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Technology Readiness as an Antecedent of the Intention to Adopt Human Capital Analytics among HR Professionals: A Conceptual Framework Using the Mediating Role of Perceived Usefulness

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Abstract:
The field of HRM witnessed rapid changes in last few decades. One of such most remarkable dramatic changes was the conquer of the age of HR-related data science. Since large organizations and especially these Fast-Moving Consuming Goods (FMCGs) organizations have hundreds of thousands of HR-related data needs to be processed into meaningful information, it became urgently needed to conduct workforce Analytics. Nowadays, the concept of analytics is commonly used in the field of HRM. Therefore, this paper aims at investigating these antecedents that stimulate the behavioral intention (BI) of those HR professionals working in the Egyptian FMCGs organizations. The current research is built upon the theoretical foundation of the Technology Acceptance Model (TAM).

Keywords: HR Analytics, Technology Acceptance Model, TAM, Behavioral Intention, Perceived Usefulness, Perceived Ease of Use

1. Introduction

Nowadays, it's obvious that the way with which organizations are creating values had been changed drastically over the previous decades. The majority of organizations are creating values through both their mix of physical and tangible assets. As time goes on, the value of organizations tended to be created through its intangible assets such as intellectual capital, knowledge, and human capital. However, this kind of value is very difficult to be measured in some cases and very difficult to be measured (Capelle, 2017).The body of literature is mainly concentrated on the concept of Evidence-Based Management (EBM). Accordingly, managerial decisions are built on data; actually, HR-related data works as the evidence that would enable HR professionals to take the right decisions (Dooren, 2012). According to Kryscynski et al (2018), only few organizations are capable and interested in measuring the real value achieved by their human capital to the business. This would happen through quantifying their HR-related activities. Unfortunately, it was surprising that only the majority of organizations are concentrating on utilizing this data that they can understand and analyze (Kryscynski et al, 2018). Actually, this fact paved the way to intensively create such full integration of Analytics in the field of HRM or Human Capital Analytics (HCA).

Consequently, the crisis of COVID-19 pushed the whole world towards thinking of the wholistic view of businesses and that required paying more attention to HCA to be considered as one of the most important topics in the field of HRM.

2. Literature Review

The literature review of the current paper is built on two stages - firstly, demonstrating the theoretical foundations based on which the proposed conceptual model is built; secondly, investigating the relations between the main research variables in the body of knowledge. Hence, it will be ended by the research propositions and the final depiction of the conceptual model.

2.1. Theoretical Foundation

The current research is built on the theoretical foundation of the Technology Acceptance Model (TAM). The main reason for adopting the TAM is that it is a well-tested. The TAM was originally developed by Davis et al., (1989). Alongside, the TAM is considered the most commonly used model and is widely tested for measuring the level of accepting technology in different contexts and industries, therefore a lot of researches in the body of literature have extended the TAM by only focusing only on two main antecedents PEOU and PU (McKechnie et al., 2006).
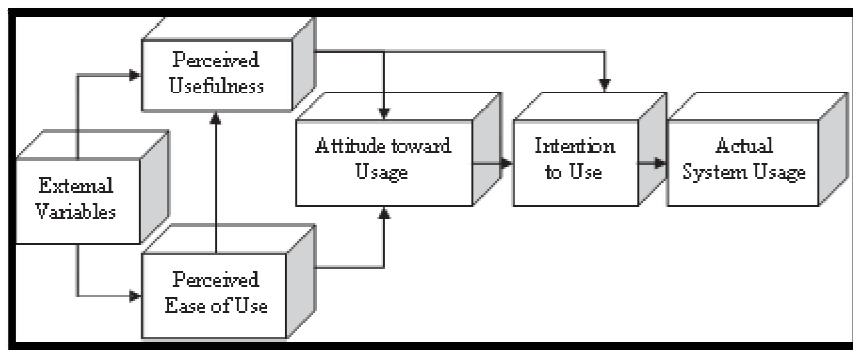
Figure 1: The Original TAM. Source: Davis et al (1989)

2.2. Conceptual Framework and Hypotheses

This paper will use the TAM to build the proposed conceptual model. Originally, PU is used to interpret the BI of HR professionals to adopt HCA. In the light of the current research, PU could be defined as the HR professionals' perceptions of the importance of using HCA in their HR-related tasks. In the context of this research, PU will play the mediating role in the proposed conceptual model. Finally, the components of TR construct will be considered as the external variables that may affect the BI of HR professionals but through the tunneling or mediating role of PU.

