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Markus A. Launer

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Digital Trust @ the Workplace

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Positing a Digital Trust in the Workplace Framework: An Activity Theory Perspective

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Abstract

This conceptual research develops a theoretical foundation for the previously proposed digital trust in the workplace framework by Marcial and Launer (2019). This research defines trust according to McKnight et al. (2011)'s arguments as the choice to depend on some external entity to carry out a task and employs Engeström (1987)'s refinements on Leontiev (1978)'s activity theory in the context of human-computer interactions (HCI). Through this, this research formulates nine propositions to theorize how the different factors describing individuals' perceptions on (1) their co-workers, (2) the technologies employed at work, (3) their work processes, (4) their own demographics, (5) technological factors, (6) their own employment status, (7) the degree of technological integration at work, (8) their decision-making skills, and (9) their own personalities all influence their choosing to trust their choosing to trust the technologies in their workplace. Furthermore, this research recognizes the potential differences on what factors would matter depending on some economic, political, and cultural considerations across regions and countries.

Keywords: digital trust, workplace, activity theory, human-computer interactions

1. Introduction

The resulting plethora of discussions regarding information and communications technology (ICT) use have reignited interests on deeper discourses on how ICTs actually influence individual behaviors and organizational dynamics in so many different ways. ICTs have long empowered individuals to be significantly better at their tasks by being embedded in even the most granular of activities (Çetin et al., 2021; Zwilling et al., 2022). Furthermore, the COVID-19 has even greatly intensified digitalization and digital transformation all around the world (Chakravorti et al., 2021). It cannot be denied that ICT use has brought about significant benefits in the workplace as well, encouraging increased productivity, cost savings, more mobility and agility, and greater flexibility and adaptability (Buchanan et al., 2016). However, a significant priority is the attention to the environment influencing trust and safety on digital platforms, noting that these issues are largely unknown or grossly underappreciated outside experts' circles (Sullivan, 2022). Furthermore, complicating this issue is the observation that across different geographical boundaries, perceptions, attitudes, and behaviors towards digital trust, and the enabling and disabling intrinsic and extrinsic environment may be significantly different (Chakravorti et al., 2021). However, numerous calls challenging

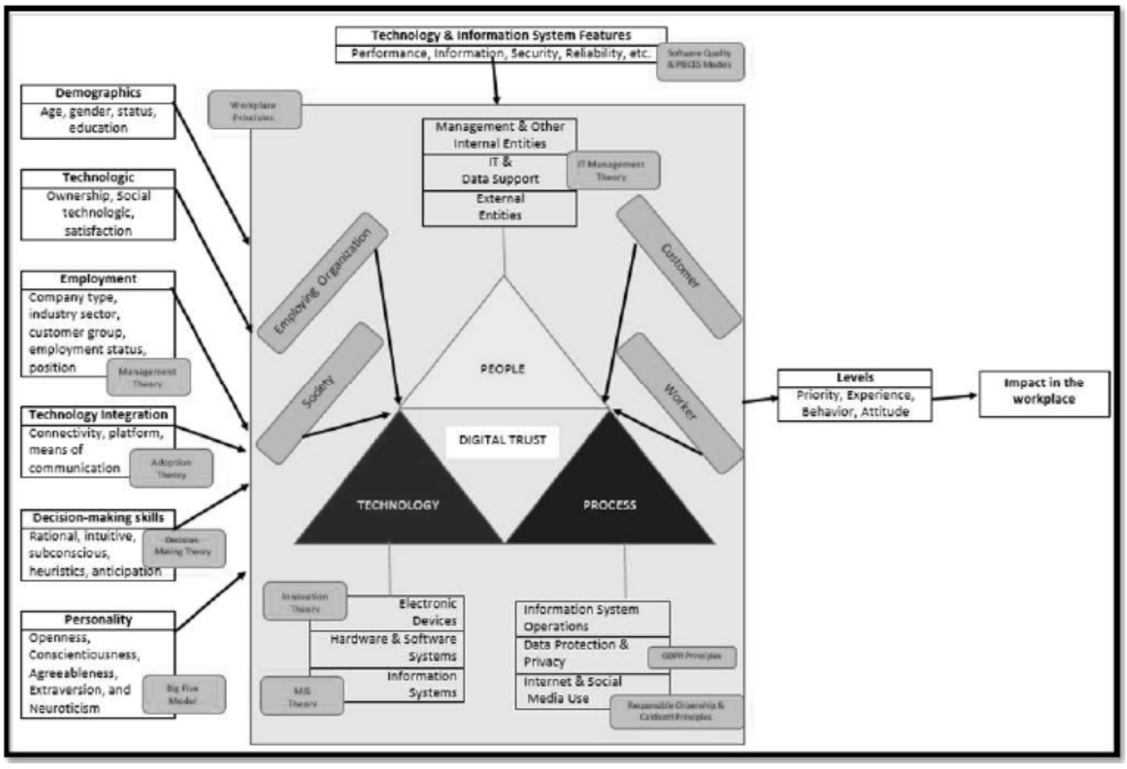
institutions to address digital trust concerns were made even before (Buchanan et al., 2016; Van Hoof, 2015). Reports and commentaries challenging how organizations manage digital trust has made significant headway, leading to many researches on the topic (Chakravorti et al., 2018). Interestingly enough, Marcial and Launer (2019) developed their own approach on digital trust in the workplace.

This conceptual research aims to frame the discussion on digital trust in the workplace within a robust theoretical perspective. Arguments derived from activity theory as first proposed by Vygotsky (1978) and Leontiev (1978), and refined by Engeström (1987) are discussed, hereby enhancing the overall theoretical soundness of the framework as first proposed by Marcial and Launer (2019). Furthermore, justifying the use of activity theory in the context of digital trust is done through a discussion of human-computer interactions inspired by recent researches of Allen et al. (2011) and Blayone (2019).

2. Literature review and hypotheses development

The continuous development and evolution of technologies has encouraged several attempts to revisit existing theories regarding their applicability to the present phenomena, looking within the field of information systems (Marcial & Launer, 2019), looking to other fields of discipline (Blayone, 2019), or looking at more data-driven methods to develop theoretical arguments (Hoff & Bashir, 2015). Specifically for this research, Marcial and Launer (2019), citing O'Brien and Marakas (2011) and Stair and Reynolds (2010), defined information systems as an organized combination of interrelated people, hardware, software, communication networks, data resources, and policies and procedures all working together to collect, store, manipulate, retrieve, transform, and disseminate

Figure 1. Digital trust in the workplace framework (Marcial & Launer,



data and information within the organization to meet work-related objectives. From this a comprehensive digital trust in the workplace framework was developed *(See Figure 1: Digital trust in the workplace framework (Marcial & Launer, 2019))*.

In practice, intensified information systems use has redefined how workplaces are operated and managed, touching on various considerations such as team compositions and locations, communication and interaction methods, and work schedules, processes, and procedures, to name a few (Buchanan et al., 2016). This strongly implies that there are significant interactions that are occurring between and amongst three major areas within the organization – people, technologies (hardware, software, communication networks, and data resources), and processes (policies and procedures) – to achieve work-related objectives. Furthermore, research on organizational applications of technologies comes from a variety of fields, including psychology, management science, information systems, computer science, anthropology, and sociology, to name a few (Olson & Olson, 1997). And specifically for this research, such people, technologies, and processes play crucial roles on how digital trust is shaped (Chakravorti et al., 2018; Sullivan, 2022). Hence, for the purposes of this research, these interactions are further explored through the lens of activity theory and human-computer interactions.

2.1. Trust theory and technology use in the organization

There is no question that trust plays an important role in many, if not all, technology-enabled contexts. Even in practice, one of the most important indicator of trust is user action (Chakravorti et al., 2021). Trust in this research is defined as an individual's conscious and proactive choice or willingness to depend on some external third-party entity to carry out a task, based on his or her evaluations of that entity's characteristics (McKnight et al., 2011). Furthermore, this trust is an evolutionary development that involves people, processes, and technologies (Duc et al., 2013; Marcial & Launer, 2019), which is built based on an examination of different sources, including the organization, its environment, and its technologies (McKnight & Chervany, 2001; McKnight et al., 2002). Trust is central to understanding how individuals can behave work group interactions (McKnight et al., 2011). However, regardless of how specific a definition of trust can be, the challenge of trust having a complex and multifaceted relationship with technologies remain (Karat et al., 2012). It is therefore critical for any research on trust in technologies to be framed on some theoretical foundation that would adequately describe trust's antecedents, its purported effects, and would appropriately contextualize its dynamics in some real-world setting. For the purposes of this research, this discussion turns to activity theory, human-computer interactions, and their role within an organization.

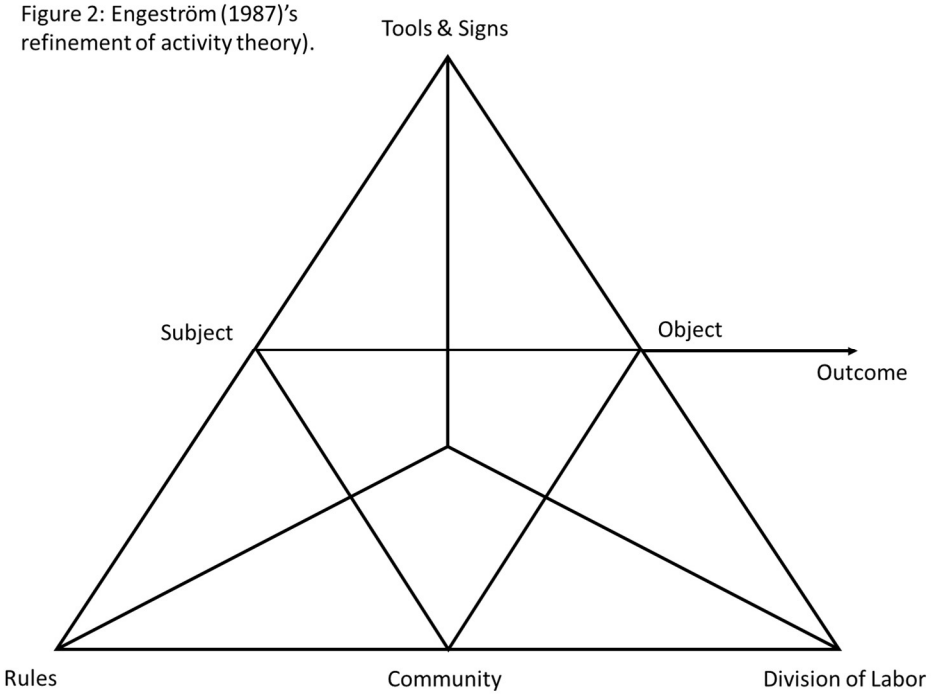
2.2. Activity theory and the organization

Practitioners have repeatedly emphasized the importance of the organization's environment in the discussions surrounding digital trust (Buchanan et al., 2016; Chakravorti et al., 2018, 2021; Sullivan,

2022). Activity theory has been advocated as a means to provide another effective means to understand the human subject and how he or she interacts with the surrounding environment. This is because individual humans are social in nature whose attitudes and behaviors are influenced by culture and language, and whose actions are observed with or through other people in their formal and informal groups, including the organizations where they work (Allen et al., 2011). This is historically based on the cultural-historical school of thought of Russian psychology, as first perpetuated by Vygotsky (1978), and further cultivated by Leontiev (1978), and, for the purposes of this particular research on digital trust in the workplace, refined by Engeström (1987). According to the original works of Vygotsky (1978) and Leontiev (1978), activity theory is about the interactions of subjects, objects, and tools that govern human activities that are either consciously or unconsciously performed. Furthermore, these interactions of subjects, objects, and tools and performances of activities are also driven by individual and collective motives, goals, and conditions. Later works have recognized that activity theory is both very dynamic since the activities, actions, and operations that can be observed readily change over time, and very robust since it can still retain the original cultural-historical perspective (Allen et al., 2011; Blayone, 2019; Rogers, 2004). This makes the theory suited for many organizations researches as well, given how much organizations change over time, and how much they can be disrupted due to the introduction of technologies in the workplace.

According to the refinements of Engeström (1987), a subject, driven by a motivation to achieve an object, undertakes an activity. The processes of performing activities occur within a set of rules and norms and a set of agreed-upon division of labor, both perpetuated by the community, or in this case the organization, where the individual performs these activities. Also, the tools employed in performing these activities are either physical artefacts, such as office equipment, or signs, such as language and skills. In their discussion of this particular version of the activity theory, Allen et al. (2011) further noted that activities can constantly develop due to contradictions, tensions, and

Figure 2: Engeström (1987)'s refinement of activity theory).



instability that can occur within the community, and the respective needs of the community and subject *(See Figure 2: Engeström (1987)'s refinement of activity theory)*.

For the purposes of this research, this discourse points to the introduction of various technologies in the workplace as a major cause of these contradictions, tensions, and instabilities. Therefore, the organization has the responsibility to make sure that these issues are addressed, starting with building trust. Applications of activity theory are found in many workplace-themed contexts across a multitude of perspectives (Allen et al., 2011; Bødker, 1989; Carroll, 1997; Engeström, 1987; Kuutti, 1996; Rogers, 2004). More recently, such applications have been found in the examination of growingly pervasive digital technologies (e.g. Internet of things and augmented realities) and increasing cognitive capabilities of machines (e.g. artificial intelligence and machine learning) towards workplace dynamics (Blayone, 2019). Hence, it is therefore also imperative to develop the theoretical foundations involving the use of these technologies in the workplace by discussing a fundamental point of view on technology use as posited by the human-computer interactions domain.

2.3. Activity theory in human-computer interactions

Human-computer interactions (HCI), sitting in the intersections involving psychology, social science, computer science, and technology management, provides a challenging, yet enriching, test domain in the research on technology development, adoption, and use (Carroll, 1997). The study of HCI has proven to be valuable over time because the rapid pace of technological developments vis-a-vis the resulting creation of many different user experiences, interactions, and communications in many different settings can be adequately discussed within this research domain (Rogers, 2004). This makes HCI an additional well-suited theoretical foundation for this research.

In this light, there have been a number of HCI-themed researches that have employed activity theory as their theoretical foundations. These include Engeström (1987)'s research on organizations experiencing some problems with existing or newly implemented technologies, Bødker (1989)'s arguments in basing user interface designs on the settings of the workplace, Kuutti (1996)'s arguments on how information technologies can be used to support different kinds of activities at different levels of the workplace, and Olson and Olson (1997)'s discussions on how user-centered design requires an understanding of work situations, group members, and task specifics. More recent applications include information management attitudes and behaviors (Allen et al., 2011) and examining effective uses of digital technologies (Blayone, 2019).

Another interesting argument borne out of this phenomenon is the insistence that in the development of good HCI, it is vital for humans to choose to trust the machines that they are going to work with. Lee and See (2004), Karat et al. (2012), and Hoff and Bashir (2015) have pointed out that trust is a very challenging issue within workplaces, where too much trust leads to too much dependence on the technologies to carry out tasks, hereby violating the limitations of what the technology can and should do, and where too little trust, or even the lack of it thereof, creates work inefficiencies, hereby compromising the sustainability of both the technology and the processes related to its use. This

proves to be a timely issue due to the other domains to which HCI studies have touched on over the years. There have been observed trends of the use of HCI towards the social sciences domain due to (1) the growing technical prominence of HCI attracting a number of social and political critiques, and (2) the development of new technologies for communication and collaborative activities raising significantly new challenges and opportunities for HCI (Carroll, 1997; Olson & Olson, 1997). Rogers (2004) further argues that HCI conceptualized as a social phenomenon means that HCI should be examined in the context in which and how users interact with technologies, including whatever would motivate them to user such technologies to meet end goals. Furthermore, while they might be arguments pointing to the distinctiveness between and amongst people, processes, technologies, and other aspects within the HCI sphere being observed, one cannot discount the fact that these are, in reality, frequently interacting with each other (McKnight et al., 2011). Hence, this research argues that, from the HCI studies perspective, humans choosing to trust the technologies that they use to more effectively and more efficiently carry out their tasks is an important social phenomenon that needs further academic discourse.

Therefore, integrating Engeström (1987)'s version of activity theory and Carroll (1997)'s contextualization to the HCI domain with Karat et al. (2012)'s calls on the importance of HCI research on trust and Marcial and Launer (2019)'s proposed digital trust in the workplace model, this research posits that the impact in the workplace is the expected outcome of a subject undergoing an activity to achieve an object. The entire activity system is composed of an ecosystem of technologies and technological factors intertwined with social factors composed of individual and collective attitudes, experiences, and actions, all bounded with a set of community practices, traditions, and values. Specifically for the context for this research, the subject is the employees in the workplace using various information and communication technologies (ICTs) to carry out their tasks. To be clear, these tasks are the object. This coincides with the arguments that people are the most important component in the examination of information systems made by O'Brien and Marakas (2011), Stair and Reynolds (2010), and Chakravorti et al. (2018). The ICTs are the tools. Workplaces are typically characterized by divisions of labor (e.g. job titles and job descriptions), communities (e.g. organizational divisions, departments, and sections), and rules and norms (e.g. organizational policies and procedures). In addition, consistent with Lee and See (2004)'s, McKnight et al. (2011)'s, Karat et al. (2012)'s, and Hoff and Bashir (2015)'s arguments regarding the criticality of choosing to trust the technologies aiding the execution of work, this research further posits that trust is an equally-important factor that contributes to facilitating the flow of activities within the organization. Therefore, it is important that this trust, specifically this digital trust, is developed within the workplace. And this means that there should be adequate enabling factors within the workplace that would make people

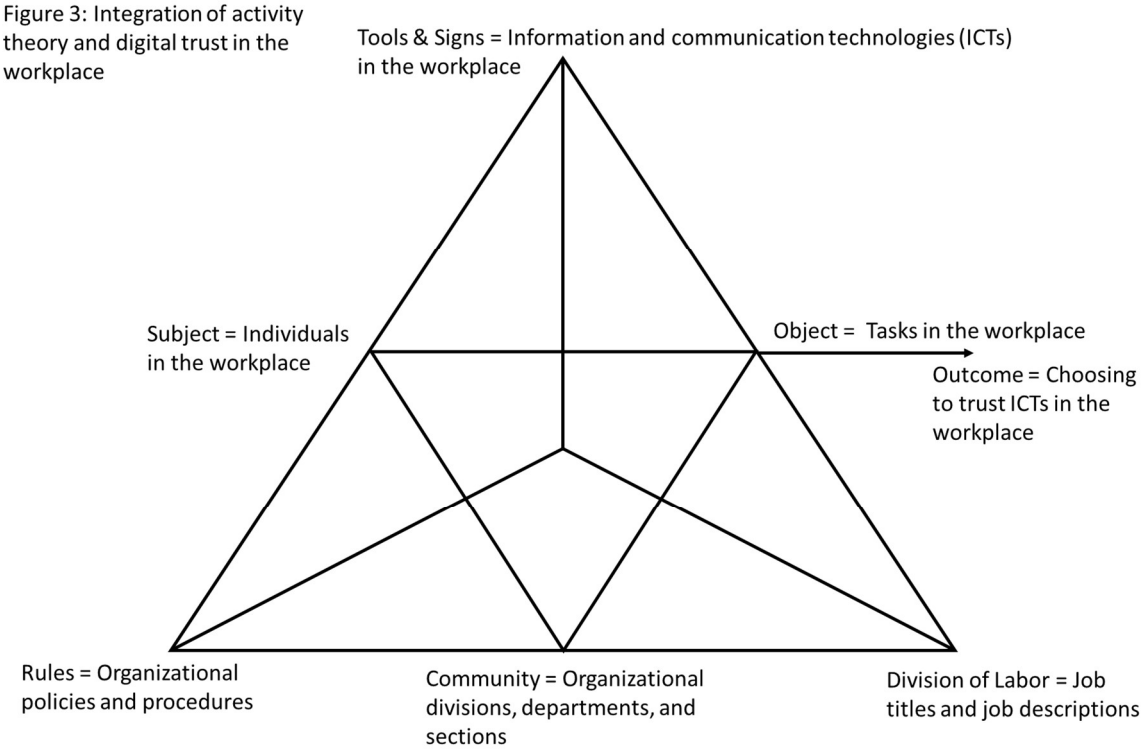
choose to trust these technologies *(See Figure 3: Integration of activity theory and digital trust in the workplace)*.

