abdullah, 2018).

Organizational readiness for change affects employees' perception of new technology, and this ultimately determines the success or failure of its implementation (Kwahk & Lee, 2008). In the sociotechnical system approach—which focuses on achieving excellence in both the human and technical aspects of work—human behavior toward technology is directed in a coherent and interactive manner, as new technologies affect work-related social relationships, feelings, and attitudes.

All organizations must respond to changes in technology so that they can continuously improve their processes and keep pace with their competitors. This includes those that comprise the higher education sector in Iraq and strive to meet international standards in their field. To this end, university leaders in Iraq are seeking to better understand their employees' perception of organizational readiness for change (Eby, Adams, Russell, & Gaby, 2000).

Managers charged with implementing change need to provide a supportive environment that facilitates readiness for change and overcomes resistance to it (Alhamdi, Noor, Abdulla, Alnoor, & Eneizan, 2019). They also must recognize the impact of individuals' personal competencies and motivations on their willingness to accept change (Stouten, Rousseau, & De Cremer, 2018). This is of particular importance in Iraq, where many employees in higher education resist the introduction of new technology because they are used to old work practices or fear losing their job if technology takes over an increasing number of tasks. This reluctance has had an adverse effect on the development of higher education that country.

For managers in higher education and other organizations who want to defuse negative employee perceptions toward change, it would be helpful to identify the factors that might hinder positive perceptions, as well as

those that might nurture and raise the level of self-efficacy among employees to increase their engagement with new information technologies. To this end, 285 employees at Southern Technical University in Basrah, Iraq, were queried on the factors that affect their ability to accept new technology.

2 | PERCEPTIONS OF READINESS FOR CHANGE

Change, as used here, refers to a continuous technological evolution (Alnoor, Eneizan, Makhamreh, & Rahoma, 2018). In this context, it is important to understand employees' attitudes and tendencies regarding change, and how to discover the appropriate mechanisms that can help them be open to it.

The degree of an organization's readiness for change reflects employees' willingness to accept change and to work on its implementation.

Nurturing the ability to embrace change is essential throughout an organization, affecting everything from recruitment and daily operations to communications and reward systems (Weiner, 2009). Employees' personal perceptions about change in technological systems and their willingness to adapt to it will determine whether that system succeeds or fails (Abdulaali, Alnoor, & Eneizan, 2019). Getting employees ready to accept change requires conveying its importance in filling a gap between current and desired performance. This requires considerable effort in managing staff members' attitudes toward the expected change and to foster the sense that the organization is both supportive of and responsive to innovation (Kwahk & Lee, 2008).

Perceived organizational readiness for change refers to individuals' opinions of how receptive their work environment is to change (Eby et al., 2000). Organizational readiness for change and its effective implementation can be studied at three levels: individual, group, and organization-wide (Weiner, 2009). Integrated collective action from every member is required for the successful implementation of change, as well as for effective follow-up (Vaishnavi, Suresh, & Dutta, 2019).

The degree of an organization's readiness for change reflects employees' willingness to accept change and to work on its implementation (Gigliotti, Vardaman, Marshall, & Gonzalez, 2019). It can differ according to the extent to which members of the organization value change and their ability to assess three key determinants of change implementation: Task requirements, availability of resources, and circumstantial factors.

When organizational readiness for change is high, individuals in the organization are likely to seek collective change, make greater efforts to implement and accept it, show greater perseverance during the change process, and cooperate in the overall initiative. The result is more effective implementation (Vaishnavi et al., 2019). An organization's readiness for change also reflects such psychological and behavioral characteristics as desire and capacity for change (Weiner, 2009). Members of an organization typically commit to implementing organizational change because:

- They want to (they appreciate change).
- They are forced to (they have few options but to change).
- They must (they feel obligated to change).

A commitment-based desire to change motivates the highest level of engagement with change implementation (Herscovitch & Meyer, 2002).