2.2.1. Behavioral Intention

In fact, the concept of behavioral intention is a multifaceted construct. The concept was intensively used by many scholars in multifarious contexts and research fields. Hence, the BI is intensively used to measure the acceptance level or the degree of adoption of a newly introduced technology. For instance, a lot of researchers have adopted it in the field of ecommerce, e-learning and e-government in the topics related to the field of public administration and public policy making (Mohamed, et al., 2018).

A large hype of researchers has investigated the concept of BI in their researches. For instance, Yousafzai et al., (2007) conducted a comprehensive meta-analysis after reviewing 145 researches all of them were built on the theoretical foundation of the TAM. Most of the researches reviewed by Yousafzai et al., were focusing on studying the mechanism through which end users of a certain technology accept or adopt it. This meta-analysis revealed that sometimes the researchers are adopting an alternative construct for BI while adopting TAM, this concept was known as 'Measured Use'. However, this term was used in only 7.5% of the 145 reviewed articles. On the other hand, more than 92.5% of the technology acceptance researches are using the term BI. In other words, the majority of these articles are suing BI as the ultimate exogenous variable for their adapted or developed models (Yousafzai et al., 2007).

According to Davis et al., (1989), the concept of BI is defined as such cognitive or mental state of mind that is shaped in the minds of a newly advanced technology users. In the current research, the term BI will be used as the dependent variable. The main reason for such claim, is that it would be generally a practical matter to anticipate the intention to adopt HCA among those HR professionals working in Egyptian FMCGs organizations.

Actually, the BI for the end users of any new technology could be shaped many factors, in other words, it is stimulated by many drivers. Some of these factors could work as supporting factors while others could be seen as barriers. Concerning the supporting (Wünderlich, 2009). Concerning the supporting factors, they are perceived as these factors that may promote the individual willingness to use a certain technology in the minds of technology end users. Contradictorily, the other barrier factors, are defined as these factors that may limit the intention or the previously mentioned willingness. Not only that, but also it may make an individual user to be a technology avoider, rather s/he may work against the process of implementing a certain technology (Wünderlich, 2009). The research believes that in this case the avoider of technology would be turned into a change resister and not a facilitator or change agent.

The body of literature revealed that the BI is a flexible construct. This claim was derived from the fact that a lot of theories and models were mainly developed and implemented for the sake of investigating BI. Par example, the TAM, Unified Theory of Acceptance and Usage of Technology (UTAUT), Theory of Reasoned Action, as well as Theory of Planned Behavior, all of them are ended with either the actual usage construct or the BI of usage (Vargas, 2015; Wünderlich, 2009).

For the current research, it would be very difficult to measure the 'Actual Use' of HCA among HR professionals in the Egyptian FMCGs; since the concept is still in its introductory phases or infancy. Therefore, only few organizations are aware of the concept and apply it. Accordingly, the current research will try to test the BI among HR professionals as a dependent variable.

2.2.2. Technology Readiness (TR)

The work of Tsourela and Roumeliotis (2015) referred to the concept of Technology Readiness (TR) as the tendency of an individual towards the acceptance and adoption of a newly introduced technology for the sake of achieving their personal or professional daily goals. Another definition for TR was developed by Bosgosze (2015), he defined it as the personal general opinion concerning the adoption of a newly introduced technology to achieve daily personal goals and business goals.

Theoretically, TR was mainly developed based on the idea released in the year 1996 by Parasuraman. Actually, it was introduced in the field of service marketing, it asserted that TR plays a critical role in facilitating the connectivity and

communication between service organizations and customers, employees and their organizations, and finally customers and employees. Therefore, technology in such case became something vital and unavoidable. Consequently, Parasuraman (1996) had focused on the need to investigate the degree of individual readiness to adopt a newly introduced technology through examining these emotional drivers that crystalize the future use of technology (Lee W. et al., 2012). Borrero et al., (2014) asserted that TR as a multifaceted construct, is flexibly and widely applied in multifarious contexts like self-service technologies (SSTs), industry of wireless technology, online, educational, as well as healthcare services (Hüer 2015).

To deeply understand these TR emotional drivers, it's important to understand that any technology user can have ether such positive or negative feelings that may be shaped in her/his inner state towards a newly introduced technology (Esen, & Erdogmus, 2014). These paradoxical feelings range along a continuum that range from highly ready to adopt a certain technology at one extreme to highly resistant to adopt such technology at the other extreme (Bosgosze, 2015). In addition, Parasuraman (2000) stated that when an individual resist to adopt a certain technology this may be due the psychological barriers that may hinder the enthusiasm for adopting such technology. Therefore, it will affect the degree of such person's TR negatively.