The next section of this research focuses on developing of the propositions. This is to further operationalize the theoretical arguments of integrating activity theory and HCI to the discussion of digital trust in the workplace.

2.4. Proposition development

O'Brien and Marakas (2011) and Stair and Reynolds (2010) have pointed out that people are the most important element in most information systems. Chakravorti et al. (2018) added that these

Figure 3: Integration of activity theory and digital trust in the workplace



people – the users of these technologies – can prove to be ample sources of insights regarding perceptions, attitudes, and behavior towards digital trust. It is also equally important to consider the individual as the unit of analysis because individuals within groups and organizations differ in their skills, abilities and knowledge, personalities, and motivations and agendas, all which can potentially influence how they adopt and use technologies at work (Olson & Olson, 1997). Additionally, Marcial and Launer (2019) raised the concern that people are a major source of problems that hinder good information systems work. As previously argued, the source of whatever demonstrations of technology use and exhibitions of trust are individual people, in these case employees in the workplace. Hence, this research first posits that, based on the theoretical argument that trusting technologies in the workplace can be affected on how individuals perceive their fellow workers (McKnight et al., 2011), evaluations of co-workers' characteristics influence individuals' choice to trust the technologies in their workplace. As such, the following proposition is presented as follows:

P1: Individuals' perceptions of their co-workers influence their choosing to trust the technologies in their workplace

How individuals interact with the technologies is another critical consideration in the formation of digital trust (Van Hoof, 2015). The dynamics of typical electronic gadgets and equipment commonly seen in workplaces have been previously observed (Bødker, 1989; Carroll, 1997; Engeström, 1987; Hoff & Bashir, 2015; Kuutti, 1996; Lee & See, 2004). But additionally, Stair and Reynolds (2010) further qualified hardware, software, databases, and communications to include innovations such as artificial intelligence, Internet of Things, and robotics. According to HCI-themed arguments, gaining favorable perceptions and feedback on these technologies' various functions, features, and interfaces from the employees (Bødker, 1989; Carroll, 1997; Engeström, 1987; Kuutti, 1996), which in turn would eventually making them to favorably choose to trust the information systems (Duc et al., 2013; Hoff & Bashir, 2015; Lee & See, 2004; Marcial & Launer, 2019) are both very critical considerations for the workplace to achieve its objectives. In other words, individuals' perceptions and evaluations of technologies employed in the workplace will play a crucial role on how they would trust these said technologies (Karat et al., 2012; McKnight et al., 2011). Therefore, the next research proposition is posited as follows:

P2: Individuals' perceptions of the technologies employed at work influence their choosing to trust the technologies in their workplace

Consistent with activity theory's arguments regarding how the various structures, processes, policies, and work flows can affect an outcome of interest (Engeström, 1987), previous research have also highlighted how organizational structural characteristics, which includes work processes, can influence the level of trust in the technologies employed in the workplace (Duc et al., 2013; Karat et al., 2012). These organizational dynamics represent a key consideration in the study on how technologies are deployed and perceived in the workplace (Olson & Olson, 1997). Also, indicators of trust, such as transparency, legitimacy, and effectiveness, are commonly observed in the digital and non-digital processes within organizations (Van Hoof, 2015). Therefore, the next research proposition is posited as follows:

P3: Individuals' perceptions of their work processes influence their choosing to trust the technologies in their workplace

Previous studies have also posited that there are also other factors external from these interactions that can exert significant influence, further adding to the arguments that the study of digital trust through the lenses of activity theory and HCI must be contextual. Just as how many previous studies on technology use (Hoff & Bashir, 2015; Karat et al., 2012; Lee & See, 2004) and trust in technologies (McKnight et al., 2011) have posited how a number of external factors can also influence the choice to trust, Marcial and Launer (2019) recognized a number of these external factors in their proposed digital trust in the workplace model. Theoretically, individuals can have varying degrees of homogeneity or heterogeneity, depending on their present roles, power relationships, and

communication patters, and do these mature over time (Olson & Olson, 1997). Hence, the following propositions are presented for this research:

P4: Demographics of individuals influence their choosing to trust the technologies in their workplace

P5: Individuals' perceptions of technological factors influence their choosing to trust the technologies in their workplace

P6: Individuals' employment status influences their choosing to trust the technologies in their workplace

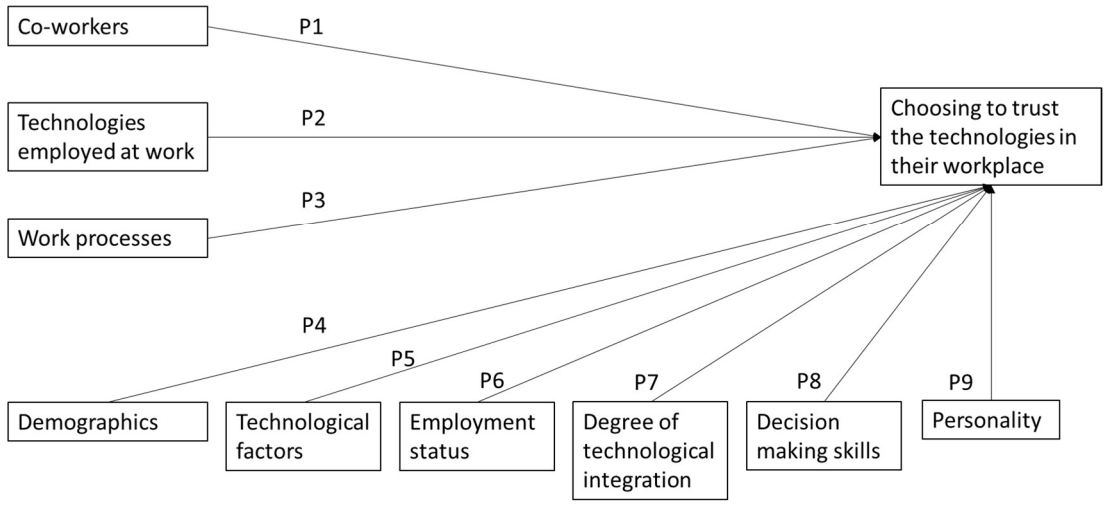
P7: The degree of technological integration in their workplace influences their choosing to trust the technologies in their workplace

P8: Individuals' perception of their decision-making skills influences their choosing to trust the technologies in their workplace

P9: Individuals' personality influences their choosing to trust the technologies in their workplace

To simplify these propositions, the following research framework for analysis is therefore proposed *(See Figure 4: Proposed research model)*:

Figure 4: Proposed research model



2.5. Considering the global scenario

Aside from formulating these propositions, one important consideration that should be incorporated in the study of digital trust, especially in the workplace, is the impact of cross-country dynamics. Both theory and practice have highlighted the difficulties, if not the impossibility, of having an encompassing global perspective of defining various ICT-related factors such as ICT use, awareness and appreciation of privacy and security issues, and digital trust, and measuring their respective levels of attitudes and behaviors across these different factors. This is due to the fact that different countries have different political, economic, social, and cultural environments that have long influenced such perceptions, attitudes and behaviors (Çetin et al., 2021; Chakravorti et al., 2018, 2021; Zwilling et al., 2022). Furthermore, many of these expected differences can also be dictated by organization-level cultures, values, norms, rules and regulations, and even management and work styles (Allen et al., 2011; Blayone, 2019). Therefore, it should be expected that depending on

the country context, the proposed factors influencing choosing to trust technologies may differ in terms of their significance, leading to different insights and conclusions as to what should matter and what academics and practitioners should pay attention to.

3. Initial conclusions and closing remarks

The need for a strong and robust theoretical foundation for any academic endeavor is always going to be a challenge, especially in a context such as ICT use where academic and practical understanding and appreciation experience very quick turnovers, to the point where academic research and practical approaches are sometimes struggling to keep up (Zwilling et al., 2022). This research hopes to contribute to the ever-evolving discourse on digital trust in the workplace by drawing from these different previous works and mapping out a means to have that strong and robust theoretical foundation for later empirical validation.

To reiterate, this conceptual research aims to strengthen the theoretical underpinnings of the initial digital trust in the workplace framework as first proposed by Marcial and Launer (2019). Given the dynamics of their discussions, Engeström (1987)'s refinement of the activity theory was used as the main theoretical foundation. This is further justified by Blayone (2019)'s arguments derived from the concept of human-computer interactions (HCI). In addition, digital trust is further refined based on McKnight et al. (2011)'s arguments to point out that digital trust in this context is the individual's choice to trust a particular ICT used in the workplace. From these, a research model was developed and proposed, with nine propositions operationalizing this model. Needless to say, the next immediate step for this is to empirically validate this proposed model, starting with the utilization of the measurement items also developed by Marcial and Launer (2019).

Lastly, this conceptual research sets in motion another alternative approach to examine digital trust in the workplace. In recognizing the different aspects internal and external to the workplace that can influence how individuals would choose to trust the technologies that they use at work, this research should make both academics and practitioners appreciate how complex this issue can actually be. This would then lead to rich opportunities for future discourses testing, and even improving, this proposed research model across different workplace contexts.

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Digital Trust in 22 Countries of 5 Continents

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Abstract

Summary

With the widespread integration of digital technologies into all areas of business and personal environment, such as Information and Communication Technologies (ICT), Internet of Things, Artificial Intelligence, Blockchain, Robotics, and Automation, Virtual or Augmented Reality, the need for trust is becoming a fundamental factor for doing business and also for people to use these technologies (Charalambous, Fletcher, & Webb, 2016; Alcazar, 2017; Ejdys, 2018; Amin, Ahmad, & Choi, 2019; Ferrario, Loi, & Viganò, 2021). The rapidly changing technological innovations disrupt lives and workplaces. It influences an employee's feelings and self-esteem about their work and life. Therefore, a global study on digital trust in the workplace, dubbed as "e-Trust Project," was launched in 2018 (Marcial, Launer, 2019). The study aims to determine the digital trust and integration in the workplace among employees in any company or organization in Europe, the USA, Latin America, and Asian countries. This study suggests analysis digital trust at the workplace in based on three dimensions: *Technology, People*, and *Processes* (Marcial, Launer, 2021). In this paper we analyze the digital trust level in 22 countries (n=5.106) out of the worldwide sample consisting of 5.575 employees working in different countries and industries. An online survey methodology was used for collecting data based on an research project financed by the EU and the Sate of Lower Saxony, Germany. The survey was translated into 13 languages such as German, Español, Português, Français, Polski, Russian, Română, Slovenský, Simplified Chinese, Traditional Chinese, Japanese, South Korean, and Thai. The results showed that the 50-item questionnaire is valid and reliable instrument for measuring digital trust in Latin America (Launer, Cetin, Paliszkiewicz, 2022). Focusing on employees' trust perceptions on technologies, people, and processes in the workplace, this study presents three fundamental factors for answering the question of "what influences employees' digital trust at the workplace globally?

Keywords**:** Digital Trust; e-Trust, Scale Development; Validity; Reliability

Introduction

A global research on digital trust in the workplace, dubbed as “eTrust,” was launched in collaboration and partnership with business schools in Europe, the USA, Latin America, Africa and Asia. The research was led by an applied sciences higher institution in Germany and serve as the headquarter. The European Regional Development Fund and the State of Lower Saxony, Germany, funded it. The research assesses the digital trust among employees and his perspective about his/her own experience as a worker, his or her attitude towards the employing organization and the customers, as well as his or her behavior in the society as a whole. Specifically, the research is primarily aimed at measuring digital trust in the workplace, emphasizing people, technology, and process. The study employed a hybrid method. One of its methods to be used is an online survey using a questionnaire. To ensure an effective survey, the survey questionnaire was pretested (Marcial, Launer, 2019; Marcial, Launer, 2021). The results showed that the 50-item questionnaire is valid and reliable instrument for measuring core structure of digital trust model. Moreover, the affirmed 10 subdimensions present a constructional basis on understanding the main drivers of digital trust at the workplace (Launer, Cetin, Paliszkiewicz, 2022).

Literature Review

The concept of trust is a multidimensional phenomenon with different definitions, such as a personality trait (Rotter, 1967), a feeling (Gibb, 1978), a positive expectation (Rousseau, Sitkin, Burt, & Camerer, 1998: 395), a state of mind (Sako & Prices, 1992) or a willingness to accept a vulnerable situation (Bos et al., 2002). From the relational perspective, trust is perceived in terms of individuals' expression of the belief that other a) will not act in a way that is harmful to the trusting firm, b) will act in such a way that it is beneficial to the trusting firm, c) will act reliably, and d) will behave or respond in a predictable and mutually acceptable manner (Paliszkiewicz, 2014).

According to the interactions between individuals and their digital environment, digital trust is related to expectations, perceptions, and beliefs. Corritor, Kracher, and Wiedenbeck (2003: 740) describe digital trust as “an attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited." Wang and Jeong (2018: 163) present it as “general beliefs in online service providers that result in behavioral intentions."According to a suggested model (Marcial & Launer, 2019) and our proposition, the definition of digital trust is “the general belief that technology, people, and processes act or are aligned in ways that will fulfill people’s digital expectations, such as sense of confidence, security, or control to support the creation of a secure digital environment”.

Marcial and Launer (2019) suggest a framework for researching digital trust at the workplace. This framwork based on an input-output model in the principles of information systems was used as a base for the formulation of the conceptual framework of this study. For example, the level of trust in digital technology is one of the principles of information systems. Other theories taken under consideration in this study are: Forrester Social Technologic Ladder, Technology Adoption Theory,

Management Theory, Information Systems Theory, Software Quality model, General Data Protection Regulation Principles, Digital Citizenship Principles, and Caldicott Principles. Thus, the level of digital trust is measured in terms of Technology, People, and Processes (PWC, nd.). In the conceptual model, the three factors were considered: technology, people, and processes. The extended model by Launer, Cetin; Palisckiewicz (2022) is presented in Figure 1.

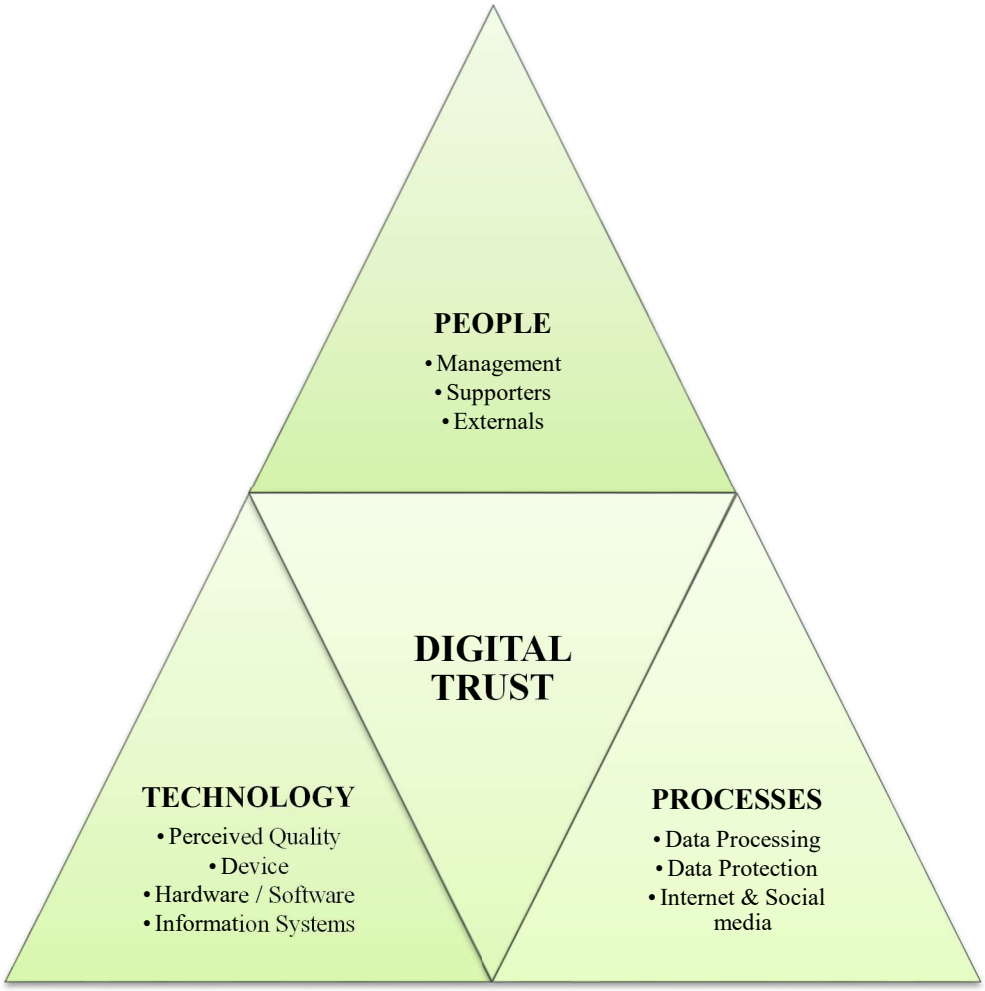


Figure 1. Model of digital trust at the workplace

Digital Trust in Technology

Depending on the concept of trust, the technology factor is asssociated with the capabilities of the technologies to perform a particular action (Castelfranchi, & Falcone, 1998; Taddeo, 2010; Corritore, Kracher, &. Wiedenbeck, 2003). In these framework the capabilities or competencies of technologies are constructing the trust according to individuals' certain expectations. In the workplace, employees' perceived trust is the reliability and effectiveness of the results of performed actions of technological artifacts. For instance, a copier that produces a quality product for a customer is thought as trustworthy in terms of meeting expectations, or web site facilities that inspire customers' buying behavior are considered a reliable virtual location for advertising.

Technology components in this study are related to quality, electronic devices provided by the company either for official or personal use, hardware and software systems installed, and information

systems implemented in the workplace (Karri et al., 2010; Mcknight et al., 2011). The quality describes the consumer or client benefits and values, integrity of processes, control and security, data accuracy, performance, reliability, and business continuity (Tehranipoor & Wang, 2011; Mishra, Bhunia, & Tehranipoor, 2017). The devices provided by the company can be tablets, laptop computers, smartwatches, other smart wearable devices (Kirs & Bagchi, 2012; Stair, & Reynolds, 2021). Hardware and software dimensions are also related to ID Systems in daily time recording, doors, gates, and other, entrance and exit in the company or organization, ID system in printing and duplication services, email tracking (Reed & Jain, 2015) and monitoring system (Staples, 2014).

