Theoretical And Conceptual Framework: A Critical Part of Information Systems Research Process and Writing

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Abstract

The information systems (IS) research process and writing is built on existing knowledge, principles, theories, frameworks, and models. IS researchers continue to build their ideas on an existing framework called the theoretical framework through which a conceptual framework is formulated. Theoretical and conceptual frameworks are the foundation of any research process in IS research and others. Both theoretical and conceptual frameworks are used by scholars in IS discipline when preparing a research work. IS supervisors always urge their students to apply a theoretical and conceptual framework in their study. But the selection and application of the theoretical and conceptual framework in IS discipline and research are still confusing to IS scholars. This paper deployed a literature review process to determine the critical role of theoretical and conceptual frameworks in IS discipline and research in looking at existing literature covering both frameworks in information systems (IS) research. This study found that the application and selecting process of the theoretical and conceptual framework remains confusing and challenging. The study provides a comprehensive structure for choosing and applying the theoretical and conceptual framework in IS research.

Introduction

It is important to understand the critical importance of both theoretical and conceptual frameworks when conducting information systems (IS) research. According to Adom, Hussein and Agyem (2018), the theoretical and conceptual framework is the base to establish research credibility, acceptance, and generalisability. McGaghie, Bordage and Shea (2001) believe that theoretical and conceptual framework is the base or backbone for any research study. Without both, the research process and outcome may be underrated. Both frameworks provide the foundation upon which research topics (title), objectives, and questions are built. However, researchers are confused about distinguishing between the theoretical and conceptual frameworks (Ngulube, Mathipa & Gumbo, 2015). According to Adom et al. (2018), a theoretical and conceptual framework organizes research to provide a clear direction in carrying out research and make its findings relevant and more acceptable.

Furthermore, both frameworks are the lifeline and bedrock for research, and without both, research findings are weak and lack direction (Adom et al., 2018; Imenda, 2014). At the same time, Ngulube (2018) supports other researchers' views by noting that conducting research is impossible without a theoretical and conceptual framework. Both assist in supporting and formulating empirical research problem statements (Hughes, Davis & Imenda, 2019). Then, one can argue that both frameworks should be regarded as a critical aspect in conducting IS research because it assists in establishing the IS discipline that scholar keep questioning the identity. However, scholars and students are confused about differentiating and applying both frameworks in research (Kivunja, 2018; Adom et al., 2018), including IS research. However, applying both frameworks in a study is not easy (Ngulube et al., 2015). This study provides the line between the two frameworks within the context of IS research and the importance of both in IS research and the selection process.

Main statements generalization

Theoretical and conceptual frameworks continue to act as a base for academic research writing, but many scholars find it challenging to apply them in their research. Researchers should continue to advocate using theoretical and conceptual frameworks conducting academic research (for example, dissertations and thesis and other academic papers/manuscripts). Adom et al. (2018) believe that theoretical and conceptual frameworks are the foundation for the research process. At the same time, Green (2014) states that theoretical and conceptual frameworks have no mutual explanation, definition, or application in research. Crawford (2020) suggests that the authors find it challenging to differentiate between the theoretical and conceptual frameworks. The difficulties in the definition, differentiation, and application remain a concern for many scholars, especially those in the information systems (IS) discipline. However, a theoretical framework is critical in research (Osanloo & Grant, 2016), likewise conceptual framework. A conceptual framework provides a narrative structure of research (Maxwell, 2005). The above literature made it clear that theoretical and conceptual frameworks are misplaced or misinterpreted in research. Proper literature is needed for researchers in IS and other related disciplines to understand what theoretical and conceptual frameworks constitute in research and its application. Then, this study aims to provide an explanation and how it can be applied in IS research.

Research method

This paper adopted a literature review in searching existing articles that covers theoretical and conceptual framework. The articles were sourced from trusted academic databases like Google Scholars, Academic.edu, ResearchGate, and others. The research was guided by the keywords such as theoretical and conceptual framework and many more. The keywords guided the study in achieving its main objective and providing IS researchers with a deeper understanding and application of the theoretical and conceptual framework in the practice of the discipline.

Related literature and discussions

Theoretical framework in IS research (discipline)