2.1 | Engagement with technology

For the purpose of this study, engagement mode (EM) refers to the extent to which an individual IT user is associated with a particular object, or mode. This mode determines the nature of activities related to the interaction between a person and technology, and the result of that interaction. In other words, it refers to how individuals perceive the characteristics of their interaction with technology (Montgomery et al., 2004). Therefore, it is important to identify and describe the basic conditions that make this correlation negative or positive (Sharafi, Hedman, & Montgomery, 2006).

Modes of interaction between individuals and information technology have been explained in light of three dimensions: object assessment, locus of control between subject and object, and internal and external focus of motives (Montgomery et al., 2004). *Assessment* refers to the emotional side—that is, the desire and inclination of the person toward an *object* of technology, such as a computer or a computer program; the

subject is the person who uses it. Activity is an end in itself when the focus is intrinsically focused (*Focus I*) and is a means of achieving an objective when the stimulus is externally focused (*Focus E*).

These dimensions entail three questions:

1. Do I like this activity (assessment)?
2. How and to what extent can the activity be controlled (locus of control)?
3. What is the goal I focus on when doing the activity (motivation focus)?

The five patterns of moderating effects that result have been are described as enjoyment/acceptance, avoidance/hesitation, frustration/anxiety, efficiency/productivity, and ambition/curiosity (Montgomery et al. (2004)).

A person's perception of their surrounding external environment determines the limitations and potential uses of technology (Norman, 1998). New systems, such as enterprise resource planning (ERP) systems, often fail because of employees' resistance to the change that the new system requires (Kwahk & Lee, 2008). Such resistance often results when an organization's leaders have not created an appropriate environment in which employees are encouraged to accept change (Al-Abrrow et al., 2018).

Employees' perception of their organization's readiness for change affects their own intent in using any new technology. When an organization's culture is one in which change is welcome, members at all levels are more likely to view change in a positive light, which will help guarantee the behavior needed to drive technological change (Al-Abrrow et al., 2018). Examining the effect of perceived organizational readiness for change according to the five modes of engagement with technology described above will help highlight what managers can do to encourage employees to be more reception to technological change. The following five hypotheses are proposed.

- **H1**: A positive perception of organizational readiness for change has a positive effect on employees' enjoyment/acceptance of new technology.
- **H2**: A positive perception of organizational readiness for change has a negative effect on employees' avoidance of/hesitation with new technology.
- **H3**: A positive perception of organizational readiness for change has a negative effect on employees' frustration with/anxiety about new technology.
- **H4**: A positive perception of organizational readiness for change has a positive effect on employees' efficiency/productivity in using new technology.
- **H5**: A positive perception of organizational readiness for change has a positive effect on employees' ambition to use/curiosity about new technology.

2.2 | The moderating role of general self-efficacy

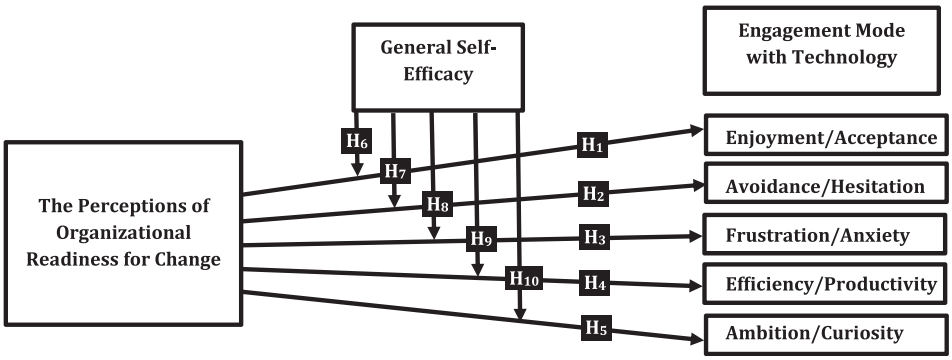
General self-efficacy is an individual's appreciation of his or her ability to cope with challenges, perform, and succeed (Judge & Bono, 2001). In other words, it is the belief in one's ability to mobilize knowledge resources and pathways to meet circumstantial requirements (Wood & Bandura, 1989). Comprising the core characteristics of self-evaluation—self-esteem, locus of control, and emotional stability—it is a subjective variable that affects and interacts with what surrounds a person, influencing performance, satisfaction, and behavior (Carleton, Barling, & Trivisonno, 2018). When employees realize that their organization is capable of successfully coping with change and adapting to it, they are more likely to be readily open to change, and vice versa (Eby et al., 2000).