Digital Trust in People

People are the indispensable element for the effective operation of all electronic systems in the workplace (O'Brien & Marakas, 2011). Individuals use digital technologies to communicate with each other, such as email, chats, messenger services. Therefore, trust is an important factor when working with colleagues within your own or external organization, hierarchical, conventional, or in virtual teams, the so-called "Trust at the click of a mouse" (Wilson, Straus, & Mc Evily, 2006; Ebrahim, Ahmed, & Taha, 2009; Breuer & Hertel, 2017).

The digital trust of people in this study depends on the colleagues they are working with at their workplace, from top-level management to front line managers, employees dealing with IT- and data support services (internal department or external service), and managers dealing with external entities from customers and suppliers to service providers and governments. In the meantime, the growing digital collaborative and social nature of digital workplaces is reflected in the development of trusted virtual teams and digital teamwork, which is an important basis for the success and performance of an organization (Jarvenpaa et al., 2004; Peters & Karren, 2009; Bennett & Bierema, 2010). Furthermore, most employees deal not only with people within the company but work and communicate with external entities and environments (Dwyer, 2011). According to the supply chain approach, this can be customers, clients and suppliers, logistics and other service providers (consulting / accounting / IT / taxes), all kinds of or wholesalers working with electronic trading systems or platforms (Launer, Borsych, & Alvermann, 2009).

Digital Trust in Processes

The processes factor is the accuracy and success of the collecting, processing, and protecting data at the workplace or between companies. From the evolutionary perspective, the digitalized processes are a kind of indicator of how trust was built up gradually through ongoing digital interactions (Hart & Saunders, 1997). Therefore, all these processes of transforming the data from collecting to protection are becoming building blocks of establishing digital trust. For instance, Enterprise Resource Planning is used for managing and integrating data in the business systems, or the data protection systems are used for managing the concerns on privacy or security of personal or organizational data.

For the processes factor in this study, the level of digital trust is determined as data processing operations, data protection practices, and the use of the Internet and social media. Organizations try to maximize the quality of processes including input-output transformation procedures at the workplace such as automation systems, workflow management, inventory management, etc. The accuracy, timeliness, and quality of these digital applications positively influence users' the level of digital trust (Rita, Oliveira, & Farisa, 2019; Chakravorti, Bhalla, & Chaturvedi, 2021). Another factor for establishing digital trust is online security measures with a high level of data privacy and data protection (Cecere & Rochelandet, 2013; Voigt & von dem Bussche, 2017; Pinkham, 2019). Lastly, Internet and social media with permitting employees to enable knowledge transfer, form virtual social capital, maintain professional networks, reduce uncertainities, etc. are prerequisite factors of bulding trust for the organizational comuncation and collabration purposes (Valenzuela, Park, & Kee, 2009; Cao et al., 2016).

Method

The survey in this study was part of the EU-funded research project "Digital Trust and Teamwork" (Launer, Schneider, & Borsych, 2019; Launer, Borsych, & Alvermann, 2019) based on the definitions by Launer (2014). A follow-up project was conducted with 30 researchers from schools in Europe, the USA, Latin America, Africa, and Asia named "Digital Trust @ the Workplace", dubbed as "eTrust,". The questionnaire was pre-tested with the calculation of test-retest reliability coefficients and the internal consistency of the proposed survey questionnaire. The measurement of the test-retest reliability was done in Germany (n=51) and the Philippines (n=32). The questionnaire's internal consistency was measured through the pretesting (n=376) of the survey in China, Japan, South Korea, Paraguay, Russia, Brazil, Thailand, USA, and the United Kingdom from June to November 2019 (Launer, Marcial, Gaumann, 2020; Marcial, Launer, 2021).

In the main study, the participants were 5.574 employees working in 43 different industries from over 30 countries from the research project. The questionnaire originally consists of 103 items measuring three main factors (48 items for Technology, 22 items for People, and 33 for Process) and their 10 sub-dimensions.

The questionnaire was reviewed and analyzed by two groups of experts. Three Industry practitioners and 3 university professors examined the questionnaires. The questionnaire was revised, incorporating the suggestions and recommendations from the experts.

The English version of the questionnaire was evaluated by a Teaching English to Speakers of Other Languages (TESOL) expert. It was revised based on the TESOL standards. Then, qualified bilingual professionals were commissioned to translate the questionnaires. These translations are German, Deutsch, Español, Português, Français, Polski, Română, Slovenský, Traditional Chinese, Simplified Chinese, Japanese, South Korean, and Thai.

The test-retest method was done in Germany and the Philippines in a week interval [20] in January 2019. A quota and convenience sampling among similarly situated participants was employed. The

Philippines group has 32 test-retest responses, while Germany has 51 answers. The Filipino-participants are all professionals and working in a Philippine company. On the other hand, German-participants are working part-time in a company in Germany. The administration of the test-retest was delivered online. All participants were informed about the purpose of the testing. For monitoring, email addresses were required during the tests, which was clearly explained to the participants.

The internal consistency was measured using the pretest data conducted in China, Japan, South Korea, Paraguay, Russia, Brazil, Thailand, USA, and the United Kingdom from June to November 2019. A quota and convenience sample of 376 was collected, including test responses of Germany and the Philippines. The pre-testing administration was delivered online through the country representative as appointed by the project leader. For monitoring, email addresses were required during the test (Launer, Marcial, Gaumann, 2020; Marcial, Launer, 2021).

For this study, a sample of 5.106 answers were used to analyze the digital trust in 22 countries across Asia, Europe, USA, Latin America, and Africa.

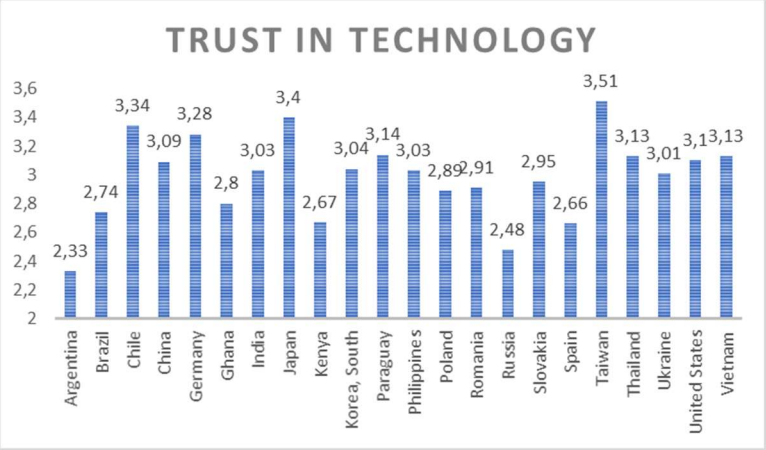
Country	Frequency
Argentina	115
Brazil	253
Chile	173
China	406
Germany	791
Ghana	155
India	354
Japan	118
Kenya	209
Korea, South	163
Paraguay	201
Philippines	427
Poland	150
Romania	234
Russia	149
Slovakia	251
Spain	80
Taiwan	127
Thailand	276
Ukraine	119
United States	273
Vietnam	82
Total	5106

Results

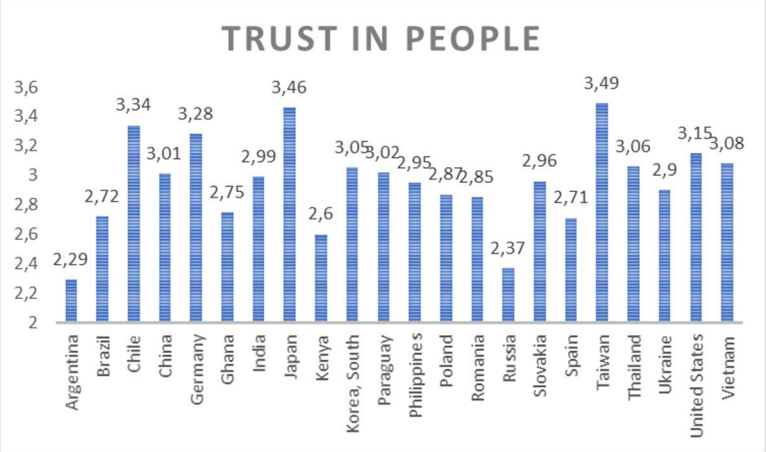
3 Key Dimensions Technology, People and Processes

In the first step, the descriptive results were analyzed. More results will follow in due course. The Group descriptives are as followed. First, the descriptive analysis of the thre key dimensions.

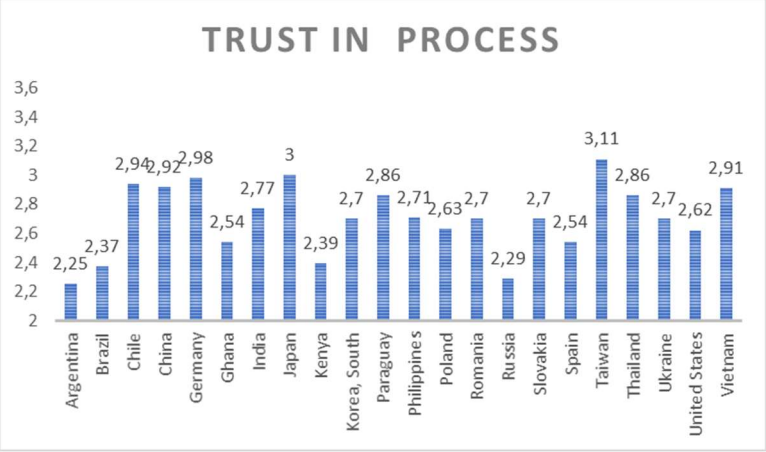
Digital Trust in Technology



Digital Trust in People

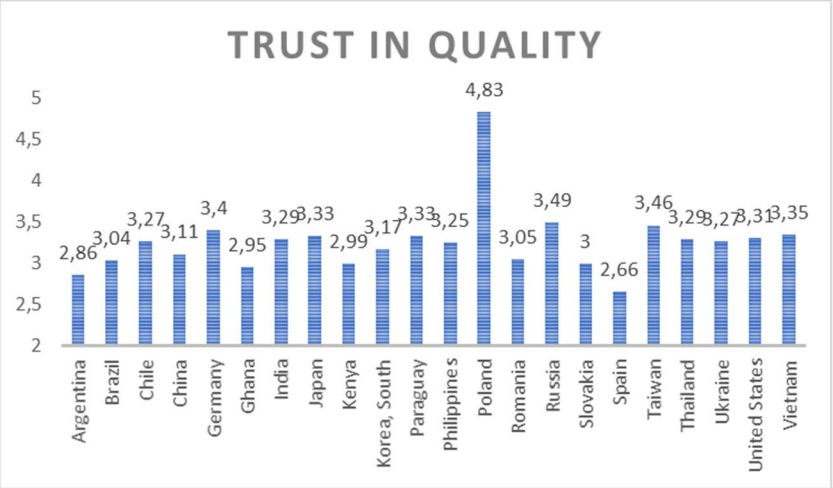


Digital Trust in Processes

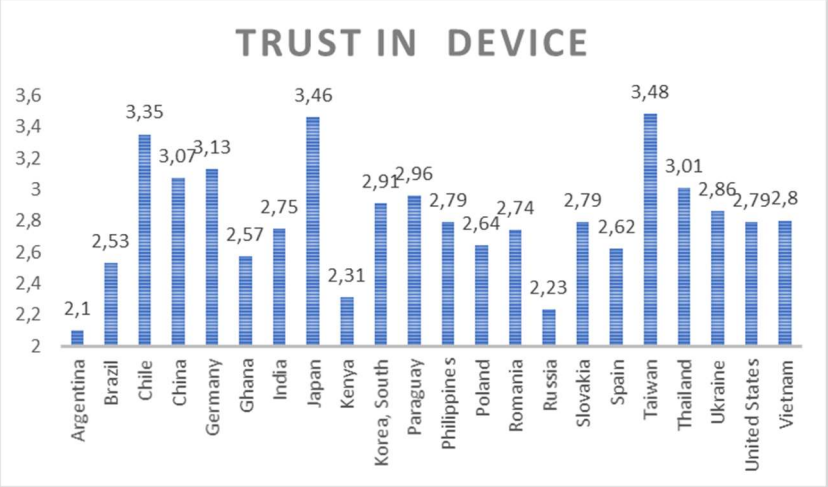


Results for the 10 Subdimensions

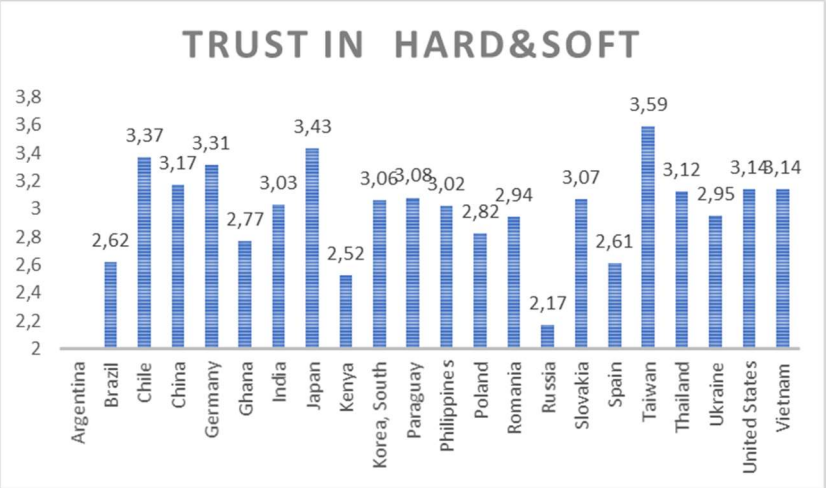
Digital Trust in Technology (1), Quality of Technology



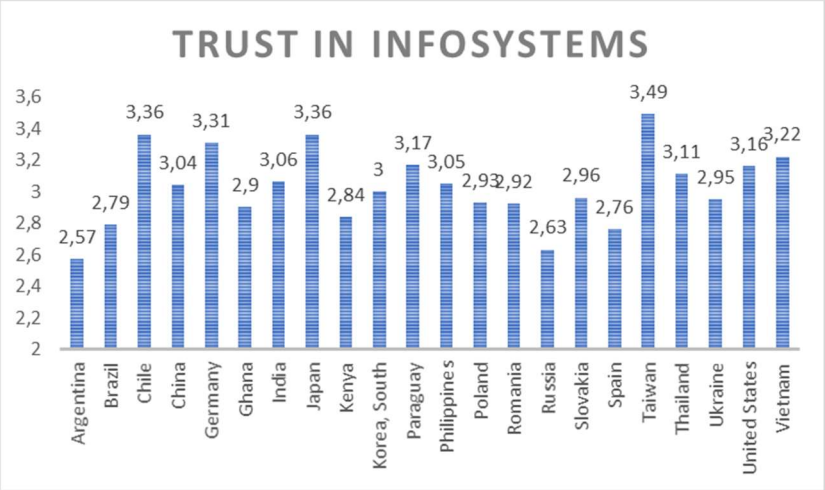
Digital Trust in Technology (2),Trust in Devices



Digital Trust in Technology (3), Trust in Hard-and Software



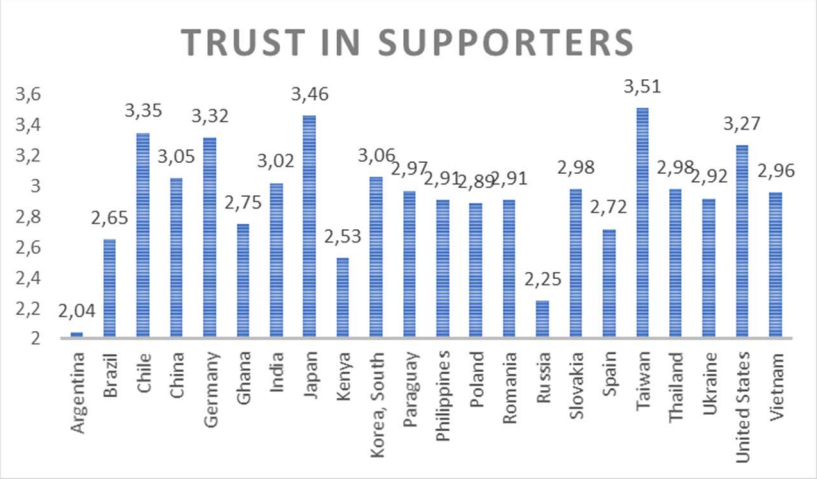
Digital Trust in Technology (4), Trust in Information Systems



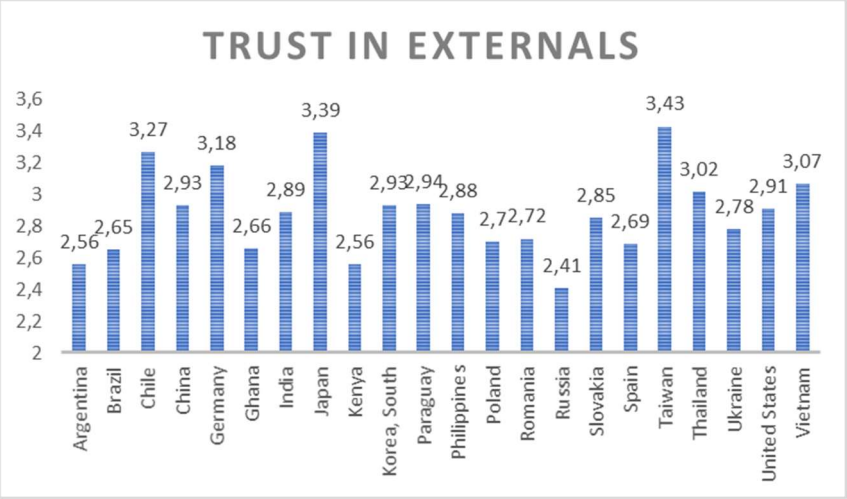
Digital Trust in People (1), Trust in Management



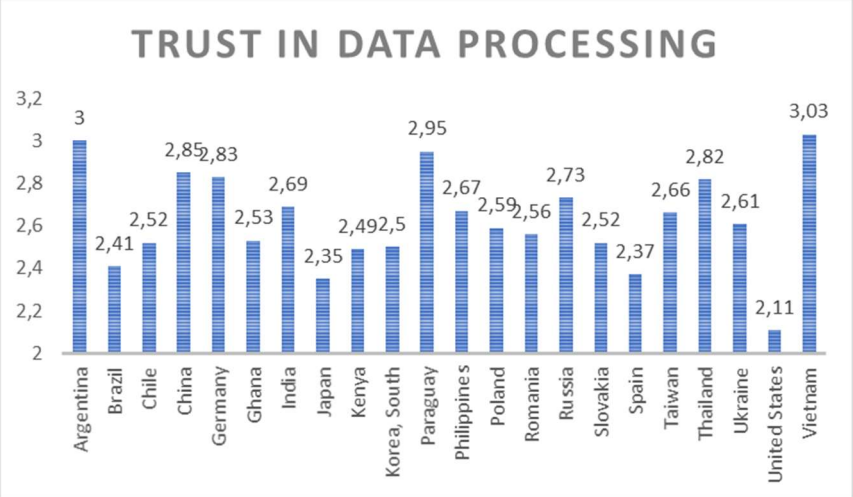
Digital Trust in People (2), Trust in IT Supporters