A theoretical framework remains a research brain but is mostly ignored or misunderstood by researchers (Osanloo & Grant, 2016). It is a structure that guides and supports research theory (Kivunja, 2018) and how the research theory defines the study (Varpio, Paradis, Uijtdehaage & Young, 2020). Furthermore, it is a foundation for research focusing on existing theory(ies) or framework/s (Adom et al., 2018). The existing theory(ies), framework/s, or models guide the research objectives/questions and hypotheses formulation. Researchers use it to establish their own research framework called conceptual framework. According to Hughes et al. (2019), Adom et al. (2018) and Osanloo and Grant (2016), the theoretical framework informs a researcher to understand the kind of literature to collect, the problem statement, significance of the study, data collection, analysis, and the discussion of the findings. To this study, a theoretical framework assists a researcher in mapping out concepts and components that define the standpoint of the study in making the research more connected to existing research idea/s. The research position is defined through the theoretical framework; the connection between the title, problem statement, research objective, questions, and methodology is established. It guides the researchers to understand the data to collect and the expected analysis and interpretation in IS research. IS researchers should be more careful in choosing a theoretical framework because
IS research is built on the selected framework. However, in IS research, more than one framework can be used to build the foundation of the research. For example, IS research can combine the technology acceptance model (TAM) and theory of reasoned action (TRA) framework in building a study's conceptual framework. The combination of the framework allows the researcher to position their research with the IS discipline and topic. According to Adom et al. (2018), a theoretical framework helps a researcher think critically about the problem statement and find appropriate research methodology from analysis to a conclusion. Theoretical framework can be used in qualitative, quantitative, or mixed-method research. According to Collins and Stockton (2018), researchers have different views on the application of the theoretical framework in qualitative research; however, the framework assists in 1) identifying the epistemological position of the research, 2) defining the logical view behind the choice of methodological viewpoint, 3) formulating framework from data findings and 4) define suitable research framework of the study. It provides the toolbox or instrument to address the research problem or gap identified in the literature review analysis (Lempriere, 2019). Applying the theoretical framework in IS research allows for a holistic view of the research beginning with the title, literature review, problem statement, research objectives and questions, research methodology, analysis, discussion, presentation, and conclusion.

Choosing theoretical framework in IS research (discipline) and example

The above discussion shows the importance of theoretical framework in research, much more on IS research. However, the question remains, how can a suitable theoretical framework be selected? Lempriere (2019) suggests that the choice on a given framework/s must be justified empirically. Choosing an appropriate theoretical framework in IS research is a thoughtful and careful process. Osanloo and Grant (2016) suggest that students or researchers are confused about selecting a particular study's theoretical framework. According to Adom et al. (2018) and Osanloo and Grant (2016), every thesis or dissertation should be connected to an existing theoretical framework. Importantly, the choice of a given information systems (IS) framework/s should be based on the research topic, literature review, objectives/questions, hypothesis, and expected findings. These key areas make it possible for a particular theoretical framework to be selected over another. A researcher presents an unbiased research viewpoint without a personal viewpoint; rather, the research is based on empirical and proven studies using a theoretical framework (Adom et al., 2018). The authors further believe that the suitability of a theoretical framework is explicit to a particular study. At the same time, there is no right or perfect framework for a particular study. Rather it depends on the whole ingredients of the topic (title), the study, and the discipline.
For instance, selecting a framework in IS research and discipline are based on the research topic's nature. For example, the IS discipline has many notable frameworks to choose from in conducting its research (dissertation or thesis research). For example, to conduct a study that focuses on the
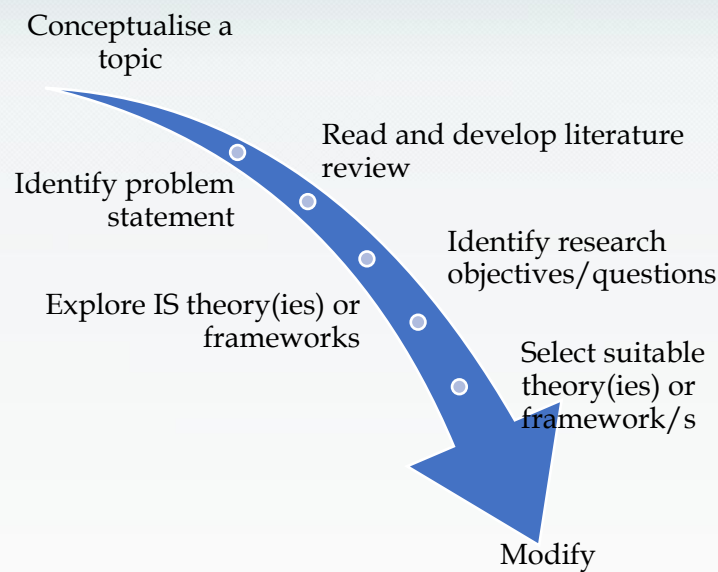
acceptance of technology by individuals, businesses, and society. In a case like this, the technology acceptance model (TAM), unified theory of acceptance and use of technology (UTAUT), or theory of reasoned action (TRA), and many others can be adopted (chosen). These theories or frameworks have been applied widely in IS research, discipline, and beyond. It has assisted in understanding the factors that influence the application of technology in practice. A selected framework/s or theory(ies) is(are) the brain behind constructing a conceptual framework in IS research.