It is important to clarify the difference between general and specific self-efficacy. The first is a belief in one's competence to deal with a wide range of stressful or challenging demands; the second represents a specific and bounded competence (Luszczynska, Scholz, & Schwarzer, 2005). General self-efficacy is not the expectation or belief of each challenge, but the total of a person's expectations and experiences of failure and success (Klassen & Klassen, 2018). One's degree of specific self-efficacy is useful in predicting specific behaviors (for example, dealing with computers), while the degree of general self-efficacy can help predict broader behavior.

When employees realize that their organization is capable of successfully coping with change and adapting to it, they are more likely to be readily open to change, and vice versa.

Self-efficacy determines whether a person is willing to assume a new behavior, such as the use of information technology (Compeau & Higgins, 1995), and expects to be able to perform that behavior successfully (Bandura, 1977). According to self-efficacy theory, two types of expectations affect behavior: *expected outcomes*, which is the belief that certain behaviors lead to certain outcomes, and *expected self-efficacy*, which is the belief that an individual can succeed in performing that behavior.

EXHIBIT 1 Research model



Expected self-efficacy is believed to be the strongest determinant of behavioral change, for it determines the initial decision to implement a behavior (Carleton et al., 2018). This is why trying to convince a person that a certain behavior will lead to a desired result will not change the behavior unless the person believes that he or she is able to perform that behavior as required (Sherer et al., 1982). Knowledge and skills are essential elements of work, but the people who possess them do often not use them optimally. This is because of the need for the motivating drive of self-efficacy, which affects the relationship between knowledge and work (Carleton et al., 2018). It is a psychological impetus that affects how and whether individuals organize elements, abilities, and potentials in order to achieve goals (Bandura, 1977).

Change management experts note that there is no one strategy that best facilitates an organization's readiness for change (Weiner, 2009), for various environmental factors and circumstances contribute to it. The degree of employees' self-efficacy, however, does determine the extent and level of employees' response to those factors.

Self-efficacy is a good predictor of behavior toward unfamiliar threats (Klassen & Klassen, 2018). This behavior prediction depends on past failures and successes. Self-efficacy also is one of the factors that influence preparedness for change (Kwahk & Lee, 2008). Increasing the level of self-efficacy increases performance and reduces emotional sensitivity, which is often a source of anxiety and leads to erratic performance (Bandura, 1982).

Each individual is a very important determinant of readiness for change (Eby et al., 2000). The sense of one's ability to control the state of change and its requirements will in one way or another affect a person's commitment to change (Eby et al., 2000). In other words, one's beliefs about past experiences will affect future performance (Wood & Bandura, 1989). Therefore, the following hypotheses are proposed:

- **H6**: A high level of general self-efficiency increases the likelihood of a positive relationship between perceptions of organizational readiness for change and the enjoyment/acceptance of technology.
- **H7**: A high level of general self-efficacy increases the likelihood of a positive relationship between perceptions of organizational readiness for change and ambition/curiosity regarding new technology.
- **H8**: A high level of general self-efficacy increases the likelihood of a negative relationship between perceptions of organizational readiness for change and avoidance/hesitation when confronted with new technology.
- **H9**: A high level of general self-efficacy increases the likelihood of a negative relationship between perceptions of organizational readiness for change and frustration/anxiety about new technology.
- **H10**: A high level of general self-efficacy increases the likelihood of a positive relationship between perceptions of organizational readiness for change and efficiency/ productivity with new technology.

The research model shown in **Exhibit 1** illustrates the relationships described above.