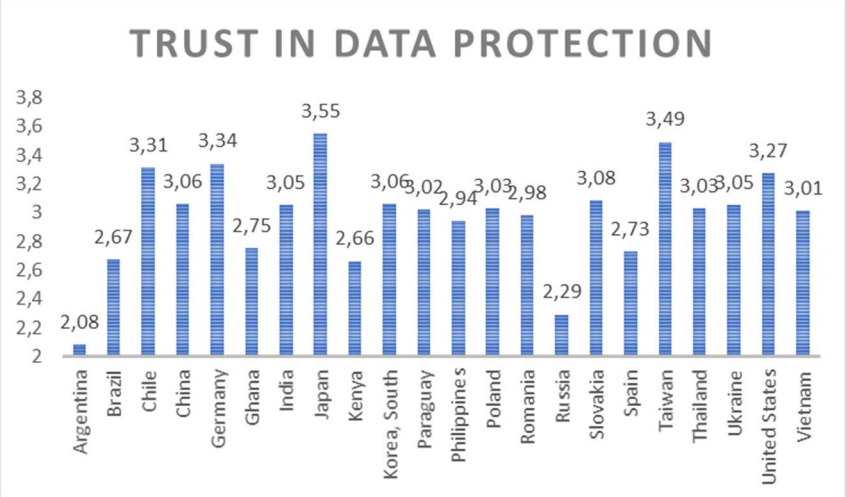
Digital Trust in People (3), Trust in External Entities



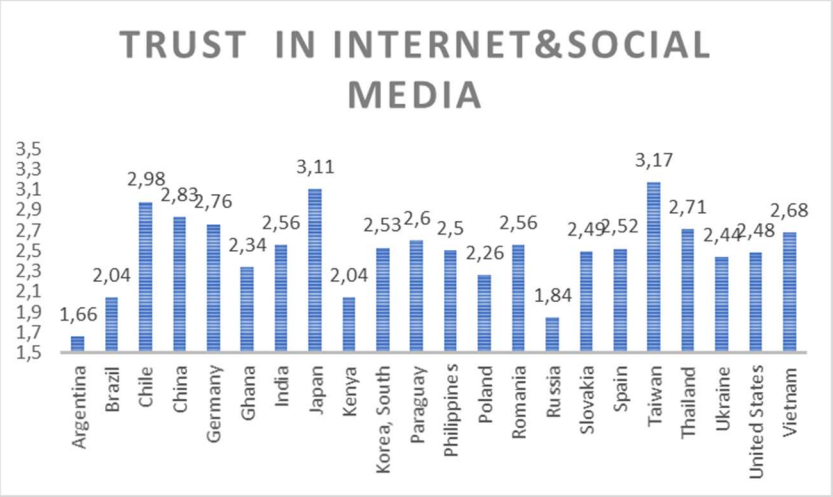
Digital Trust in Systems (1), Trust in Data Processing



Digital Trust in Systems (2), Trust in Data Protection



Digital Trust in Systems (3), Trust in Internet and Social Media Use



Discussion

Based on individual expectations of the employees, perceptions, and beliefs, digital trust refers to the interactions between individuals and their digital environment. Even it's an uncertain, complex, and ambiguous concept, digital trust is becoming a key phenomenon in our digitalized workplace and life. Since today's digital workplace is the key to individual and organizational cooperation and success, the main purpose of this research is to explore the digital trust concept and related factors at the workplace departing from the employees' point of trust view. Initialy for the conceptualizing, a new digital trust model, suggested by Marcial and Launer (2019), has been explained with the framework of Technology, People, and Processes factors. The model was tested ans seems to to be valid and reliable (Launer, Marcial, Gaumann, 2020; Marcial, Launer, 2021). In an item selection process, the final model was set (Launer, Cetin, Paliszkiewicz, 2022).

This model emphasizes employees' perceived trust in these three factors for meeting their digital expectations at the workplace toward a secure digital environment. Covering key mechanisms of digital trust in the workplace, this model uncovers three basic factors which are the core mechanisms in constructing and sustaining trust beliefs.

The results for the 22 key countries show analysis by country for the three key dimensions as well as 10 subdimensions. The highest digital trust in technology was seen in Japan and Taiwan. The lowest digital trust in technology was seen in Argentina and Russia. The highest digital trust in people were again seen in Japan and Taiwan. The lowest digital trust in people were seen again in Argentina and Russia. Coming to the digital trust in Processes, the highest digital trust was seen in Taiwan and Japan but also in Germany, Chile, China, and Vietnam. The lowest digital trust in processes were seen in Argentina and Russia but also in Brazil, and Kenya.

Funding

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Digital Trust in Northern Asia - A Cross Cultural Analysis

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Bo Aquila Yang, Beijing Open University, China

Natsuko Uchida, Ferris University, Japan

Markus A. Launer, Ostfalia University of Applied Sciences, Germany

Abstract

Purpose

The purpose is to compare digital trust on Technology, Processes, and People in the workplace in most advanced countries in Asia.

Theoretical framework

This paper is based on the basic theories of Marcial and Launer (2019) and Launer, Paliszkiewicz, and Cetin (2022).

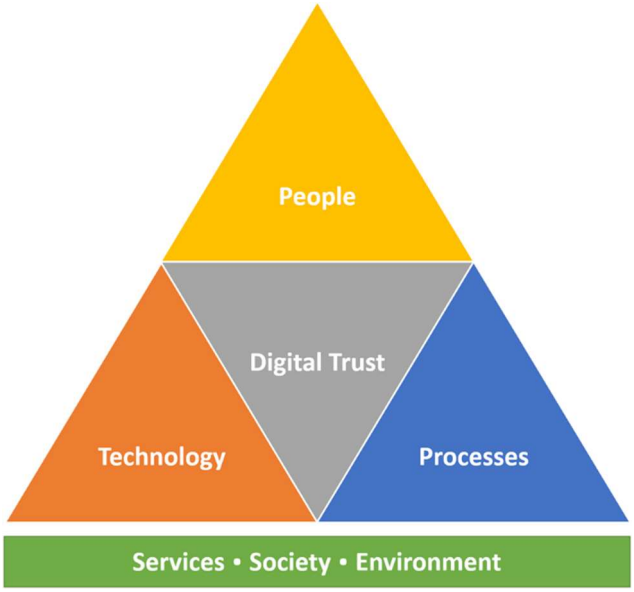


Figure 1 Digital trust model in the workplace

Technology: The technology factor is employees' perceived trust in the reliability and effectiveness of the results of performed actions of technological artifacts, such as the quality of technologies, the devices used in the workplace, the hardware and software systems, and the information systems.

People: The people factor is employees' perceived trust in other people in the online platforms in the workplace or environment, such as managers from different managerial levels, coworkers,

supporting and technical employees, and also people from the immediate external environment such as customers, suppliers, and stakeholders.

Processes: The processes factor is employees' perceived trust in the accuracy and success of the data collection, processing, and protection systems in the workplace or between companies, such as data processing, data protection, and the Internet and social media.

Methodology

We used a sample on Asia consisting of 814 employees working in different countries (Korea 163, Taiwan 127, Japan 118, China 406) and industries. The online survey methodology was used for collecting data after translating items into different languages. For testing the proposed model, the factorial structures and internal consistencies are calculated.

The questionnaire in this study was part of the EU-funded research project "Digital Trust and Teamwork" (Launer, Schneider, & Borsych, 2019; Launer, Borsych, & Alvermann, 2019) based on the definitions by Launer (2014). An electronic questionnaire was used to collect data with a snowball sampling method through the international personal network of authors in Korea, Taiwan, Japan, and China). The questionnaire was developed in English and translated into Korean, Japanese, simplified and traditional Chines. The translations of the questionnaire was evaluated by a Teaching to Speakers of each country experts.

Results

Results of Digital Trust by employees in the workplace

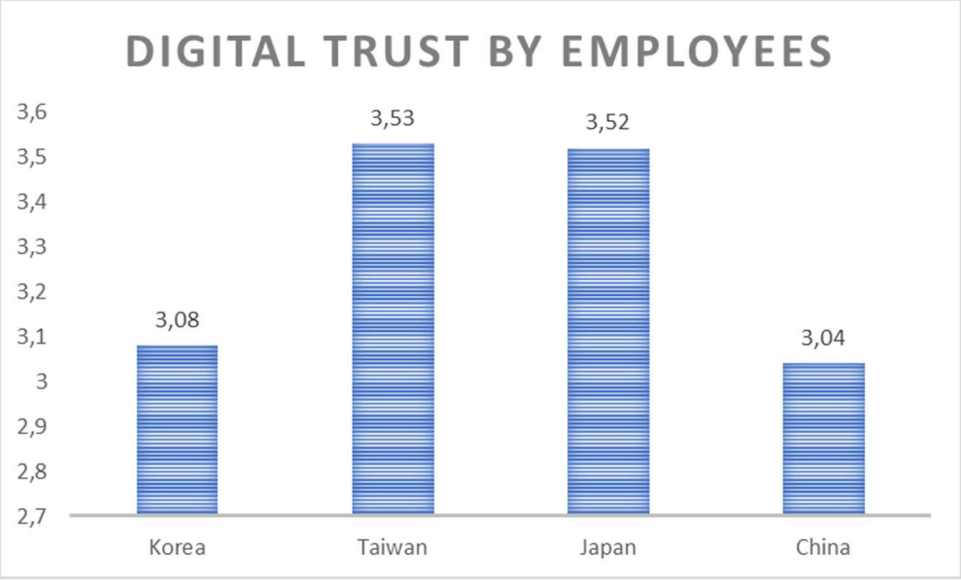


Figure 2: Digital Trust by employees in the workplace

Table 1 Digital Trust by employees in the workplace

Country	Mean	SD	Korea	Taiwan	Japan	China
Korea	3,08	0,664	—	-0,44 ***	-0,4369 ***	0,0407
Taiwan	3,53	0,426		—	0,00723	0,4848 ***
Japan	3,52	0,619			—	0,4776 ***
China	3,04	0,51				—

Note, * p < ,05, ** p < ,01, *** p < ,001

One way of ANOVA results based on Games-Howell Post-Hoc Test (values in the table show mean differences)

Results of Digital Trust by technology in the workplace

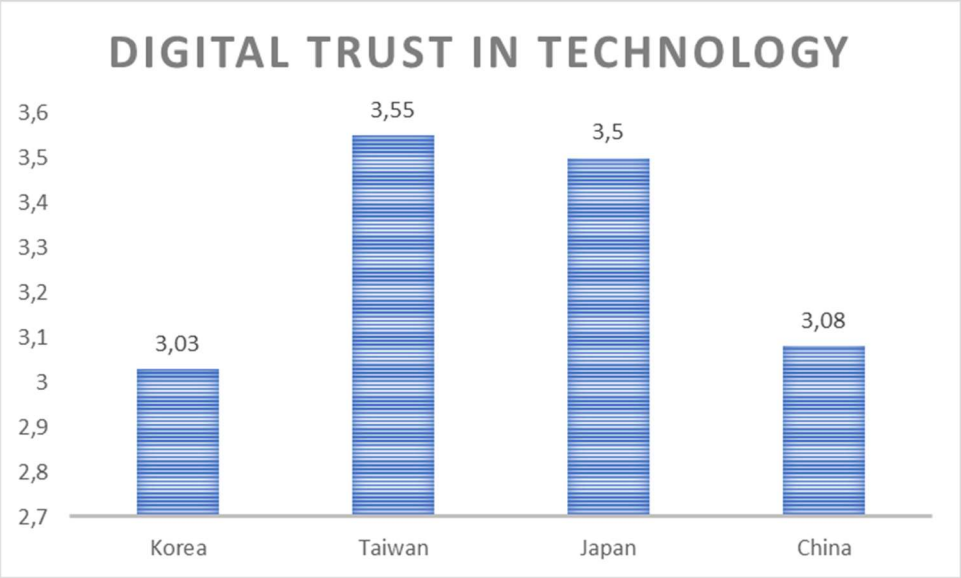


Figure 3 Digital Trust in Technology in the workplace

Table 2 Digital Trust in technology in the workplace

	Mean	SD	Korea	Phillippines	Japan	China
Korea	3,03	0,615	—	0,0338	-0,4766 ***	-0,0484
Taiwan	3,55	0,318			0,041	0,4691 ***
Japan	3,5	0,347			—	0,4282 ***
China	3,08	0,421				—

Note, * p < ,05, ** p < ,01, *** p < ,001

One way of ANOVA results based on Games-Howell Post-Hoc Test (values in the table show mean differences)

Results of Digital Trust by processes in the workplace

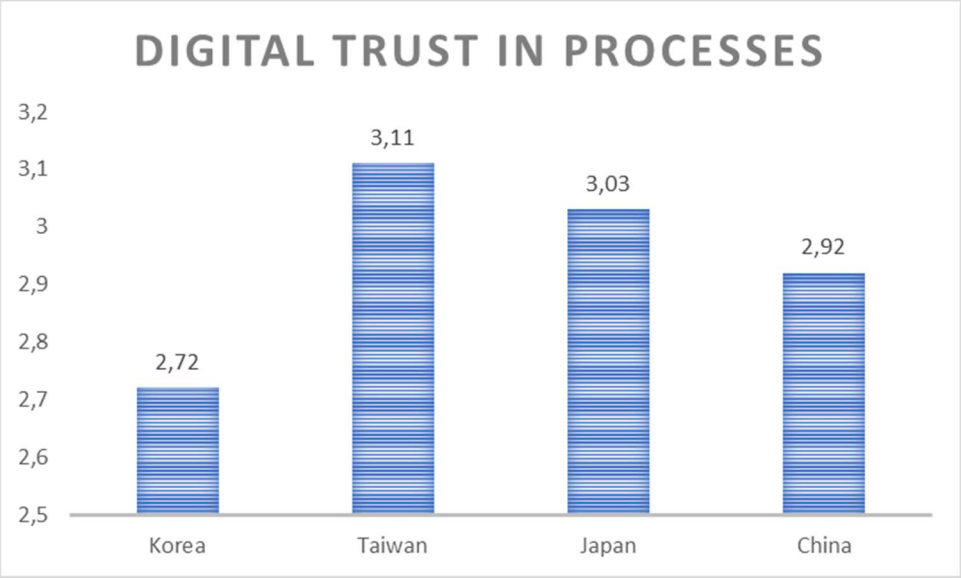


Figure 4 Digital Trust in processes in the workplace

Table 3 Digital Trust in processes in the workplace

	Mean	SD	Korea	Taiwan	Japan	China
Korea	2,72	0,46	—	-0,388 ***	-0,3064 ***	-0,1996 **
Taiwan	3,11	0,503		—	0,0812	0,188 *
Japan	3,03	0,423			—	0,1068
China	2,92	0,415				—

Note, * p < ,05, ** p < ,01, *** p < ,001

One way of ANOVA results based on Games-Howell Post-Hoc Test (values in the table show mean differences)

Results of Digital Trust by data process in the workplace

The dimensions of processes need to be analyzed in detail due to differences concerning issues such as data processing, data protection, and the use of internet & social media.

Table 4 Digital Trust in data process

	Mean	SD	Korea	Taiwan	Japan	China
Korea	2,5	0,599	—	-0,1533	0,158	-0,346 ***
Taiwan	2,66	1,102		—	0,311	-0,1927
Japan	2,35	0,991			—	-0,5038 ***
China	2,85	0,526				—

Note, * p < ,05, ** p < ,01, *** p < ,001

One way of ANOVA results based on Games-Howell Post-Hoc Test (values in the table show mean differences)

Results of Digital Trust by data protection in the workplace

Table 4 Digital Trust in data protection

	Mean	SD	Korea	Taiwan	Japan	China
Korea	3,07	0,659	—	-0,432 ***	-0,5219 ***	-3,53e−4
Taiwan	3,5	0,465		—	-0,0899	0,43166 ***
Japan	3,59	0,51			—	0,52157 ***
China	3,07	0,493				—

Note, * p < ,05, ** p < ,01, *** p < ,001

One way of ANOVA results based on Games-Howell Post-Hoc Test (values in the table show mean differences)

Results of Digital Trust by internet & social media in the workplace

Table 5 Digital Trust in internet & social media

	Mean	SD	Korea	Taiwan	Japan	China
Korea	2,54	0,754	—	-0,64 ***	-0,5947 ***	-0,303 **
Taiwan	3,18	0,842		—	0,0452	0,337 **
Japan	3,13	0,76			—	0,292 *
China	2,84	0,571				—

Note, * p < ,05, ** p < ,01, *** p < ,001

One way of ANOVA results based on Games-Howell Post-Hoc Test (values in the table show mean differences)

Keywords: Digital Trust, Korea, Taiwan, Japan, China

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Digital Trust in Eastern Europe – A Cross Cultural Analysis

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Markus A. Launer, Ostfalia University of Applied Sciences, Germany

Abstract

Purpose

Digital trust is one of the themes that is rapidly gaining momentum and importance, especially in the light of the events unfolding over the last couple of years (Launer, Cetin & Paliszkiewicz, 2022). Because of the Covid-19 Pandemic, people from many areas had to make more use of the Internet and digital technologies, hence also test their levels of digital trust. For this research, we analyzed the data gathered in a larger study called “Digital Trust in the Workplace”, based on an instrument developed by researcher Markus Launer at the University of Ostfalia, Germany, and compared it to the Digital Economy and Society Index (DESI) for 9 EU countries (Poland, Slovakia, Romania, Sweden, Spain, Germany, Portugal, Austria and the Czech Republic). The data gathered in the previously mentioned study was correlated to the DESI index, in an attempt to understand and explain the level of digital trust. Our hypothesis is that one of the main factors that can explain the differences in digital trust for each country has to do with the level of digitization each country has arrived at.

Theoretical Framework

This paper is based on the basic theories of Marcial and Launer (2019) and Launer, Paliszkiewicz, and Cetin (2022).

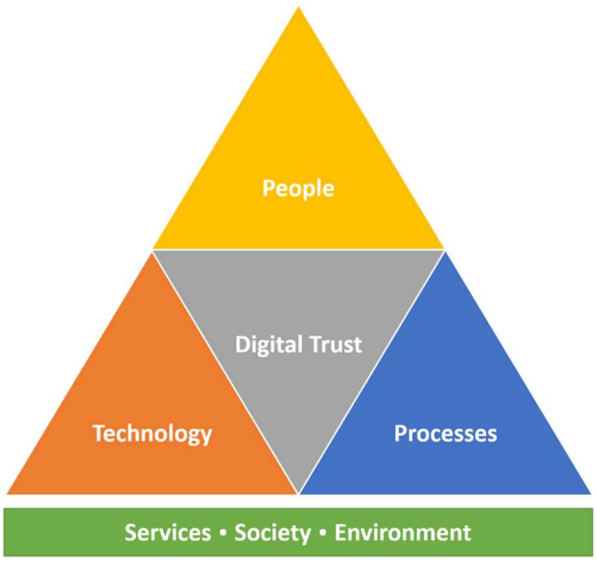


Figure 1 Digital trust model in the workplace

Technology: The technology factor is employees' perceived trust in the reliability and effectiveness of the results of performed actions of technological artifacts, such as the quality of technologies, the devices used in the workplace, the hardware and software systems, and the information systems.
People: The people factor is employees' perceived trust in other people in the online platforms in the workplace or environment, such as managers from different managerial levels, coworkers, supporting and technical employees, and also people from the immediate external environment such as customers, suppliers, and stakeholders.
Processes: The processes factor is employees' perceived trust in the accuracy and success of the data collection, processing, and protection systems in the workplace or between companies, such as data processing, data protection, and the Internet and social media.

