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Information and Communication Technology And Behavioral Intention: A Review Paper

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Abstract

The rapid growth and broad usage of information and communication technology (ICT) had transformed social interactions within the areas of human communication, business, health care, and all major domains of human endeavors. This study investigated the relationship between the factors of behavioral intentions and the impact of ICT on people's willingness and propensity to engage their behaviors The objective in this study is to explore the current literature review regarding ICT and behavioral intention among communities. By examining existing literature, this paper aims to provide a comprehensive overview of how ICT usage influences behavioral intention. The methodology in this study is to use Scopus, Science Direct and Google Scholar databases to search for relevant journal articles. ICT refers to technology and tools used to create, manage and exchange regional information more quickly and efficiently. Behavioral intention relates to people's subjective ability or willingness to engage in and act in a particular way.The results of the study show that there is a positive relationship between behavioral intentions and the use of ICT in the community. This study recommends future researchers to explore the increasingly complex mainstream studies on behavioral intentions by examining integrated models and neo-conceptual frameworks such as the Integrated Behavioral Model (IBM) based on the theory of planned behavior (TPB) and the technology acceptance model (TAM).

Keywords: Information and Communication Technology (ICT), Behavioral Intention, A Review Paper

Introduction

Information and Communication Technology (ICT) refers to technology and tools used to create, manage and exchange information (Abu Hassan, 2008). While behavioral intention refers to the subjective possibility or willingness of individuals to engage in certain behaviors (Della et al., 2020). The relationship between ICT and behavioral intention can be explained in the context of how ICT affects or shapes individuals' attitudes, perceptions and beliefs,

which in turn affect their behavioral intentions. Information and communication technology (ICT) has been adopted by various age groups in society. Therefore, the use of ICT is growing globally and has special opportunities for society (Weber & Kauffman, 2011). Accordingly, the emergence of the Internet has also become a major pillar in the direction of ICT users in today's society. According to Babalola (2018), among various professionals working in the delivery of health care, education, the legal system, and various other fields, the use of ICT has become socially unusual.

According to Davis (1989), behavioral intention has been defined as the degree to which a person has developed a conscious plan to perform or not to perform some predetermined future behavior. In discussing ICT and the users' behavior, Chen et al (2020) defined behavioral intention as the degree to which users will increase the duration and frequency of using new systems in information and communication technology (ICT). A previous study by Vankatesh et al (2003) had explored the factors of attitude towards the use of technology, which can be seen as a person's overall affective reaction to the use of the system. Similarly, Teo (2011) postulated that behavioral intention was operationalized as the level of willingness to use technology. Nonetheless, other authors emphasized on the constructs of beliefs and attitudes as determinants of behavioral intentions, as per argued by Triandis, 1977 in Davis, (1989). While a study by Venkatesh & Bala (2008) and supported by Fishbein & Ajzen, (2017), stated that behavioral intention is determined by a person's perception of personal factors such as attitude towards behavior and system characteristics such as perceived enjoyment. To construct a thorough report on the recent inquiries, the following study objective was created:

1) to explore the current literature review regarding ICT and behavioral intention among communities.

Literature Review

Information and Communication Technology (ICT) has a relatively short history compared to other technologies. Thus, the development of ICT began in the middle of the 20th century and has grown rapidly (Abidin et al., 2014; Hassan and Ramli, 2022). A brief timeline of important events in the history of ICT is as follows (Table 1):

Table 1
Timeline of Information and Communication Technology (ICT) events

Year	Development of Information and Communication Technology
1940s	Electronic Numerical Integrator and Computer, the first electronic computer, was created (Eckert dan Mauchly, 1964).
1950s	The development of the transistor will lead to smaller, quicker, and more affordable computers (Hamid et al., 2006).
1960s	The Advanced Research Projects Agency Network (ARPANET), which eventually served as the foundation for the formation and growth of the Internet, was established as the first computer network (Roberts, 1988).
1970s	Software for Apple DOS and Microsoft BASIC, as well as personal computer development, were created (Van dan Van, 1986; Hagedoorn, 2001).
1980s	Tim Berners-Lee invented the World Wide Web. Due to the WWW's evolution, non-technical users can now access the Internet (Berners-Lee, 1994).
1990s	With the development of mobile devices with basic Internet connectivity and the viability of e-commerce as a business database model, these trends are now possible (Pare, 2013).
2000s	Smartphones were introduced, and social media sites like Facebook and Twitter started to acquire popularity. Clearly shows the use of computing as a broadly accessible sophisticated foundation (Edosomwan et al., 2011).
2010s	The emergence of big data and cloud computing has made it possible to handle a lot of information and build machine learning and artificial intelligence (Yang et al., 2017; Gupta et al., 2020).