Moreover, Parasuraman (2000) asserted that the construct TR is made of four components: optimism, innovativeness (enablers or contributors) on one side, in addition to discomfort and insecurity (as inhibitors). Meticulously, the term optimism refers to such positive perspective concerning technology, so that it can enable end users to have more increased control, flexibility, and efficiency (Bosgoze, 2015; Rita, 2008, Liljander,et al., 2006). With regard to the term innovativeness, it refers to the tendency of an individual technology user to be a pioneer or in other words a through leader or expert in using such technology (Borrero et al., 2014). On the other hand, there are two other inhibitor dimensions. The third component or dimension is called discomfort. Discomfort refers to the state in which a technology user feels being overwhelmed by it or when s/he lack control over such technology (Hüer 2015). The last component of TR is known as insecurity. Insecurity refers to the situation in which the individual user may mistrust technology or s/he can be skeptical about its ability to perform tasks effectively or working properly (Hüer 2015). Consequently, both feelings of insecurity and discomfort may prohibit some individuals from sharing their personal information or dealing with such organizations that could be contacted only electronically (Bosgoze, 2015).
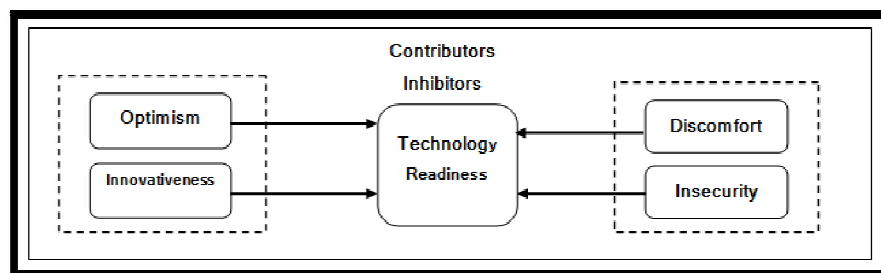

Figure 2: Drivers of Technology Readiness
Source: Wilson R. (2008), 'Technology Readiness, Attitude towards Computers and Computer
Literacy among First Year Nursing Students: A Canadian Perspective' (2008), Master of
Nursing, Toronto, Canada

The body of literature categorizes technology users based on their readiness to adopt technology as firstly the technology explorers, followed by those pioneers, sceptic users, paranoid and finally those laggards. According to Chen et al., (2013), they indicated that each segment of users has its own enablers and prohibitors. Table 1 shows the description of each segment of technology users.

Segment	Definition
Explorers	Explorers are those first individuals to adopt such new technology due to low fear they have regarding it (characterized by high optimism and innovativeness and low discomfort and insecurity)
Pioneers	They are optimistic and innovative like explorers, but they also they feel some discomfort and insecurity (characterized by high optimism and innovativeness but above average discomfort and insecurity)
Sceptics	They are not passionate about technology and also have some inhibitions (characterized by low optimism and innovativeness)
Paranoids	They find technology interesting, but at the same time they feel discomfort and unsecured (characterized by high optimism about technology but low innovative)
Laggards	They have very limited motivations toward technology and typically they may be the last group to adopt a new technological service or product (characterized by low optimism and innovativeness and high discomfort and insecurity)

Table 1: Technology Readiness Segments
Source: Borrero, J. D., Et Al., (2014). Expressive Participation In Internet Social Movements: Testing The Moderating Effect Of
Technology Readiness And Sex On Student Sns Use. Computers In Human Behavior, 30, 39-49

As presented in Table 1, each one of the segments has different degrees and levels of each one of the four core dimensions of TR. Some authors consider the dimensions of TR as moderating variables for the relationship between some constructs in different technology acceptance models like TAM, TRA, and UTAUT (Borrero et al., 2014). On the other hand, other researchers consider the dimensions of TR as predictors of the BI (Lee et al., 2012). Consequently, based on the above-mentioned literature, the current research postulates the following proposed propositions:

- Proposition 1:Optimism has a significant positive effect on the HR professionals' BI to adopt HCA in the Egyptian FMCGs organizations
- Proposition 2:Innovativeness has a significant positive effect on the HR professionals' BI to adopt HCA in the Egyptian FMCGs organizations
- Proposition 3:Discomfort has a significant negative effect on the HR professionals' BI to adopt HCA in the Egyptian FMCGs organizations
- Proposition 4:Insecurity has a significant negative effect on the HR professionals' BI to adopt HCA in the Egyptian FMCGs organizations

2.2.3. Perceived Usefulness (PU)

The term perceived usefulness (PU) refers to the extent to which an individual technology end user perceives a certain technology as a highly beneficial and enabling her/she to perform certain tasks. The concept of (PU) is considered as one of the key variables in the TAM, and it is considered as highly recognized predictor of the attitude construct. In addition, PU is considered as one of the most important predictors of BI (Bhattacharjee, & Hikmet, 2008). At the same time the construct of PU has another critical mediating role that may directly affect the BI of end users. In other words, it's seen that PU is a core construct in the TAM, and it plays a great role in tunneling the relationship that may exist between these drivers and the BI (Yousafzai and Soriano, 2011).