3 | LEARNING FROM A UNIVERSITY

To flourish, the higher education sector in Iraq needs to provide an environment that is conducive to technological advancement. Thorough analysis of existing conditions can point the way to improvement.

To test their hypotheses regarding employees' willingness to accept new technology, researchers conducted a study of employees at Southern Technical University's five colleges and four institutes, located in three administrative divisions in southern Iraq. Founded in 2014, Southern Technical has 14,700

students and 540 faculty members and is one of the country's leading universities. To enhance the university's competitiveness and improve the quality of the education it offers, its leaders have developed a strategic plan to raise awareness about the application of information technology throughout its facilities. This is to be accomplished with the help of private-sector organizations, such as the nonprofit International Research and Exchanges Board (IREX) and the Iraqi branch of the Shell Oil Company.

Of the 350 questionnaires that were randomly distributed, 290 were returned. Of these, 285 were valid for statistical analysis. Thus, the response rate was almost 81.5%. The participants were instructed to use a 5-point Likert scale (1 = disagree strongly; 5 = agree strongly) to answer 49 questions addressing these variables:

- **Perceptions of organizational readiness for change:** This one-dimensional construct consisted of 18 items. For example, *Employees here are looking forward to changes in work*. Focused on exploring employees' attitudes to predict their present and future behaviors toward change/information technology, this scale was adapted from one developed by Dunham, Grube, Gardner, Cummings, and Pierce (1989).
- **Self-efficacy:** The one-dimensional new general self-efficacy scale (NGSE) was used to measure this variable (Chen, Gully, & Eden, 2001). It consisted of 8 items. For example, *I will be able to achieve most of the goals that I have set for myself*.
- **Engagement mode with technology:** Consisting of 23 items divided into 5 dimensions, this scale (Sharafi et al., 2006), addressed enjoyment/acceptance with 5 items (for example, *I think IT is entertaining*); avoidance/hesitation with 5 items (for example, *I wonder about the role IT plays in my life*); frustration/anxiety with 5 items (for example, *I am not satisfied about my capability to manage IT*), efficiency/productivity with 4 items (for example, *I can organize everything better with the help of IT*), and ambition/curiosity with 4 items (for example, *I want to learn more about IT*).

3.1 | Analyzing the data

The structural equation modeling (SEM) method with partial least squares (PLS) were used to test the research model. Researchers relied on the SmartPLS 3.0 application module because it deals with data regardless of the sample size and its nature (normal or not), and because of its superior ability to predict and extract causal relationships between variables (Hair Jr., Sarstedt, Hopkins, & Kuppelwieser, 2014).

Before testing the hypotheses of the study model, researchers tested for convergent and discriminant validity. When testing for convergent validity, they initially tested the items using specific criteria. Later, the items were grouped by the scales representing main variables and their dimensions for the dependent variable (Hair Jr. et al., 2014). The specific criteria inspected in convergent validity were factor loading, which had to exceed 0.7; average variance extracted (AVE), which had to exceed 0.5; and composite reliability (CR) and Cronbach's Alpha for internal consistency reliability, which had to exceed 0.7 (Hair Jr. et al., 2014). The results (**Exhibit 2**) show that the values of the factor loading exceeded the specified values, except for ORC10 through ORC15, SE2, EA5, AH1, and FA3, which were dropped as being unreliable. AVE, CR, and Cronbach's Alpha values were statistically acceptable.

The results of the test for discriminant validity show that the measurement of the variables was differentiated between them (**Exhibit 3**). The heterotrait-monotrait ratio (HTMT) that was used to test the sincerity of discriminant validity resulted in all values being less than 0.9 (**Exhibit 4**). This indicates that the data do not suffer from discriminant validity problems.

Descriptive statistics and correlation results are presented in **Exhibit 5**. The results indicate that the mean of the variables was at an average level and the *SD*s were small. The results indicated a positive correlation between general self-efficacy and ambition/curiosity, efficiency/productivity, and enjoyment/acceptance ($p < .01$), and a negative correlation between general self-efficacy and avoidance/hesitation ($p < .05$) and frustration/anxiety ($p < .01$). In addition, there was a positive correlation between perceptions of organizational readiness for change with ambition/curiosity, efficiency/productivity, and enjoyment/acceptance, and a negative correlation between perceptions of organizational readiness for change and frustration/anxiety ($p < .05$).