Methodology

We used a sample on Asia consisting of approx.. 300 employees working in different countries (Countries …..) and industries. The online survey methodology was used for collecting data after translating items into different languages. For testing the proposed model, the factorial structures and internal consistencies are calculated.
The questionnaire in this study was part of the EU-funded research project "Digital Trust and Teamwork" (Launer, Schneider, & Borsych, 2019; Launer, Borsych, & Alvermann, 2019) based on the definitions by Launer (2014). An electronic questionnaire was used to collect data with a snowball sampling method through the international personal network of authors in Korea, Taiwan, Japan, and China). The questionnaire was developed in English and translated into Korean, Japanese, simplified and traditional Chines. The translations of the questionnaire was evaluated by a Teaching to Speakers of each country experts.

Results

Results of Digital Trust by employees in the workplace

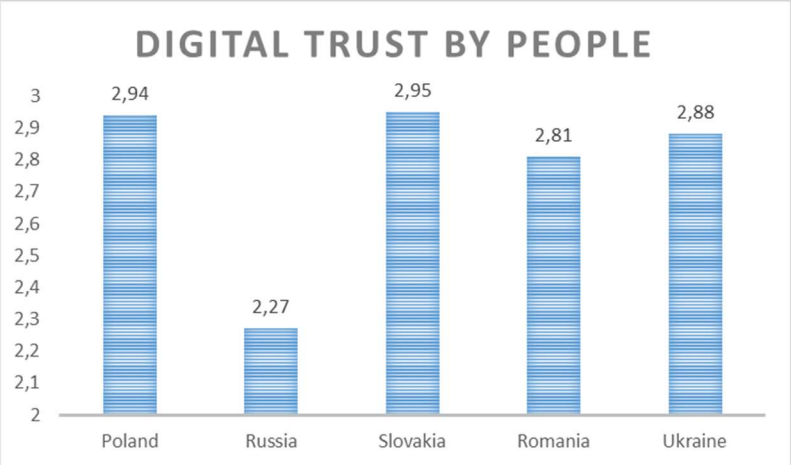


Figure 2: Digital Trust by employees in the workplace

Table 1 Digital Trust by employees in the workplace

Country	Mean	SD	Poland	Russia	Slovakia	Romania	Ukraine
Poland	2,94	0,643	—	0,67 ***	-0,015	0,131	0,0608
Russia	2,27	0,776		—	-0,685 ***	-0,54 ***	-0,609 ***
Slovakia	2,95	0,626			—	0,146	0,0758
Romania	2,81	0,689				—	-0,07
Ukraine	2,88	0,584					—

One way of ANOVA results based on Games-Howell Post-Hoc Test

Note, * p < ,05, ** p < ,01, *** p < ,001

One way of ANOVA results based on Games-Howell Post-Hoc Test (values in the table show mean differences)

Results of Digital Trust by technology in the workplace

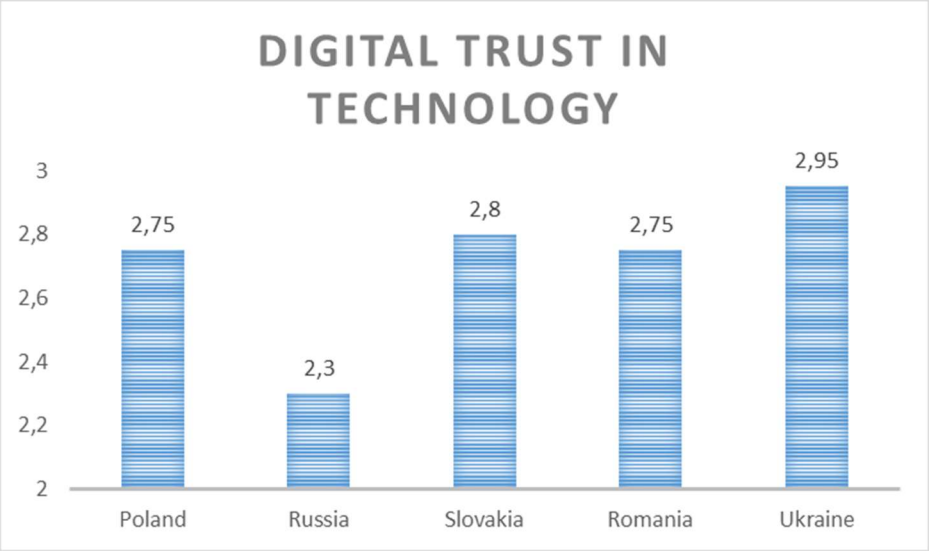


Figure 3 Digital Trust in Technology in the workplace

Table 2 Digital Trust in technology in the workplace

Country	Mean	SD	Poland	Russia	Slovakia	Romania	Ukraine
Poland	2,75	0,471	—	0,452 ***	-0,0479	0,00177	-0,197
Russia	2,30	0,65		—	-0,4999 ***	-0,45018 ***	-0,649 ***
Slovakia	2,80	0,505			—	0,04969	-0,149
Romania	2,75	0,535				—	-0,198
Ukraine	2,95	0,466					—

One way of ANOVA results based on Games-Howell Post-Hoc Test

Note, * p < ,05, ** p < ,01, *** p < ,001

One way of ANOVA results based on Games-Howell Post-Hoc Test (values in the table show mean differences)

Results of Digital Trust by processes in the workplace

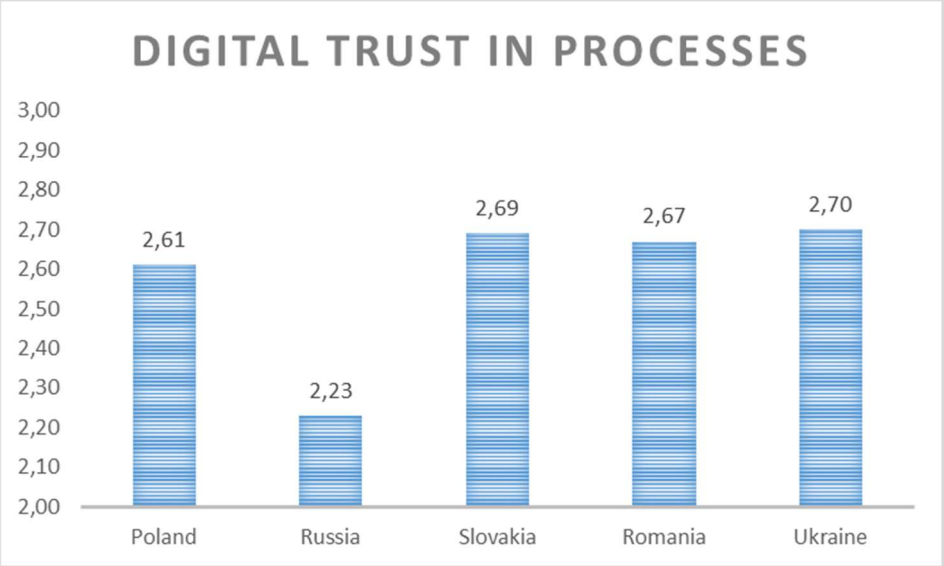


Figure 4 Digital Trust in processes in the workplace

Table 3 Digital Trust in processes in the workplace

Country	Mean	SD	Poland	Russia	Slovakia	Romania	Ukraine
Poland	2,61	0,33	—	0,381 ***	-0,0783	-0,063	-0,0891
Russia	2,23	0,591		—	-0,4593 ***	-0,444 ***	-0,4701 ***
Slovakia	2,69	0,419			—	0,0153	-0,0107
Romania	2,67	0,471				—	-0,026
Ukraine	2,70	0,33					—

One way of ANOVA results based on Games-Howell Post-Hoc Test

Note, * p < ,05, ** p < ,01, *** p < ,001

One way of ANOVA results based on Games-Howell Post-Hoc Test (values in the table show mean differences)

Keywords**:** Digital Trust, Korea, Taiwan, Japan, China

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Digital Trust in Latin America: A Cross Cultural Analysis

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Abstract

The theme of digital trust is of utmost importance during the digital transformation of our workplaces and society in Latin America. The rapidly changing technological innovations disrupt lives and workplaces. It influences an employee's feelings and self-esteem about their work and life. This study suggests analysis digital trust at the workplace in based on three dimensions: *Technology, People*, and *Processes*. The countries researched are Argentina, Brazil, Chile, and Paraguay. *The study is based on a* sample of n = 742 out of a worldwide sample consisting of 5.575 employees working in different countries and industries. The online survey methodology was used for collecting data. 13 languages were offered in total incl. English, Spanish and Portuguese. The results showed that the 50-item questionnaire is valid and reliable instrument for measuring digital trust in Latin America. Moreover, the affirmed 10 subdimensions present a constructional basis on understanding the main drivers of digital trust at the workplace in Argentina, Brazil, Chile, and Latin America. This study is based on the three-dimensional model of digital trust in the workplace (Launer / Cetin, 2021). Focusing on employees' trust perceptions on technologies, people, and processes in the workplace, this study presents three fundamental factors for answering the question of "what influences employees' digital trust at the workplace in Latin America? The key results show a high level of digital trust in technology for Chile and Paraguay. In Chile was a very high trust in digital devices found. Managers in Brazil and Paraguay seem to have a good digital trust in devices. Again, Argentinian managers had the lowest digital trust in digital devices. The same holds true for hardware and software. The trust in Information systems showed similar results as well. The digital trust in management showed a similar picture. The highest digital trust between managers were by Chilenian managers. Brazilian and Paraguayan managers have a mid level digital trust between managers. The lowest digital trust between managers was found in Argentina. The same holds true for the digital relationship to IT supporters and external customers, suppliers and other external groups.

The digital trust into processes showed a slightly different results. Digital trust in processes is high in Chile and Paraguay and in contrast low in Argentina and Brazil. The digital trust in data protection is high in Chile and low in Argentina. As a result, digital trust in Latin America can be ranked from high to low: Chile, Paraguay, Brazil, and Argentina.

Keywords**:** Digital Trust; e-Trust, Scale Development; Validity; Reliability

Introduction

The concept of trust is a multidimensional phenomenon with different definitions, *such as a personality trait, a feeling*, a positive expectati*on, a state of mind* or a willingness to a*ccept a vulnerable situation*. From the relational perspective, trust is perceived in terms of individuals' expression of the belief that other a) will not act in a way that is harmful to the trusting firm, b) will act in such a way that it is beneficial to the trusting firm, c) will act reliably, and d) will behave or respond in a predictable and *mutually acceptable manner.*

According to the interactions between individuals and their digital environment, digital trust is related to expectations, perceptions, and beliefs. Corritor, Krache*r, and Wiedenbeck* describe digital trust as “an attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited*." Wang and Jeong* present it as “general beliefs in online service providers that result in behavioral intentions."

Marcial and Launer suggest a framework for researching digital trust at the workplace. This framwork based on an input-output model in the principles which fit the needs to analysze Latin American countries. The authors define three dimension of digital trust: Technology, People, and Processes:

- Technology: The technology factor is employees’ perceived trust in the reliability and effectiveness of the results of performed actions of technological artifacts, such as expected quality from technologies, the devices used in the workplace, the hardware and software systems, and the information systems.
- People: The people factor is employees’ perceived trust in other people in the online platforms at the workplace or environment, such as managers from different managerial levels, coworkers, supporting and technical employees, and also people from the immediate external environment as customers, suppliers, stakeholders.
- Processes: The processes factor is employees’ perceived trust in the accuracy and success of the data collecting, processing, and protecting systems at the workplace or between companies, such as data processing, data protection, and the Internet and social media.

In the conceptual model, the three factors were considered: technology, people, and processes. The extended model by Launer / Cetin (2021) is presented in Figure 1.

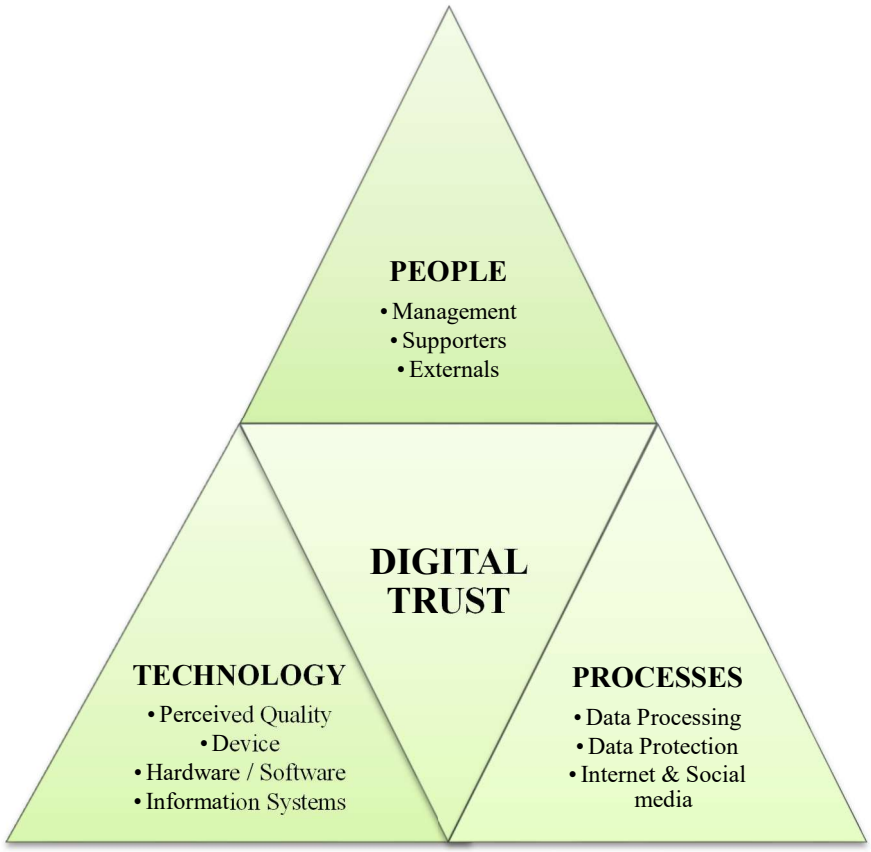


Figure 1. Model of digital trust at the workplace

Digital Trust in Technology

Depending on the concept of trust, the technology factor is asssociated with the capabilities of the technologies to perform a particular action. In these framework the capabilities or competencies of technologies are constructing the trust according to individuals' certain expectations. In the workplace, employees' perceived trust is the reliability and effectiveness of the results of performed actions of technological artifacts. The technologcal components in this study are related to perceived quality, electronic devices provided by the company either for official or personal use, hardware and software systems installed, and information systems implemented in the workplace.

Digital Trust in People

People are the indispensable element for the effective operation of all electronic systems in the workplace. Individuals use digital technologies to communicate with each other, such as email, chats, messenger services. Therefore, trust is an important factor when working with colleagues within your own or external organization, hierarchical, conventional, or in virtual teams, the so-called "Trust at the click of a mouse". The digital trust of people in this study depends on the colleagues they are working with at their workplace, from top-level management to front line managers, employees dealing with IT- and data support services, and managers dealing with external entities from customers and suppliers to service providers and governments.

Digital Trust in Processes

The processes factor is the accuracy and success of the collecting, processing, and protecting data at the workplace or between companies. From the evolutionary perspective, the digitalized processes are a kind of indicator of how trust was built up gradually through ongoing digital interactions [40]. Therefore, all these processes of transforming the data from collecting to protection are becoming building blocks of establishing digital trust. For instance, Enterprise Resource Planning is used for managing and integrating data in the business systems, or the data protection systems are used for managing the concerns on privacy or security of personal or organizational data. For the processes factor in this study, the level of digital trust is determined as data processing operations, data protection practices, and the use of the Internet and social media.

Method

The questionnaire in this study was part of the research project “Digital Trust and Teamwork” based on the definitions by Launer. A follow-up project was conducted with 30 researchers from schools in Europe, the USA, Latin America, Africa, and Asia named “Digital Trust @ the Workplace”. An electronic questionnaire was used to collect data with a snowball sampling method through the international personal network of authors. In Latin America, the questionnaires were collected through partner Univerrsities in Argentina (Quilmes University), Chile (Universidad de Chile, and Paraguay (UCA University). In Brazil, a country manager supported the data collection.

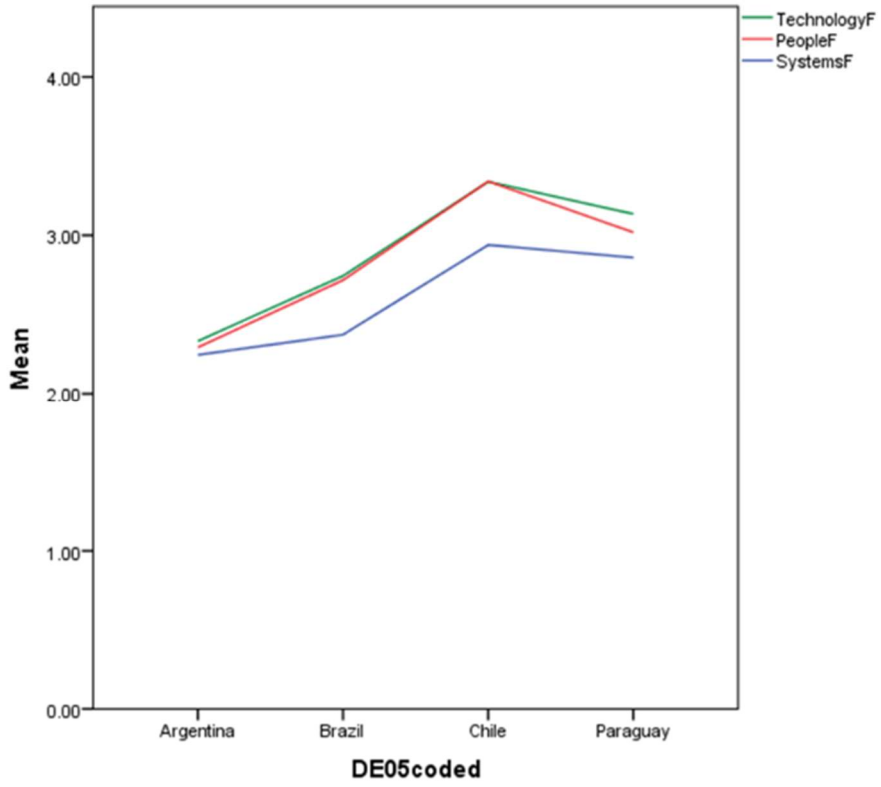
Complying with the European data protection rules, voluntariness and confidentiality were used to invite individuals to participate in the online questionnaire. This was in particular important in Latin America. The questionnaire was originally developed in English. Qualified bilingual professionals were commissioned to translate the questionnaires into 13 different languages incl. Spanish and Portuguese. Experts evaluated and tested these translations in Chile and Brazil. The questionnaire was pre-tested with the calculation of test-retest reliability coefficients and the internal consistency of the proposed survey questionnaire. The measurement of the test-retest reliability was done in Germany (n=51) and the Philippines (n=32). The questionnaire’s internal consistency was measured through the pretesting (n=376) of the survey in China, Japan, South Korea, Paraguay, Russia, Brazil, Thailand, USA, and the United Kingdom from June to November 2019. In the main study, the participants were 5.574 employees working in 43 different industries from over 30 countries from the research project (Launer, Marcial, Gaumann, 2020; Marcial, Launer, 2021).