Conceptual framework in IS research (discipline)

A conceptual framework is a concept or structure that guides one's research (dissertation or thesis), and it is a product of the theoretical framework. Collins and Stockton (2018) believe that conceptual framework provides the map on the literature composition within the study. It is a glue that binds social research into one (Ngulube, 2018), an essential part of research (Yamauchi, Ponte, Ratliffe & Traynor, 2017). It also guides a researcher in achieving its research objectives (Regoniel, 2015). According to Hughes et al. (2019), a conceptual framework assists in identifying where to collect data, the data gathering process, and how to analyze them. Also, a conceptual framework is informed through deeper literature reading and analysis. This structure is usually presented in a diagram and graphic form depicting building blocks and components of the study. It comprises the researcher's thoughts, structures, thinking, actions, plans, practice, layout, and implementations of the whole study (Kivunja, 2018). Adom et al. (2018) see a conceptual framework as a diagram or concept that best suits researchers' study. It shows the logical components of the entire study (Varpio et al., 2020). Through a conceptual framework, the worldview of the research topic is well understood and provides the base on how the research objectives/questions and the problem statement will be (are) formulated. The logical and diagrammatical structure of the conceptual framework made it possible to show how IS research lifeline concepts and components are interconnected as well as the flow of ideas. Adom et al. (2018) believe that the conceptual framework showcases the graphic components and constructs that guide the study under investigation. It is shown that a conceptual framework provides the roadmap through logical graphic constructs upon which IS research and its topic are built. IS research can be classified as a researcher's view without a conceptual framework, biasness and personal views can overrun the research process.

Importantly, the conceptual framework provides IS research and discipline with notable opportunities and benefits. It helps IS researchers to construct personal views with the existing framework/s to present a logical graphic to guide the study under investigation. Conceptual frameworks assist researchers in tackling the research problem identified. Then, how can a conceptual framework be constructed? The development of a conceptual framework in IS research solely lies with the researcher. The construction of a conceptual framework is based on key concepts and variables proposed by the researcher and from existing theory(ies) or framework/s. Then, a researcher constructs a conceptual framework from understanding the research topic, literature review, and objectives/questions. A researcher can choose existing framework/s as noted above and modify them to suit a given research topic under investigation to answer the research problem. The constructed IS research (discipline) conceptual framework components should be explained, and the interconnection among constructs and components provided.

In summary, the development of a conceptual framework in IS research involves a process, and achieving the process is still a big question to many IS scholars and researchers. How can a conceptual framework be formulated (Regoniel, 2015)? Figure 1 below presents an overview process in developing an IS conceptual research framework. Nonetheless, this process can be applied in any other IS-related research (discipline), such as information systems management, computer sciences, information technology, and many more. Also, the process can be used in business and social science research.

Figure 1: Developing an IS research conceptual framework process

Conceptualize a topic: Every IS research study has a topic that must be concise and advisably not more than 15 words. **Read and develop literature review:** Existing empirical literature covering the research topic must be explored and read to understand gaps and theory(ies) and framework/s in the discipline. **Identify problem statement:** A research problem is identified through a deeper literature review exploration, which shows the problem to be solved or gap/s in the research. **Identify research objectives/questions:** The main and sub-main objectives/questions should be identified, directly addressing the articulated problem. **Explore IS theory(ies) or frameworks:** There are different IS theories or frameworks that can be used in IS research; then, the IS researcher should be able to explore some of them before decisions are made on any or combinations thereof. **Select suitable theory(ies) or framework/s:** Based on explorations made, a best suitable theory(ies) or framework/s can be selected to respond to the research problem and address the research objectives/questions. **Modify:** Any chosen theory(ies) or framework(s) can be modified by adding to the existing constructs or dropping some.

The implication of the study

IS discipline has its footprint on different disciplines. At the same time, IS research is guided by existing frameworks. The importance of theoretical and conceptual frameworks in IS research (discipline) cannot be underestimated. The ideas gained on this study will assist IS researchers, students, practitioners, and other stakeholders (all considered as IS researchers) to understand the place of theoretical and conceptual frameworks in conducting IS research. Through this study, these researchers will understand what constitutes the term theoretical and conceptual framework in IS research (discipline) and the application in practice (conducting IS research). The study provides the selection process of a theoretical and conceptual framework, and importantly, the study assists the researchers on a comprehensive process in building IS conceptual framework. As we advance, IS researchers should think and consider theoretical and conceptual frameworks at the beginning of their study and allow both to guide their research process towards research outcome and conclusion.

Conclusion

The role of theoretical and conceptual in IS research and discipline, in general, cannot be overstressed or underestimated, however, IS researchers should consider both in carrying out IS research. This research paper presented a comprehensive explanation of the theoretical and conceptual framework. It also provides the importance of both frameworks, the selection process,

and the development of the conceptual framework process. The study found that theoretical and conceptual frameworks are necessary for conducting IS research on different topics. On this basis, IS researchers must take critical thought and consideration in understanding the two and choosing a suitable one carefully. In the future, IS researchers (scholars) and students should integrate the theoretical and conceptual framework in their research in delivering a high standard and quality research that can be applied in practice.

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