These results show that there is a need to do more to promote the acceptance of technology in Iraq's higher education sector. The university employees that responded to the survey indicated that they have strong social ties and perceive new technology as a threat to those ties. To date, most of the work in the university is conducted through work groups. As employees believe that new technology leads to a focus on more individual work that will weaken their social connections, they have resisted using it.

3.2 | Testing the hypotheses

The second step in the researchers' PLS analysis entailed assessing the structural model. As shown in

Exhibit 2, the R^2 value—which indicates the extent to which the study model explains the relationship between the variables (that is, the extent of the effect of the exogenous variable on the endogenous variable)—for the five dependent variables ranged from 0.44 to 0.667. This indicates a medium interpretation

EXHIBIT 2 Convergent validity

Construct	Factors	Items	Factor loading	AVE	CR	R2	Cronbach's alpha
Perceptions of organizational readiness for change (ORC)	One-dimensional	ORC1	0.869	0.692	0.932	–	0.928
		ORC2	0.881				
		ORC3	0.859				
		ORC4	0.877				
		ORC5	0.851				
		ORC6	0.837				
		ORC7	0.820				
		ORC8	0.808				
		ORC9	0.812				
		ORC16	0.750				
		ORC17	0.868				
		ORC18	0.739				
General self-efficacy (SE)	One-dimensional	SE1	0.717	0.727	0.937	–	0.933
		SE3	0.926				
		SE4	0.890				
		SE5	0.869				
		SE6	0.826				
		SE7	0.787				
		SE8	0.934				
Engagement mode	Enjoyment/acceptance (EA)	EA1	0.908	0.699	0.895	0.494	0.921
		EA2	0.853				
		EA3	0.811				
		EA4	0.766				
	Avoidance/hesitation (AH)	AH2	0.725	0.747	0.926	0.445	0.926
		AH3	0.824				
		AH4	0.918				
		AH5	0.970				
	Frustration/anxiety (FA)	FA1	0.837	0.621	0.925	0.667	0.924
		FA2	0.817				
		FA4	0.730				
		FA5	0.764				
	Efficiency/productivity (EP)	EP1	0.899	0.759	0.795	0.440	0.865
		EP2	0.886				
		EP3	0.850				
		Ep4	0.849				
	Ambition/curiosity (AC)	AC1	0.836	0.755	0.795	0.637	0.875
		AC2	0.823				
		AC3	0.827				
		AC4	0.980				

for the independent variable in the dependent variables.

As shown in **Exhibit 6**, the study found that general self-efficacy has a positive effect on enjoyment/acceptance, efficiency/productivity ($p < .01$), and ambition/curiosity ($p < .05$), and a negative effect on avoidance/hesitation and frustration/anxiety ($p < .01$). Although the study also found a significant positive relationship between perceptions of organizational readiness for change and efficiency/productivity and ambition/curiosity ($p < .01$), it did not reveal a significant relationship between perceptions of organizational readiness for change and the other dimensions.

Analysis of the interaction between the moderator variable and the independent variable showed a significant statistical positive effect on enjoying/acceptance, efficiency/productivity, and ambition/curiosity ($p < .01$), and a negative effect on avoidance/hesitation and frustration/anxiety ($p < .01$). Thus, general self-efficiency moderates the relationships between an organization's readiness for change and engagement mode in relation to new technology. This finding suggests that organizational efforts to induce a willingness to change among employees will not be effective unless employees are internally motivated to accept change.