Participation from Latin America was n=742 managers. This splits into Argentina (n= 115), Brazil (n= 253, Chile (n= 173), and Paraguay (n= 201). The questionnaire originally consists of 103 items measuring three main factors (48 items for Technology, 22 items for People, and 33 for Process) and their 10 sub-dimensions.

Results

Analysis of the three Key Dimensions

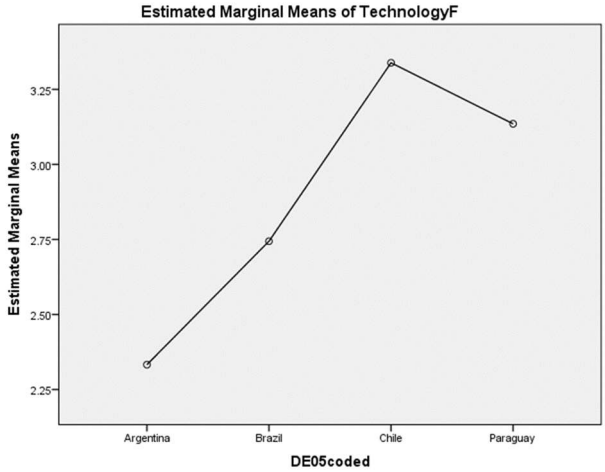
Integrated view on three dimensions Technology, People, and Systems (Processes)



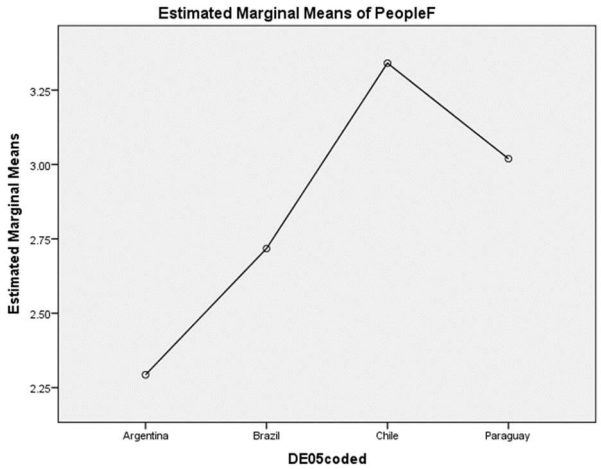
Descriptive Statistics

DE05coded		Mean	Std. Deviation	N
TechnologyF	Argentina	2.3330	.67882	115
	Brazil	2.7440	.67007	253
	Chile	3.3385	.83976	173
	Paraguay	3.1352	.50257	201
	Total	2.9249	.75692	742
PeopleF	Argentina	2.2930	.71318	115
	Brazil	2.7174	.64616	253
	Chile	3.3406	.84179	173
	Paraguay	3.0193	.50284	201
	Total	2.8787	.75515	742
SystemsF	Argentina	2.2451	.61459	115
	Brazil	2.3731	.49120	253
	Chile	2.9395	.79588	173
	Paraguay	2.8595	.45797	201
	Total	2.6171	.65254	742

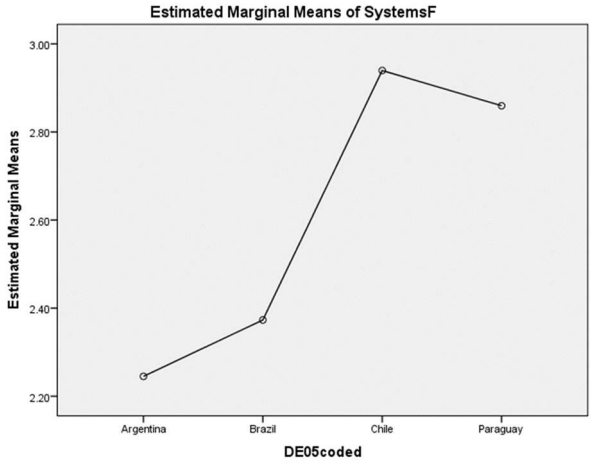
Technology Dimension



People Dimension



Processing dimension



Analysis of the Subdimensions

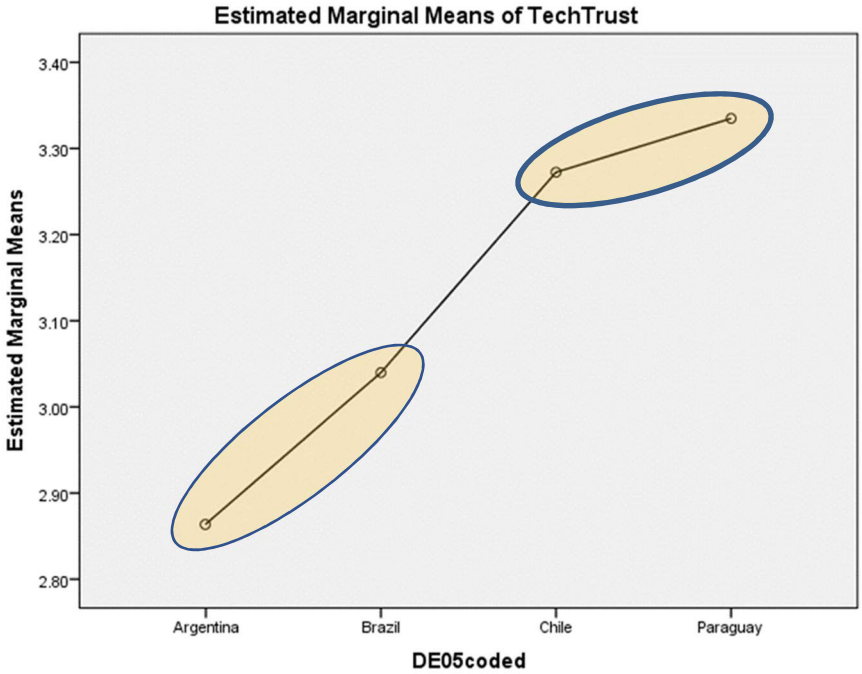
Each dimension can be subdivided into subdimensions.

Descriptive Statistics

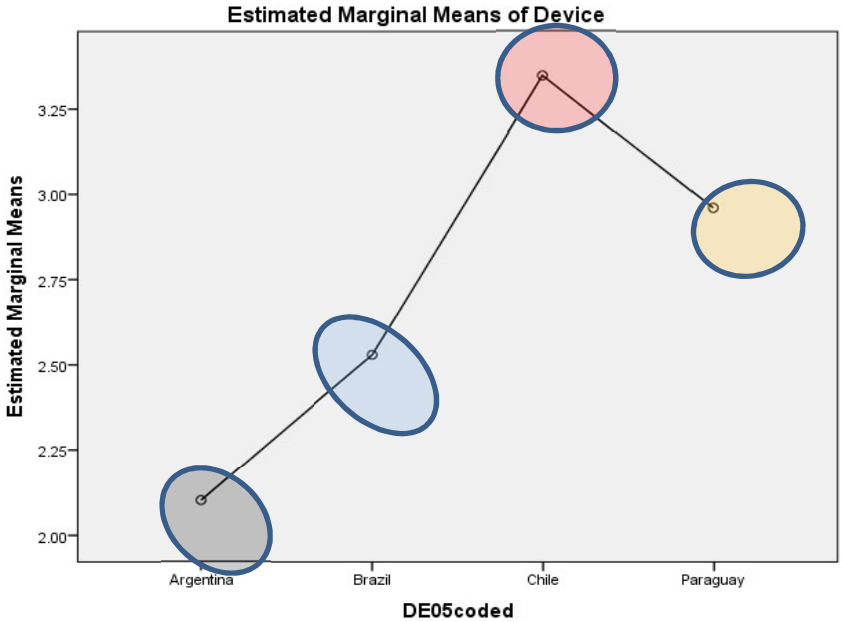
DE05coded		Mean	Std. Deviation	N
TechTrust	Argentina	2.8642	.75320	115
	Brazil	3.0400	.77523	253
	Chile	3.2724	.84449	173
	Paraguay	3.3349	.54561	201
	Total	3.1468	.75307	742
Device	Argentina	2.1006	.80894	115
	Brazil	2.5271	.71359	253
	Chile	3.3480	.88039	173
	Paraguay	2.9575	.68542	201
	Total	2.7690	.87051	742
HardSoft	Argentina	1.7935	.97179	115
	Brazil	2.6217	1.01521	253
	Chile	3.3744	.98408	173
	Paraguay	3.0762	.81942	201
	Total	2.7920	1.08053	742
InfoSystems	Argentina	2.5736	.75700	115
	Brazil	2.7873	.70410	253
	Chile	3.3591	.83607	173
	Paraguay	3.1721	.52461	201
	Total	2.9917	.75830	742
Managament	Argentina	2.2761	.78242	115
	Brazil	2.8610	.79501	253
	Chile	3.3964	.90433	173
	Paraguay	3.1445	.63021	201
	Total	2.9720	.85769	742
Supporter	Argentina	2.0428	.83752	115
	Brazil	2.6462	.78527	253
	Chile	3.3548	.88173	173
	Paraguay	2.9696	.61476	201
	Total	2.8055	.88135	742
Externals	Argentina	2.5602	.73563	115
	Brazil	2.6451	.63053	253
	Chile	3.2708	.85473	173
	Paraguay	2.9438	.57088	201
	Total	2.8587	.73960	742
DataProtect	Argentina	2.9966	1.05255	115
	Brazil	2.4097	.69144	253
	Chile	2.5230	1.14780	173
	Paraguay	2.9548	.60391	201
	Total	2.6748	.89665	742
OrgDataProtect	Argentina	2.0771	.84361	115
	Brazil	2.6657	.78793	253
	Chile	3.3109	.90068	173
	Paraguay	3.0205	.56714	201
	Total	2.8210	.86987	742
IntSocialMed	Argentina	1.6617	.81741	115
	Brazil	2.0440	.66391	253
	Chile	2.9847	.95138	173
	Paraguay	2.6033	.75319	201
	Total	2.3556	.91258	742

Graphical Analysis of the Subdimensions

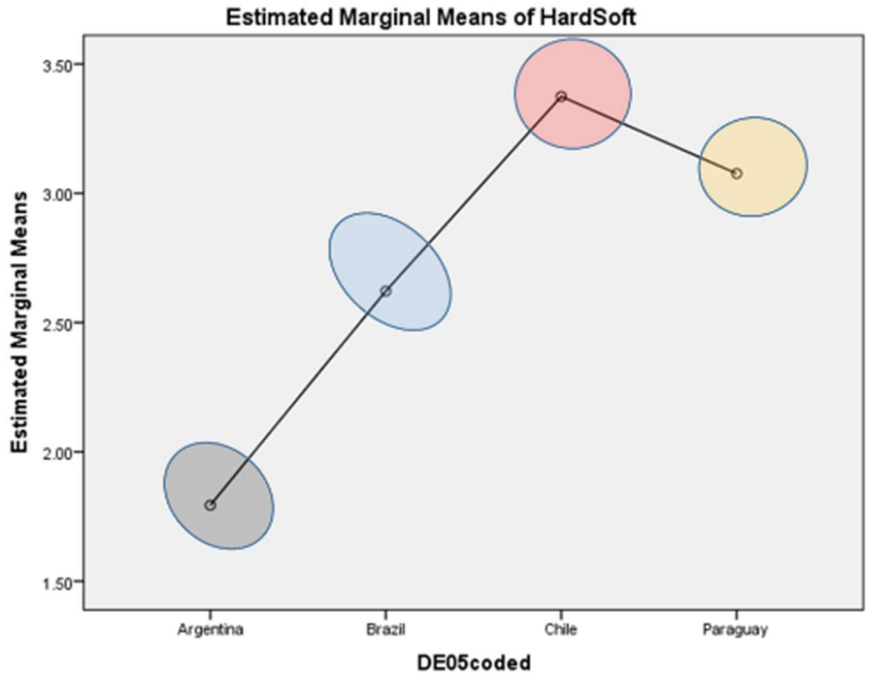
Perceived Quality of Technology Subdimension