Therefore, with technological advancements like virtual reality, blockchain, and the Internet of Things (IoT) that influence the future of communication, information exchange, and human connection, information and communication technology (ICT) today continues to grow rapidly (Bolpagni et al., 2022). Nevertheless, virtual reality (VR), blockchain, and the Internet of Things (IoT) are three distinct technologies, each with its own properties and uses, but they can also cross and work in synergy in some situations. Blockchain technology, for instance, can be used to secure the legitimacy and ownership of virtual assets in virtual reality experiences. For secure and transparent data sharing and transactions between connected devices, the Internet of Things can benefit from blockchain (Rejeb et al., 2019). A range of industries, including entertainment and virtual reality games, finance and supply chain management (blockchain), smart homes and cities (IoT), are being transformed by this technology, which is generally driving innovation.

Virtual Reality refers to a simulated experience that can be similar or completely different from the real world (Laurel, 2016). Usually, a three-dimensional interactive environment is created using computer technology, allowing the user to explore and play around with it. According to Berni & Borgianni (2020), virtual reality frequently uses specialized tools, such headsets, to create an immersive experience by arousing the user's senses, including vision, hearing, and even touch. Blockchain, on the other hand, uses a distributed, decentralized ledger to track transactions across a number of computers (Ishmaev, 2017). It is intended to be clear, safe, and impervious to tampering. In a blockchain, transactions are organized into blocks and chronologically linked together to form a chain. A permanent and unchangeable record of transactions is created by each block's distinct cryptographic hash, which both confirms its integrity and connects it to earlier blocks. Blockchain technology is most commonly associated with cryptocurrencies like Bitcoin, but its potential uses go beyond

virtual money and can also include things like supply chain management, voting systems, and more. The next term is the Internet of Things (IoT), which describes a network of actual physical objects or "things" that are connected to the internet and have sensors, software, and connections built in to enable data collection and exchange. According to Karimi, Kaivan & Atkinson (2013), IoT can occur anywhere and has a significant potential. These things could be anything from commonplace gadgets like smartphones, automobiles, and home appliances to industrial equipment and building materials. Due to the internet of things (IoT), these objects are able to interact and communicate with one another, creating a networked system. IoT offers real-time monitoring, automation, and control of physical objects and processes through the collection and analysis of data from many sources. This improves efficiency, allows for improved decision-making, and opens the door to new services and applications.

Development of ICT and Behavioral Intentions

Information and communication technology (ICT) has increased access to information and communication. By lowering obstacles and making it simpler for people to engage in particular behaviors, this improved accessibility can favorably influence behavioral intentions (Billows and McNeill, 2018). For instance, the advent of online shopping platforms has simplified the purchasing process for customers, boosting their propensity to shop online. Individuals have access to a wealth of information thanks to the availability and accuracy of information in ICT. By giving people the information, they need to make wise decisions, the availability of this information might affect behavioral intentions. According to Niknejad et al (2020), the ability to access internet health resources can affect people's behavioral intentions to embrace healthier lifestyle choices.

Information and communication technology (ICT) consequently affects societal norms. Through social media platforms, online groups, and forums, ICT has also increased social interaction and the interchange of ideas and experiences (Salleh and Albion, 2004). By exposing people to social influences and norms, these social encounters can alter their behavioral intentions (Yu & Yu, 2017). Positive peer evaluations and recommendations, for instance, on social media, can affect someone's decision to try a new good or service. However, other studies had indicated that perceived advantages and disadvantages may affect behavioral intentions. Individuals may be more likely to adopt or use new technology if they believe that doing so will provide them with major advantages and benefits. Conversely, individuals' behavioral intentions may be impeded if they believe there are major dangers or detrimental effects related to ICT. This directly takes into account the three elements of knowledge, awareness, or attitude and behavior that influence a person's attitude, whether it be positive or negative, as mentioned in the environmental behavior model (Hungerford & Volk, 1990).

Additionally, information and communication technology (ICT) systems' user experiences and interface designs can have an effect on behavioral intentions (Su, 2019). An ICT system can improve people's behavioral intents to interact with it or carry out specific behaviors if it is user-friendly, intuitive, and offers a positive user experience (Pinazo & Reina, 2017; Erra et al., 2019). On the other hand, a user experience that is poorly designed may lessen behavioral intentions. It is therefore crucial to acknowledge that individual factors including personal views, values, attitudes, and prior experiences might have an impact on the interaction between ICT and behavioral intention (Agarwal & Prasad, 1999; Taherdoost, 2018). In addition, the interaction between ICT and behavioral intention may be influenced by cultural,

societal, and economic factors (Chen et al., 2019). In practicality, ICT is a term used to describe technology that allows for telecommunication-based access to information (Adebayo et al., 2018). Computers, cellphones, the internet, social media platforms, and more are included in it (Xiang et al., 2015; Susanto et al., 2021). It also encompasses other types of communication devices, applications, and systems. In behavioral science and psychology, behavioral intention is a term that is frequently used to characterize an individual's potential or readiness to engage in a particular behavior, according to (Bock, 2005).