4 | IMPLICATIONS FOR HIGHER EDUCATION IN IRAQ

In seeking to determine the degree to which employees at Iraq's Southern Technical University are willing to engage with new information technology, this study tested their perception of the university's readiness for change and the extent of its impact on their engagement mode with IT. The results revealed that in the absence of financial benefits, most employees are not interested in learning about or accepting new technology. In addition, an essential personal factor, general self-efficacy, was found to play a moderating role. Many employees emphasized that the lack of training opportunities leads to low self-efficacy among staff, ultimately hindering their acceptance and use of new technology.

Leaders in higher education recognize that change, and especially technological change, is crucial to development, keeping pace with international standards, and their organization's ultimate survival. Southern Technical University recently entered into agreements with various international educational institutions and technology specialists to help improve its technological infrastructure. To succeed, these strategies require efficient interaction between humans and technology—a challenging goal. The degree of technological change often depends on employees' level of awareness about an organization's orientation toward change. Therefore, when employees believe that their organizations support and encourage change and will actively seek to implement it, they will be more likely to actively engage with it (Kwahk & Lee, 2008).

The results of this study indicate that the level of employees' general self-efficacy is important: General self-efficiency determines employees' positive perception of organizational readiness for change because new technology usually requires a high degree of self-efficacy. Therefore, self-efficacy plays an active role in promoting the positive engagement of people with technology, and is evident in the relationship between perceived readiness to change and engagement in technology through enjoyment/acceptance of it. In addition, a higher sense of self-efficacy is likely to increase employees' sense of well-being and happiness and diminish feelings of negativity or helplessness when using new technology. Universities can motivate their employees by enhancing their self-efficacy through the use of various training techniques.

EXHIBIT 3 Discriminant validity

Variables	*SE*	ORC	AC	AH	EP	EA	FA
SE	0.811						
ORC	0.568	**0.778**					
AC	0.355	0.614	**0.806**				
AH	0.469	0.614	0.714	**0.871**			
EP	0.605	0.534	0.506	0.443	**0.807**		
EA	0.467	0.267	0.694	0.237	0.708	**0.809**	
FA	0.561	0.630	0.658	0.403	0.506	0.203	**0.869**

Notes: Boldface indicates that discriminatory validity values are accepts than 0.9).

SE: general self-efficacy; ORC: perceptions of organizational readiness for change; AC: ambition/curiosity; AH: avoidance/hesitation; EP: efficiency/productivity; EA: enjoyment/acceptance; FA: frustration/anxiety.

EXHIBIT 4 Heterotrait-monotrait ratio (HTMT)

Variables	*SE*	ORC	AC	AH	EP	EA	FA
SE							
ORC	0.586						
AC	0.367	0.603					
AH	0.451	0.669	0.586				
EP	0.674	0.589	0.529	0.488			
EA	0.451	0.351	0.577	0.281	0.415		
FA	0.539	0.699	0.514	0.605	0.491	0.230	

Notes: SE: general self-efficacy; ORC: perceptions of organizational readiness for change; AC: ambition/curiosity; AH: avoidance/hesitation; EP: efficiency/productivity; EA: enjoyment/acceptance; FA: frustration/anxiety.

EXHIBIT 5 Descriptive statistics and correlation

Variables	Mean	*SD*	*SE*	ORC	AC	AH	EP	EA	FA
SE	2.76	0.819	1						
ORC	2.94	1.027	0.700**	1					
AC	2.63	0.966	0.377**	0.309**	1				
AH	2.99	1.174	−0.224*	0.061	−0.187*	1			
EP	2.77	0.782	0.648**	0.258**	0.561**	−0.203*	1		
EA	2.36	0.979	0.547**	0.253**	0.466**	−0.138*	0.581**	1	
FA	3.09	1.092	−0.272**	−0.204*	0.034	0.623**	0.081	−.271**	1

Notes: SE: general self-efficacy; ORC: perceptions of organizational readiness for change; AC: ambition/curiosity; AH: avoidance/hesitation; EP: efficiency/productivity; EA: enjoyment/acceptance; FA: frustration/anxiety.
**$p < .01$; *$p < .05$ (two-tailed).

Strengthening ties with international organizations may also help to provide employees with more training opportunities.