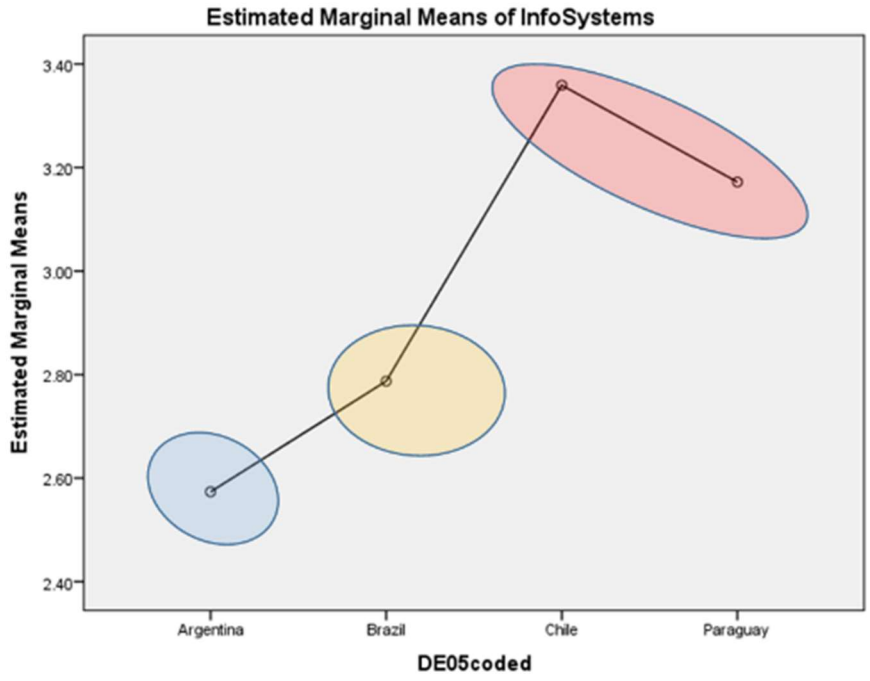
Devices Subdimension



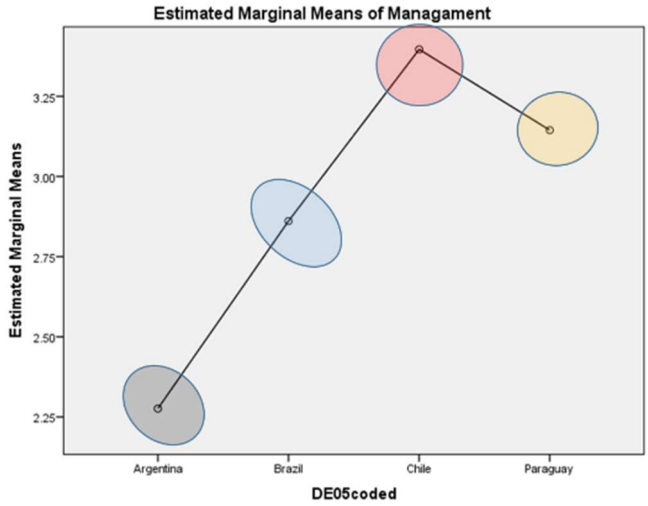
Hard- and Software Subdimension



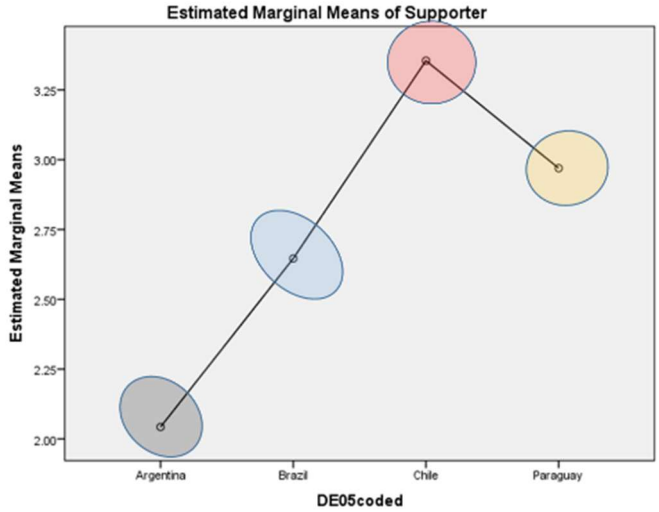
Information Systems Subdimension



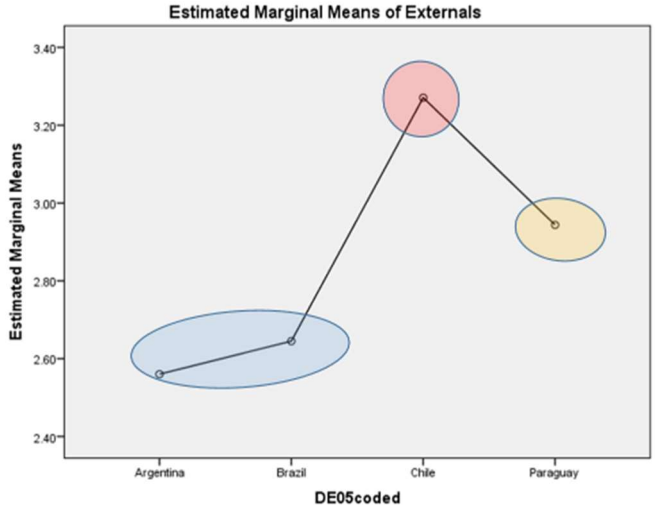
Management Subdimension



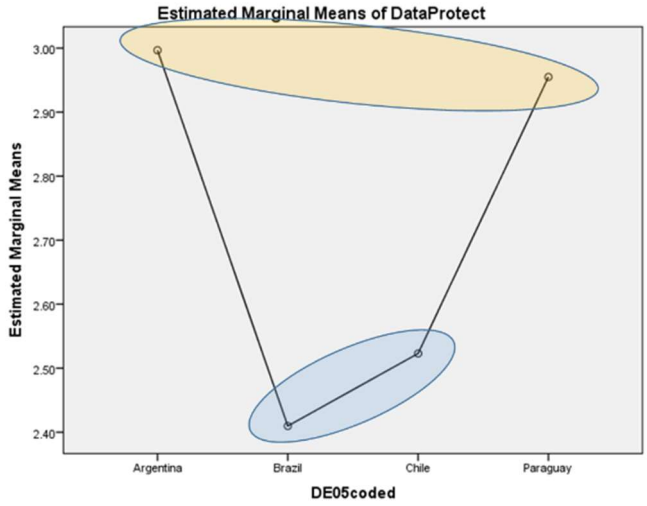
IT Supporter Subdimension



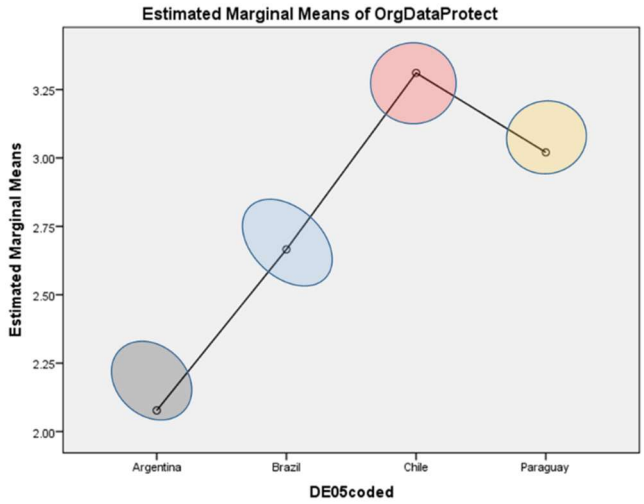
External Entity Subdimension



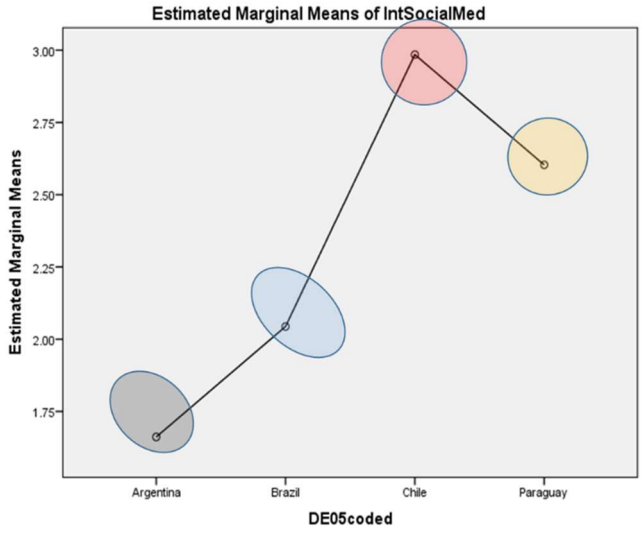
Data Processing Subdimension



Data Protection Subdimension



Internet and Social Media Use Subdimension



Dependent Variable		(I) DE05coded	(J) DE05coded	Mean Difference (I-J)	Std. Error	Sig.
TechnologF	Games-Howell	Argentina	Brazil	-.41108*	.07604	.000
			Chile	-1.00551*	.08991	.000
			Paraguay	-.80222*	.07255	.000
		Brazil	Argentina	.41108*	.07604	.000
			Chile	-.59443*	.07649	.000
			Paraguay	-.39114*	.05506	.000
		Chile	Argentina	1.00551*	.08991	.000
			Brazil	.59443*	.07649	.000
			Paraguay	.20329*	.07303	.029
		Paraguay	Argentina	.80222*	.07255	.000
			Brazil	.39114*	.05506	.000
			Chile	-.20329*	.07303	.029
PeopleF	Games-Howell	Argentina	Brazil	-.42440*	.07793	.000
			Chile	-1.04760*	.09230	.000
			Paraguay	-.72622*	.07537	.000
		Brazil	Argentina	.42440*	.07793	.000
			Chile	-.62320*	.07580	.000
			Paraguay	-.30182*	.05393	.000
		Chile	Argentina	1.04760*	.09230	.000
			Brazil	.62320*	.07580	.000
			Paraguay	.32138*	.07317	.000
		Paraguay	Argentina	.72622*	.07537	.000
			Brazil	.30182*	.05393	.000
			Chile	-.32138*	.07317	.000
ProcessF	Games-Howell	Argentina	Brazil	-.12799	.06510	.205
			Chile	-.69437*	.08334	.000
			Paraguay	-.61439*	.06579	.000
		Brazil	Argentina	.12799	.06510	.205
			Chile	-.56638*	.06793	.000
			Paraguay	-.48640*	.04469	.000
		Chile	Argentina	.69437*	.08334	.000
			Brazil	.56638*	.06793	.000
			Paraguay	.07997	.06859	.649
		Paraguay	Argentina	.61439*	.06579	.000
			Brazil	.48640*	.04469	.000
			Chile	-.07997	.06859	.649

Homogeneous Subsets

TechnologyF

	DE05coded	N	Subset for alpha = 0.05			
			1	2	3	4
Tukey B[a,b]	Argentina	115	2.3330			
	Brazil	253		2.7440		
	Paraguay	201			3.1352	
	Chile	173				3.3385

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 170.913.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

PeopleF

	DE05coded	N	Subset for alpha = 0.05			
			1	2	3	4
Tukey B[a,b]	Argentina	115	2.2930			
	Brazil	253		2.7174		
	Paraguay	201			3.0193	
	Chile	173				3.3406

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 170.913.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

ProcessF

	DE05coded	N	Subset for alpha = 0.05	
			1	2
Tukey B[a,b]	Argentina	115	2.2451	
	Brazil	253	2.3731	
	Paraguay	201		2.8595
	Chile	173		2.9395

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 170.913.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Implications

This study findings has a few theoretical implications. The main contribution is building and testing a new three-dimensional model of digital trust in the workplace for Latin America. Focusing on employees' trust perceptions on technologies, people, and processes in the workplace, this study presents three fundamental factors for answering the question of "what influences employees' digital trust at the workplace in Latin America? Furthermore, testing these fundamental factors on a diversified sample, this study proposes a valid and reliable instrument for measuring digital trust at the workplace in different environments of Latin America. This research can be helpful for politicians, NGOs, and managers in creating an awareness of the factors that influence the level of digital trust in the workplace in Latin America.

Limitations and future directions

There are also some limitations in the research. The number of items in the original scale may influence participants' responses since it takes 30 to 45 minutes to finish the questionnaire. The selected response type in the questions may limit the interpretations since it leaves participants a forced answering option. Although the research has an advantage in generalizing the results with a culturally and industrially diversified group of employees, the unequal number of these groups may influence the general findings.

In general, the study is based on a quantitative approach. Future studies may benefit from using a mixed-method by combining quantitative and qualitative research to explore the topic in more depth. Espoecially in Latin America, interviews would help to support the results and give deeper understanding. Secondly, sample of convenience was used to collect data for the study. Although the convenience sample is an accepted standard process in research design, a random sample may have produced improved generalizability of findings. However, it is very difficult to sample data in Latin America. People are not very open or used to fill out electronic questionnaires.

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Digital Trust and Industry 4.0: Who trusts more?

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Abstract

The desire for trust is one element that has persisted throughout human history. In contrast to the digital world, the meaning of the word "trust" in the real world is significantly different. There is a lot of literature and research on the subject of trust, and definitions vary across disciplines. Nowadays, most organizations operate digitally in some capacity; therefore, building trust is just as important to their success as developing new goods. Trust is crucial to every business's digital or analog success. For each interaction, building trust is the first step. The distinction between the physical and digital worlds has been blurring recently. As a result, our expectations have changed, as has the meaning of trust. Thus, "Digital Trust" enables consumers and business owners to conduct transactions safely and morally for all stakeholders. Since security is crucial in developing digital trust, most literature on the subject usually focuses on that aspect of trust. But there is undoubtedly more to digital trust than that.

History shows that revolutions have occurred in human societies whenever invented technologies or new ways of perceiving the world have brought about a fundamental change in economic systems and social structures (Schwab, 2016; Lasi et al., 2014). It was precisely such constant technological progress and its significant impact on humankind – on working conditions and lifestyles – that lay behind what is today called the Industrial Revolution. As we have entered a new era for manufacturing, Industry 4.0 is characterized by widespread digitalization. This concept is based on the increasing use of intelligent systems and robotics in various manufacturing and service industries, as well as on how the physical and digital worlds are interpreted and how manufacturing is being transformed by technology. Industry 4.0 is characterized by the fusion of the digital, biological, and physical worlds and the growing utilization of new technologies such as artificial intelligence, cloud computing, robotics, 3D printing, the Internet of Things, and advanced wireless technologies, among others. Although our methods for gathering information have changed, our approach to trust has not. According to a PwC survey conducted in 2018, most people believe new technologies like blockchain and artificial intelligence are essential for business success. However, less than half are confident that their organizations have built enough digital trust controls to adopt these new technologies.

This paper focuses on digital trust as perceived by employees. Moreover, this paper aims to describe the digital trust level in the workplace according to the company's profile. Specifically, it answers the following questions: 1) What is the digital trust level of the employees when grouped according to the company profile? 2) Is there a correlation between digital trust level and the company profiles of the employees? 3) Is there a significant difference in the employee's digital trust when grouped according to company profile?

A total of 2,998 respondents were analyzed, and responses with incomplete data were removed. An online survey questionnaire was used utilizing the Marcial - Launer Digital Trust in the Workplace Questionnaire. The survey question is adapted from the Caldicott Principles. A 4-pt Likert scale was used on the level of trust in the company profile, with one equating to not trusted at all, 2, low; 3, moderate; and 4, high. The company's profile in this paper includes type, form, role, size, and sector. These were gathered from employees to determine whether these affect digital trust. Several cohorts of employees were expected, such as teachers, virtual assistants, field workers, and medical and health workers. The following statistical tools were utilized in this paper: overall mean to determine the respondents' company profile; mean of means to assess the digital trust level according to company profile; chi-square test and multiple regression to determine significant relationships between digital trust and company profile; and 1-way analysis of variance (ANOVA) to determine significant differences on digital trust in between ICT components when grouped according to each company profile.

The result shows that when correlated one at a time, all company profiles are significantly related to the level of digital trust in the workplace. The chi-square results show that the type of company, the form of the company, the role of the company, the company size, and the sector affect the level of digital trust in the workplace. Furthermore, the analysis results on the relationship between ICT trust level and the five company profile utilizing multiple regression shows that the type of company yielded a p-value of 0.35 and the form of company yielded a p- value of 0.19, which are not significant. In contrast, the role of the company, company size, and sector are significantly related when taken as one to the level of trust in ICT. Moreover, the result of the Summary of 1-way ANOVA analysis in determining whether or not the respondents' level of ICT trust in each level of the Company Profile is not all significantly differs. As a result, the type of company and form of the company does not vary substantially.

In contrast, the company's role, size, and the sector significantly differ. This result showed that the company's role, size, and sector manifested in their p-value, which is lesser than the margin of error at 0.05. In contrast, the type and form of the company are displayed in their p-value, which is greater than the margin of error at 0.05. This shows that digital trust significantly differs across company roles, sizes, and sectors. In contrast, digital trust across types and forms does not vary.

It is concluded that when employees are grouped according to company profiles, their level of digital trust is moderate. There is a significant correlation between the digital trust level and company

profiles of the employees, precisely, company role, size, and sector. The employee's digital trust significantly differs across company roles, sizes, and sectors, while company type and form do not differ.

Keywords: digital trust, industry 4.0, employment, company

Digital Trust and Online Social Interactions among Employees in the Workplace

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ABSTRACT

Social media has significantly changed how people live. Everything about how they communicated and interacted with each other was changed. People rarely understood how drastically their lives had transformed since it happened so rapidly. They consider that using social media sites can affect their trust in utilizing these social platforms in the workplace. According to (Ali et al., 2020), individuals and organizations have realized the importance of information privacy protection. However, empirical evidence suggests that the number of information security breaches has increased in recent years. This confirms that information privacy protection on social media accounts significantly impacts users.

The positive side is that employers can benefit from effectively utilizing social media platforms through communication, marketing, and social interaction. The way people engage is changing due to these social networking sites. Many firms are finding it difficult to adjust but having digital trust as a user builds confidence in the platform's ability to protect personal data and provide a safe environment for creating and interacting with content in the workplace.

This paper aims to describe the digital trust level in the workplace according to their technological ladder. Specifically, it answers the following questions:

a) What is the social-technologic profile of the employees?

b) What is the digital trust level of the employees when grouped according to their social technologic ladder?

c) Is there a correlation between the employees' digital trust level and the social technologic ladder?

d) Is there a significant difference in the employee's digital trust when grouped according to the social technologic ladder?

e) What is the difference in the employee's digital trust between ICT components when grouped according to the social technologic ladder?

Methodology

Datasets were extracted from Marcial and Launer's Survey 2020 data on Digital Trust in the Workplace. An online survey questionnaire was used utilizing the Marcial-Launer Digital Trust in the Workplace Questionnaire. Research questions have statements with four levels of agreement using the 4-point Likert scale 1 = not trusted at all, 2 = low, 3 = moderate, and 4 = high. The Questionnaire is identified by Forrester research on the respondent's level of the social technologic ladder: creators, conversationalists, critics, collectors, joiners, spectators, and inactives. Thus, CREATORS publish blogs and websites, uploads videos they created, uploads audio/music they made, write articles or stories, and post them online every month. CONVERSATIONALISTS are social media users who update their status on a social networking site and post updates on Twitter weekly. CRITICS are the one who posts ratings/reviews of products or services, comment on someone else's blog, contributes to online forums, and edits articles on a wiki every month. COLLECTORS are the social media users who use RSS feeds, vote for websites online and add "tags" to web pages or photos. JOINERS are the one who maintains a profile on a social networking site and visits social networking sites. SPECTATORS are people who read blogs, listen to podcasts, watch videos from other users, and read online forums, consumer ratings/reviews, and tweets every month. And lastly, INACTIVES, labeled as none of the above, are people who are not active on their social media accounts. This information and description provide the level of digital trust according to the social technologic ladder.

Moreover, the employees were asked about their trust level in ICT components. The study includes six (6) ICT Components which are electronic devices that are provided to the employees either for official or personal use, hardware and software systems installed (either for official or private transactions), information systems that are implemented (regardless of your usage), management and other internal entities, IT and Data Support and External Entities. This measures the level of trust in the technology used in the workplace and people who have direct or indirect access (supervision or use) of any digital technology using the scales 1 = not trusted at all, 2 = low, 3 = moderate, 4 = high and labeled as NA= if Not available, applicable or applied in the workplace.

A total of 2998 out of 5621 responses from the survey were analyzed from 31 countries, and 2623 responses with incomplete data were removed. Results show that the overall mean of the agreement level on the Social Technologic Ladder of the Respondents, the overall mean is ($\underline{x}$ = 3.03), which belongs to critics. It also shows that the Digital Trust Level, According to Social Technologic Ladder from Creators, Conversationalists, Critics, Collectors, Joiners, Spectators, and Inactives, is moderately trusted on ICT Components. Furthermore, there is a significant relationship between digital trust Level and the social technologic ladder. A One-way ANOVA was conducted to compare the differences in the employee's digital trust when grouped according to the social technologic ladder. An analysis of variance shows that the trust level within the groups of respondents in terms of Creators, Conversationalists, Critics, Collectors, Joiners, Spectators, and

Inactives significantly differ. These results are manifested in the p- values of 0.00. This shows that their trust level differences have reached a significant level.

Results

It is concluded that the overall social technologic ladder of the respondents are Critics (they are the one who posts ratings/reviews of products or services, comments on someone else's blog, contributes to online forums, and edits articles on a wiki every month) but the majority of the employees are creators. Furthermore, the digital trust level of the employees, when grouped according to their social technologic ladder, is moderately trusted. There is a significant correlation between the digital trust level and the social technologic ladder of the employees. The employee's digital trust also significantly differs when grouped according to the social technologic ladder. The digital trust of the creators, conversationalists, critics, collectors, joiners, spectators, and inactives also significantly differs across ICT Components in Electronic Devices, Hardware and Software, implementation of Information Systems, management, and other internal entities, IT and data support, and External Entities.

Recommendations

It is recommended that any social media users, especially the collectors and joiners, must acquire the necessary competencies and skills in the different ICT components. They should focus on understanding the technical functions and operation of the electronic devices, hardware and software, and information systems installed either for official or personal use. Social media users should be familiar with the different stakeholders' essential functions and roles, especially the management, IT and data support, and external entities.

Keywords**:** digital trust, hardware, peopleware, social media, social technologic ladder, software

Digital Trust and Personality Types among Employees in the Workplace

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Abstract

Personality affects digital trust in such a way that “business and users are going to embrace technology only if they can trust it.” (Microsoft Trusted Cloud, 2010 cited in Bos, 2018). This leads the focus on the definition of trust. A myriad of definitions have been placed, and in the context of technology, “trust refers to individuals depending on, or being willing to depend on the technology to accomplish a specific task because the technology has positive characteristics. When one uses a computer system, one trusts by depending on the system to complete the specific requested task” (Harrison et al., 2009). Moreover, digital trust “underpins every digital interaction by measuring and quantifying the expectation that an entity is who or what it claims to be and that it will behave in an unexpected manner” (Gartner Inc., 2017, cited in Marcial and Launer, 2019).

Introduction

ICT has continually transformed how workers in every industry perform their tasks and responsibilities. As a result, time-consuming and environmentally hazardous operations and work conditions have been streamlined, access to work has been accelerated while productivity has increased tremendously, teamwork and working remotely are now simpler than ever with remote work and telecommuting as choices. This demonstrates both the workforce’s enormous reliance on ICT and its confidence in it (Grant, 2019).

Digital trust is greatly affected by the four dimensions in the workplace: the work environment, experiences, attitudes, and behavior. The digital environment encompasses the ICT mechanisms and procedures in place to guarantee safe and secure online ecosystems. User experience describes how much different types of obstacles prevent users from getting the most out of their digital encounters or how it does not improve security. People's attitudes toward their digital ecologies also affects digital trust. Lastly, digital behavior includes how much interaction people actually have with their digital surroundings, or how ready they are to put up with any difficulties that may exist in the digital ecosystem. The lack of trust might prevent people from interacting with digital systems if trust levels are low. All these factors intertwine ICT trust and personality (Chakravorti et al, 2021).

Studies have shown that personality affects ICT trust, especially in knowledge-sharing. Among the methods and models in the determination of personality, the Big Five Model appeared to be the most established and popular. The Big Five Personality traits are extraversion, agreeableness, conscientious, neuroticism, and openness (Marcial and Launer, 2019; UCL School of Management, 2020).

Methodology

ICT encompasses electronic devices, hardware and software systems, information systems, management and other internal entities, IT and data support, and external entities. Utilizing the original framework of digital trust, the purpose of the study is to measure the digital trust in the workplace according to the respondents' personality types. Specifically, it answers the following questions: What is the personality profile of the employees? What is the digital trust level of the employees when grouped according to their personality? Is there a correlation between the digital trust level and personality type of the employees? Is there a significant difference in the employees' digital trust when grouped according to personality type? What is the difference in the employees' digital trust in between ICT components when grouped according to personality? An online survey was conducted in 36 countries in Africa, Asia, Europe, North America, Oceania and South America in 2019. Datasets from Marcial and Launer's Survey data on Digital Trust in the Workplace that gathered a total of 5,621 respondents were extracted. Responses with incomplete data entry were removed; hence, for this paper, the total number of datasets included is 2,998. A 4-pt Likert scale or the forced Likert scale was used on the personality agreement level as well as for the digital trust level. The following statistical tools were utilized in this paper: overall mean to determine the respondents' personality type; mean of means to determine the digital trust level according to personality type; chi square test and multiple regression to determine significant relationships between digital trust and personality types; and 1-way and 2-factor analyses of variance (ANOVA) to determine significant differences on digital trust in between ICT components when grouped according to each personality type.

Results

Results show that among the big five personality traits used in this study, respondents predominantly exude extraversion. The respondents also exude openness and neuroticism personalities with all respondents possessing a moderate level of all three personality types. On the other hand, the respondents did not possess the agreeableness and conscientiousness personalities. The results also presented that according to personality types of employees, respondents manifesting the extraversion personality have the highest trust level on ICT, while, respondents possessing the agreeableness personality have the least.