A substantial correlation between behavioral intention and patterns connected to information and communication technology (ICT) has been demonstrated, as per studied by (Hamari et al., 2016; Venkatesh et al., 2012; Vijayan et al., 2023). Individual behavioral intentions may be influenced and shaped by ICT in a variety of ways. The rise of social media, e-commerce, health-related behavior, and communication and collaboration, to name a few. The development of ICT has made the internet, in particular, a platform for e-commerce, which has had a big impact on how people shop. Convenience, variety, and personalized recommendations are all features of online shopping platforms and websites that may impact consumers' behavioral intents to make online purchases. Social media platforms have also grown to play a significant role in many people's lives, in addition to e-commerce (Kwahk & Ge, 2012). According to Purwanto et al (2023) social media platforms offer chances for communication, information sharing, and opinion expression. These platforms have the power to affect people's behavioral intentions in relation to participating in online debates, supporting social causes, or even buying goods or services that influencers have recommended.

The promotion of health-related behavior is another major function of ICT (Ajzen & Manstead, 2007). Mobile applications and wearable devices that track physical activity, monitor vital signs or provide personalized health recommendations can influence individuals' behavioral intentions to adopt a healthier lifestyle and engage in regular exercise or health practices (Sullivan & Lachman, 2017). ICT tools such as email, instant messaging, video conferencing and collaboration platforms have changed the way individuals communicate and collaborate in personal and professional settings. By encouraging collaboration, promoting effective communication, and lowering obstacles to interaction, these technologies can have an impact on behavioral intentions. Despite the fact that ICT might impact behavioral intentions, actual behavior may also be influenced by a number of other elements, including individual attitudes, social norms, perceived benefits and obstacles, and personal experiences. The relationship between ICT and behavioral intentions may also be influenced by ethical issues, privacy worries, and the digital divide.

Methodology

This study is a systematic review paper and is based on document analysis and literature review, therefore several electronic databases were used to find previous research articles such as Scopus and Science Direct databases. In addition, keywords are also used to make it easier for researchers to find articles that are relevant and appropriate to the current research study. Among the keywords used are "ICT usage", "ICT utilize", "ICT embrace", "behavioral intention", and "behavior intention factor in ICT" which are used and combined as a search process in the database. In fact, researchers also use techniques such as by enlarging the search process, which is by using some complementary techniques also practiced in the search for related journal articles (Shaffril et al., 2018). The second technique is also used, which is citation tracking (citation tracking) is also implemented by identifying related articles

based on the journal articles being studied. By combining these two techniques, the researcher also uses the reference search technique by examining the list of references in the selected journal articles for relevant journal articles. This technique also helps in reducing the risk of losing relevant information. According to Cooper (1998), unstructured search needs to be practiced such as the use of Scopus, Google and Google Scholar databases for the purpose and effort of identifying additional studies related to the current study.

Conclusions and Recommendations

By presenting new options, enhancing convenience, and altering communication patterns, information and communication technology (ICT) has the ability to profoundly change the behavioral intentions of individual users. Organizations and policymakers who want to use ICT to promote desirable behaviors and outcomes must understand these relationships. Research is now interested in the connection between ICT and behavioral intention. The impact of ICT on behavioral intentions has been the subject of numerous dimensions and findings throughout this study. First off, it is obvious that ICT is crucial in influencing people's behavioral intentions. Processes for exchanging information, communicating, and making decisions have all been transformed by the accessibility and availability of ICT tools and platforms. People now have increased accessibility, productivity, and connectivity thanks to these developments, which has an impact on their behavioral intentions. Additionally, research has demonstrated that how useful and simple ICT is perceived has a big impact on people's behavioral intentions. People are more inclined to adopt and use ICT products and systems when they believe they are beneficial and simple to use, which has a favorable impact on their behavioral intentions. The relationship between ICT and behavioral intention has also been shown to be significantly influenced by subjective norms and social influence. The opinions, suggestions, and social conventions of people's peers, coworkers, and online communities frequently shape their behavioral intentions. The power of social influence can change people's intentions and shape their behavior through the ICT platform.

Trust issues and security worries are also important motivators that affect how people intend to utilize ICT in the future. People who have confidence in the technology, platform, and security protocols are more likely to display positive behavioral intentions. In order to promote favorable behavioral intentions towards utilizing ICT, it is vital to provide data privacy, protection, and security. Although ICT has the potential to favorably influence behavioral intentions, numerous barriers and problems must be overcome. These include a lack of computer knowledge, accessibility problems, financial concerns, and privacy and security worries. The removal of these obstacles through education, public awareness campaigns, and inclusive policies will boost ICT-friendly behavioral intentions even more. In a nutshell this study emphasizes the significance of ICT in shaping personal behavioral intentions. The development of efficient strategies, policies, and interventions to encourage the use and adoption of ICT tools and platforms can be aided by an understanding of the interaction between ICT and behavioral intents. Further study is required to examine new trends and their effects on behavioral intentions across contexts as ICT continues to develop. The researchers also recommend that evaluations of ICT and behavioral intentions focus on models and conceptual frameworks like the theory of planned behavior (TPB) and the technology acceptance model (TAM) in order to make them better.

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