The results of the study also showed that general self-efficacy has a significant impact on employees' motivation to use technology in terms of their feelings of avoidance, hesitation, or anxiety. This does not mean that self-efficacy increases employees' happiness or enjoyment when using new technology but, rather, reduces their anxiety and avoidance of new technology. Finally, general self-efficacy also has a role in enhancing efficiency, productivity, and ambition in the use of technology. This impact on the level of individual and overall output is of great importance to ensuring the success of an organization's implementation strategies.

5 | LESSONS FOR BROADER APPLICATION

This study in one institute of higher education to determine the impact of employees' self-efficacy on their engagement with technology calls for additional longitudinal empirical research to assess the internal reliability of its results. Ideally, the model proposed here should be tested in different sectors for comparison purposes.

EXHIBIT 6 Hypotheses test

Paths	*β* value	*SD*	*t* value	*p* values	Result
General self-efficacy → enjoyment/acceptance	.314	0.053	5.884	.000	Supported
General self-efficacy → avoidance/hesitation	−.108	0.023	−4.780	.000	Supported
General self-efficacy → frustration/anxiety	−.218	0.018	−12.981	.000	Supported
General self-efficacy → efficiency/productivity	.471	0.036	13.912	.000	Supported
General self-efficacy → ambition/curiosity	.131	0.052	2.499	.013	Supported
Perceptions of organizational readiness for change → enjoyment/acceptance	.105	0.088	1.193	.252	Unsupported
Perceptions of organizational readiness for change → avoidance/hesitation	.014	0.023	0.611	.103	Unsupported
Perceptions of organizational readiness for change → frustration/anxiety	−.053	0.031	−1.734	.121	Unsupported
Perceptions of organizational readiness for change → efficiency/productivity	.116	0.036	3.231	.001	Supported
Perceptions of organizational readiness for change → ambition/curiosity	.332	0.048	6.987	.000	Supported
Moderating effect 1 → enjoyment/acceptance	.490	0.040	12.243	.000	Supported
Moderating effect 2 → avoidance/hesitation	−.206	0.012	−17.168	.000	Supported
Moderating effect 3 → frustration/anxiety	−.252	0.018	−13.253	.000	Supported
Moderating effect 4 → efficiency/productivity	.325	0.025	12.972	.000	Supported
Moderating effect 5 → ambition/curiosity	.272	0.026	10.508	.000	Supported

Finally, there is a need to further test the model by adding variables that may affect the results that have been obtained, such as other personal variables related to technology or variables that strengthen the explanatory power of the study model.

Nonetheless, the findings presented here can be used to provide general guidance to any institution or sectors facing organizational change. To begin, change leaders must understand that creating a culture and an environment that supports change is not enough. To successfully implement a change initiative, they must also attend to the behaviors, motivations, skills, and abilities of their employees. They also must focus on both external and internal factors that determine the nature of people's engagement in an environment of change.

To successfully implement a change initiative, [leaders] must also attend to the behaviors, motivations, skills, and abilities of their employees.

Any type of change, and particularly technological change, requires the integration of vision, planning, and implementation. Managers must align their organization's HR practices to its strategy of change in order to attract and select the most highly qualified human resources. They also should take steps to raise the general self-efficacy of current employees through ongoing development of their skills and knowledge.

Even though there has been much progress in bringing new technology into Iraqi's higher education sector, the development of its human resources has often been overlooked, and this has contributed to resistance to change in this sector. At a minimum, training policies and programs should be revised to ensure that they elevate employees' confidence, competence, and efficiency. This will contribute to a higher level of performance and their ability to adapt to technological change. Finally, managers must also follow up on their change efforts to detect problems in their earliest stages and take timely corrective measures. Such lessons are likely to serve any organization well.

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How to cite this article: Alnoor AMR, Al-Abrrow H, Abdullah H, Abbas S. The impact of self-efficacy on employees' ability to accept new technology in an Iraqi university. *GBOE*. 2019;9999 (9999):1–10. https://doi.org/10.1002/joe.21984