In the context of the current research, PU is defined as the degree to which HR professionals perceive HCA as a crucial tool that would improve their abilities to accomplish tasks, productivity, and make their work much easier. A lot of researches in the body of literature have reported the influence of PU on BI is established (34). For instance, Alkali & Abu Mansor (2017) reported that PU was reported having predicted BI of university staff to use e-training. Similarly, PU also has a positive direct effect on behavioral intention to adopt e-portfolio (25,35). Consequently, according to the TAM, and based on the above-mentioned evidence from the literature, the current research postulates the following proposed hypotheses:

- Proposition 5: PU has a significant mediating effect on the relationship between a: Optimism, b: Innovativeness, c: Discomfort, and d: Insecurity.
- Proposition 6: PU has a significant positive effect on HR professionals' BI to adopt HCA in the Egyptian FMCGs Organizations.
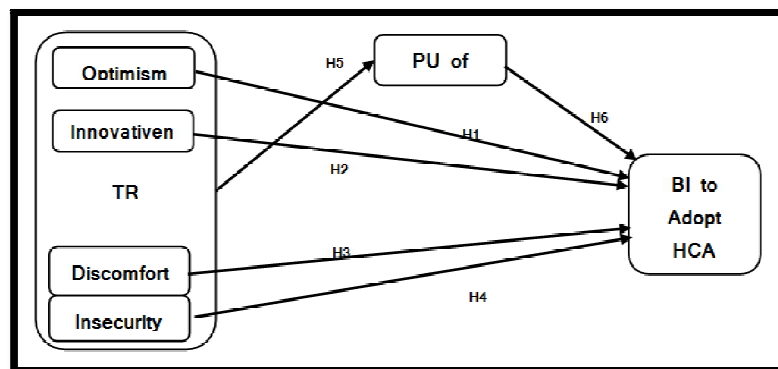

Figure 3: Conceptual Framework

In summary, the current research proposes that the four main components of TR can shape the BI of the HR professionals in the Egyptian FMCGs. In addition, the model also postulates that these components can form the BI by tunneling through the mediating role of PU that exists in the minds of those HR professionals. In addition, the model postulates that optimism and innovativeness will positively affect both of PU and BI of HR professionals. On the other hand, both of discomfort and insecurity are expected to negatively affect both of PU and BI of Egyptian HR professionals. Therefore subsequently, the researchers will empirically test this conceptual model within the Egyptian FMCGs organizations through a new paper.

3. Conclusion

In a nutshell, recently HCA is the new area of interest for both academics and practitioners in the field of HRM. Due to the fact that those organizations with large number of employees have massive amounts of data in what so-called big data, these sets of big data could be considered as one of the most important organizational assets. This kind of assets could be effectively managed to extract these insights that would be beneficial for supporting the ultimate organizational decisions. Consequently, the effective analysis of these HR-related data would grant the adopting organization an edge in the market.

Since the concept of HCA is still in its infancy or introductory phase in the implementation process, the purpose of this paper was to crystalize a conceptual model that would depict the mechanism through which the Egyptian HR professionals can adopt HCA. Moreover, the proposed conceptual model sketches this role of TR and PU as among those drivers that may stimulate the BI for those HR professionals in emerging markets. Hence, this paper adds to the current literature of HCA adoption, through explaining the role played by TR components and clarifying the mediating role of PU in interpreting the relationship between these components of TR and the BI.

4. Research Limitations and Future Research Suggestions

Actually, there are some limitations of the current research. Firstly, excluding the mediating role of attitude. According to Davis et al. (1989), Attitude is considered as the main construct that plays a mediating role in the TAM model. This paper excludes the mediating role of attitude based on the research of Yousafzai et al., (2007). The main reason for this opinion for Yousafzai et al. (2007), is that those developers and adopters of the TAM in their studies have discovered that after excluding the mediating role of attitudes, it seems that the exploratory power of the whole model still considered as equally good as when it exists. Therefore, it became normal for researchers to exclude attitude from these models developed on the theoretical foundation of the TAM. Secondly, the current conceptual model needs to be tested empirically in new researches.

5. Research Implications

In fact, the characteristics and personality of technology end users affect the adoption of technology. Therefore, HR professionals should consider personal characteristics differences while adopting HCA. This paper sheds the light on these factors or determinants of adopting HCA among HR practitioners in the Egyptian FMCGs organizations. Moreover, in implementing HCA, top managers should convince their HR professionals with the usefulness and benefits of HCA since PU works as a mediator between these drivers and BI.

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