Significant relationships exist between the respondents' digital trust levels and extraversion level, agreeableness level, conscientiousness level, neuroticism level, and openness level. When correlated one at a time, all personality types are significantly related to the level of digital trust in the workplace. . When correlated all at one time, neuroticism yielded a *p*-value of 0.43 which is not significant, while extraversion, agreeableness, conscientiousness, and openness personalities are significantly related when taken as one to the level of trust in ICT. The 1-way ANOVA on the respondents' level of ICT trust in each level of personality type yielded significantly differences. This goes to show that the digital trust among extraversion personality type varies in each level. On the same manner, this is similar to the other personality types where digital trust significantly differs across levels. The 2-factor ANOVA value of all types of personality shows that all components significantly differ. This means that the level of digital trust across ICT components vary in every ICT component. It varies in intensity according to the level of extraversion personality. Similarly, the level of agreeableness, the level of conscientiousness, the level of neuroticism, and the level of openness differ across ICT components.

Conclusion

In conclusion, all employees manifest a moderate personality of extraversion, neuroticism, and openness. There is a moderate level of digital trust among employees across personality types. Extraversion, agreeableness, conscientiousness, neuroticism, and openness are significantly related to the level of digital trust in the workplace. The respondents' level of digital trust significantly varies when grouped according to personality type. There is a significant difference in the employees' digital trust across ICT components when grouped according to extraversion personality, agreeableness personality, conscientiousness personality, neuroticism personality, and openness personality. With the revelation that the big five personalities of extraversion, agreeableness, conscientiousness, neuroticism, and openness affect digital trust in the workplace, it is recommended that another dimension of digital trust be opened, by looking closely on intuition on what affects the big five personality types.

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Exploring Consumer Digital Trust across Multiple Online Channels

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Abstract

In the past two years alone, there has been a very sharp rise in the use of digital technologies for more commercial purposes. There are even new technologies and new approaches and strategies that have arisen, and are influencing present understandings on consumers' digital trust towards these technologies, and towards the organizations that employ these technologies. This research adopts an initial view based on trust theory of how consumers' perceptions of digital trust can influence their involvement and attitudes to use technologies employed by organizations and their intentions to do business with these organizations. Furthermore, this research spans four contexts: Instagram marketing, retail e-commerce, e-government services, and Facebook social commerce. This is to reflect the online strategies that organizations are employing to enhance their respective online presences and attempt to create a coherent approach. Through a battery of statistical tests, including confirmatory factor analysis (CFA), structural equation modeling (SEM) and a number of post-hoc analyses, this research shows that there are quite a few differences found not only within these four contexts, but on some noted demographic variables as well. Further theoretical and practical implications to enhance online business strategies employing these online channels are discussed.

Keywords: Digital trust, online marketing, e-commerce, e-government, social commerce

Introduction

The flurry of new and improved information and communication technologies (ICTs) has intensified the changes in processes and practices involved in doing business. To name a few, this include the use of Instagram to enhance marketing communications (Evans et al., 2017; Fatanti & Suyadnya, 2015), e-commerce to enhance buying and selling with companies and customers (Hong, 2015; Patil et al., 2020; Vasanthakumar & Arunprakash, 2019), e-government to improve services to citizens (Abu-Shanab, 2019), and Facebook to provide alternatives to do business (Goh et al., 2013; Islam & Rahman, 2016; Liang et al., 2011). In fact, many organizations have adopted a multipronged approach to adopt, use and integrate many forms of ICTs to improve their presence in the market, their image towards their customers, and their overall organizational performance (Pratono, 2021). Even a cursory survey would reveal that many organizations are active on social media to take advantage of the extensive use of such technologies. It is not uncommon these days to find an organization offering its products and services through a website or a mobile app. It is also increasingly becoming more common to see an organization's e-commerce presence that also show

links to their social media accounts, such as Facebook, Instagram, Twitter, and YouTube. The more proactive organizations would also employ these social media channels not only for push marketing, but as an alternative means for customers to get in touch with the organization. Many social media sites also post links back to their e-commerce website or mobile app. In response, there has been a significant push for more businesses to increase and enhance their respective presences in online spheres to take advantage of a growing tech-savvy and tech-conscious market (Arceo-Dumlao, 2020; Bin-Nashwan, 2021; Maghirang, 2021; MB Technews, 2021; Microsoft Philippines Communications Team, 2019; Yang, 2020). But there are several challenges both on the business side and the consumer side that must be addressed before this can be concretely realized.

This research aims to provide some insights regarding the analysis and management of this multipronged approach to adopt and use ICTs to do business. In this case, it looks at four of the most common contexts involving organizations building their online presence: (1) The use of Instagram for marketing communications purposes; (2) The use of e-commerce platforms to provide customers a more convenient way to purchase products and services; (3) The use of e-government platforms to provide citizens with more and easier channels to transact with government entities; and (4) The use of Facebook as an alternative means for customers to engage with an organization regarding its products and services. These technologies complement each other for an organization to take advantage of ICTs in doing business with its customers.

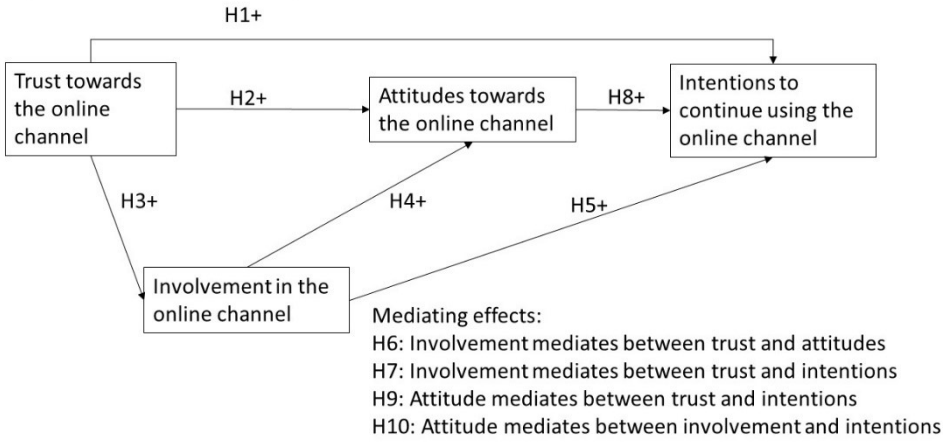
Literature Review

The developments in ICTs continue to warrant the argument that any attitudes and behaviors towards its use must be examined based on a multidisciplinary approach. Focusing on the critical issue of digital trust, this research harks back to the seminal works of McKnight and Chervany (2001) and McKnight et al. (2002) pointing out how digital trust can be built and developed based on an examination of different sources, including the organization providing the product or the service, the technology it uses, and how the presence is designed and established for online contexts. Over time, more research has pored over how an organization “looks” and “feels” online has taken center stage on how customers are influenced to exhibit favorable involvement, attitudes, and behaviors (Beldad et al., 2012; Fang, 2014; Liang et al., 2011; Teo et al., 2008). Hence, how the organization is perceived via its online presences became some sort of ICT artefacts that research and practice have also endlessly examined as projections of digital trust and how these influence individual involvement, attitudes, and behaviors (Abu-Shanab, 2019; Bin-Nashwan, 2021; Capistrano, 2020, 2021; Chawla & Joshi, 2020; Evans et al., 2017; Fatanti & Suyadnya, 2015; Goh et al., 2013; Marcial & Launer, 2019; Patil et al., 2020; Vasanthakumar & Arunprakash, 2019). Furthermore, these forms of ICT artefacts have also been considered to reflect organizational practices involved in fostering digital trust, such as privacy assurances, proper information handling, security, reliability, and compliance to regulations (Arceo-Dumlao, 2020; Choi, 2019; MB Technews, 2021; Microsoft Philippines Communications Team, 2019). This culminates into the argument that trust is a critical

element in helping firms create a coherent strategy to cater more effectively and efficiently to their customers (Pratono, 2021).

Hence, based on this summary of the development of academic understandings and practical insights on digital trust, this research posits that individual evaluations of trust, based on what they see and experience while navigating and interfacing with an online channel to do business, can lead to their formation of involvement and attitudes towards the said online channel, and to their development of intentions whether or not to continue using the same online channel *(See Figure 1: Proposed theoretical framework).*

Figure 1: Proposed theoretical framework



For this research, the proposed final dependent variable of intentions is defined as the intentions to continue using the channel, specifically to do business with the organization (Liang et al., 2011). Intentions is a widely-used dependent variable in many ICT-related research to represent individuals exhibiting their favorable or unfavorable outcomes towards a certain technology (Bin-Nashwan, 2021; Evans et al., 2017; Ozturk et al., 2016). This includes those that involve trust theory. In the realm of trust theory, intentions to adopt, use, and continue using the technology in question are posited to be a manifestation on how successful the trust-building efforts are (Beldad et al., 2012). In addition, practical arguments linking trust to business terms such as branding, brand image, brand reputation, and brand equity infer trust's importance in inducing favorable consumer behavior to interact and make purchases (Maghirang, 2021; MB Technews, 2021). Furthermore, most of today's online presences, may it be through e-commerce, e-government, or social media channels, thrive on repeated visits from customers who use these organizations' websites and mobile apps for whatever purpose to fulfill their own needs and objectives.

Methods

The overall picture of digital trust across several sectors in the Philippines is a confusing, but very rich and insightful, one. The aforementioned 2019 Microsoft-IDC report showed that 44% of the surveyed respondents disclosed that their trust was compromised at one point or another when using

digital services, with subsequent data showing that 57% would be switching to another service, 38% reducing their usage of digital services, and 21% stopping altogether if their trust were compromised in the future (Microsoft Philippines Communications Team, 2019). The 2021 Okta study showed that 42% of surveyed Philippine respondents are concerned with data breaches, while 38% believed that websites requests too much personal information, and only 7% have no reservations at all when it comes to making online purchases (MB Technews, 2021). These seemingly progressions regarding the overall digital trust environment in the Philippines show that while there are some favorable developments, these have been marginal so far. Furthermore, as Capistrano (2020, 2021) has repeatedly pointed out, while the Philippines has long been considered as a rich market for online activity with so much potential for online commercial purposes and economic value adding, the fact remains that very little has been proactively done to make this potential a reality.

As mentioned, there are four main study variables presented in this research. The survey questionnaire was developed based on past researches cited in this research: Four items on trust towards the online channel, three items on involvement in the online channel, three items on attitude towards the online channel, and three items on intentions to continue using the online channel. Filipino respondents to the survey were first asked what is the online platform that they engage with the most, choosing only one from the four options available to them: Instagram (to browse for available products or services of interest), e-commerce (to purchase some product or to avail of some service), e-government (to comply with some government requirement or to avail of some government service), or Facebook (to browse for available products or services of interest or to engage with a retailer or a service provider). The survey, which was conducted online to minimize risks due to health and safety restrictions, yielded a total of 913 usable responses to be analyzed for this research. There are 224 respondents for Instagram, 229 for e-commerce, 232 for e-government, and 228 for Facebook. SPSS and AMOS statistical software were employed in all of the analyses done for this research.

Analysis

Respondent demographics

Two-thirds of the respondents are 30 years old and below, while roughly the other third of them are between 31 and 45 years old. There are more females than males, while roughly a fifth of the total number of respondents have more than six years' worth of experience using various forms of online channels *(See Table 1: Respondent demographics (N=913))*.

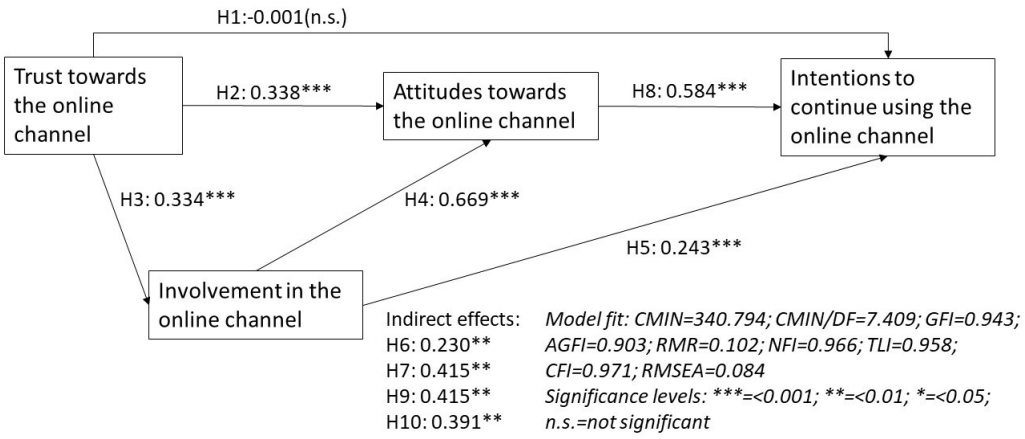
Table 1: Respondent demographics (N=913)

Age Group	**Frequency**	**Percent**
18 to 23 years old	302	33.1
24 to 30 years old	303	33.2
31 to 36 years old	215	23.5
37 to 45 years old	77	8.4
46 years old and above	16	1.8
Gender		
Male	392	42.9
Female	521	57.1
Years using the online channel		
Less than one year	69	7.6
One to two years	161	17.6
Two to three years	113	12.4
Three to four years	111	12.2
Four to five years	144	15.8
Five to six years	143	15.7
More than six years	172	18.8

Structural Equation Modeling (SEM) Results

Hypotheses testing was carried out via SEM. In addition to testing for the direct effects as posited by Hypotheses H1, H2, H3, H4, H5, and H8, bootstrapping was carried out to determine the direct and indirect effects as implied by Hypothesis H6, H7, H9, and H10. Following the same rules-of-thumb to determine the model fit indices, the resulting structural model also showed good R^2 figures for the variables involvement in the online channel ($R^2_{INVOLVEMENT}$=0.118), attitude towards the online

Figure 2: SEM results



channel ($R^2_{ATTITUDES}$=0.717), and intentions to continue using the online channel ($R^2_{INTENTIONS}$=0.622) *(See Figure 2: SEM results)*.

The results on the overall view show no empirical support for H1, but do show support for the rest of the research hypotheses. However, what is also crucial here is the produced empirical support for H7 and H9 due to the significance of the indirect effects, emphasizing the respective roles of involvement and attitudes as full and significant mediators between trust and intentions. Furthermore, involvement is a partial and significant mediator between trust and attitudes, and attitudes is a partial and significant mediator between involvement and intentions.

Using the group SEM analysis approach, structural models were also generated for each of the four contexts to reflect another critical aspect of this research, which is to determine if there are significant differences between and amongst these four contexts *(See Table 5: SEM results per online channel)*.

Table 5: SEM results per online channel

	Instagram Marketing	**E-Commerce**	**E-Government**	**Social Commerce**
$R^2_{INVOLVEMENT}$	0.190	0.530	0.011	0.207
$R^2_{ATTITUDES}$	0.805	0.698	0.562	0.950
$R^2_{INTENTIONS}$	0.569	0.875	0.803	0.169
H1: TRUST→INTENTIONS	0.033(n.s.)	0.038(n.s.)	0.171**	0.385***
H2: TRUST→ATTITUDES	0.129(n.s.)	0.033(n.s.)	0.750***	0.005(n.s.)
H3: TRUST→INVOLVEMENT	0.662***	0.692***	0.106(n.s.)	0.367***
H4: INVOLVEMENT→ATTITUDES	0.787***	0.907***	0.041(n.s.)	0.952***
H5: INVOLVEMENT→INTENTIONS	0.342*	0.999***	0.047(n.s.)	-0.698(n.s.)
H6: TRUST→INVOLVEMENT→ATTITUDES	0.521**	0.628**	0.004(n.s.)	0.349**
H7: TRUST→INVOLVEMENT-INTENTIONS	0.409**	0.675**	0.640**	-0.014(n.s.)
H8: ATTITUDES→INTENTIONS	0.280(n.s.)	-0.025(n.s.)	0.841***	0.682(n.s.)
H9: TRUST→ATTITUDES→INTENTIONS	0.409**	0.675**	0.640**	-0.014(n.s.)
H10: INVOLVEMENT→ATTITUDES→INTENTIONS	0.221(n.s.)	-0.023(n.s.)	0.034(n.s.)	0.649**

*Significance levels: ***=<0.001; **=<0.01; *=<0.05; n.s.=not significant*

These additional results paint an interesting picture regarding the theoretical and practical differences of each of the four contexts. Even a cursory examination of these results shows that there are a number of statistically significant differences between and among all four contexts, where some hypothesized relationships are significantly supported in one context while not so in another. Social commerce is the weakest in terms of providing empirical support for the hypothesized relationships and relies heavily on the significant mediating effects of both involvement and attitudes to induce favorable intentions. The Instagram and e-commerce contexts share the most common behaviors in terms of the hypothesized relationships, both heavily considering the direct and mediating influences of involvement to induce favorable attitudes and intentions. On the other hand, e-government does not consider involvement as an important variable.

Post-hoc Analyses

Post-hoc tests via analysis of variance (ANOVA) also yield some interesting insights involving some demographic variables *(See Table 6: ANOVA results (F-values, significance level))*. This is to account for any possible effects caused by some factors external to the proposed research model. For instance, Marcial and Launer (2019) and Chawla and Joshi (2020) have pointed out that certain demographic variables such as age, gender, and experience can influence perceptions on digital trust and other concerned variables.

Table 6: ANOVA results (F-values, significance levels)

	TRUST	INVOLVEMENT	ATTITUDES	INTENTIONS
Type of online channel	8.195***	155.243***	48.721***	196.919***
Age	1.588(n.s.)	8.654***	1.066(n.s.)	8.490***
Gender	1.510(n.s.)	8.693**	1.811(n.s.)	32.236***
Years using online channel	2.088(n.s.)	5.437***	3.072**	14.778***

*Significance levels: ***=<0.001; **=<0.01; *=<0.05; n.s.=not significant*

These results further reinforce the statistical differences attributed to the different online platforms. The type of online channel showed statistically significant F-values across all four main research variables. Another noteworthy finding here is that all four demographic variables exert significant influence towards involvement as well. To further explore the statistically different perceptions, a series of Duncan tests and t-tests were done to see where exactly these differences lie.

Duncan subsets were also produced based on how statistically different each variable of interest is compared to others. These subsets can be treated as distinct target market groups from a practical point of view. The first Duncan test involved analyzing the effects of the different types of online channels. For trust, social commerce (M=4.780) and e-commerce (M=4.793) are together in one Duncan subset, while Instagram marketing (M=5.125) and e-government (M=5.290) are together in the second subset. The Duncan results for involvement produced two subsets, with Instagram marketing in one (M=3.077), and social commerce (M=5.181), e-government (M=5.277), and e-commerce (M=5.393) in the second. The Duncan results on attitude produced three subsets. The first comprises Instagram marketing (M=4.122), the second has social commerce (M=5.112) and e-government (M=5.320), and the third contains e-commerce (M=5.473). Lastly, intentions for each of the four types of online channel are statistically significant, hereby producing four different Duncan subsets (Instagram marketing: M=2.587; social commerce: M=4.286; e-government: M=5.195; e-commerce: M=5.474).

The second Duncan test involved testing the effects of age groups. The results for involvement produced three subsets. The first subset comprises the 18 to 23 years old (M=4.322) and 31 to 36 years old (M=4.862) age groups. The second subset overlaps the first one, comprised of age groups 31 to 36 years old, 37 to 45 years old (M=4.956), and 24 to 30 years old (M=4.973). The third is the

45 years old and above age group (M=5.666). The results for intention produced two subsets. The first is the comprised of age groups 18 to 23 (M=4.054), 24 to 30 (M=4.312), and 31 to 36 (M=4.693) years old. The second is comprised of age groups 31 to 36, 37 to 45 (M=5.090) years old, and 45 years old and above (M=5.250).

The third Duncan test analyzed the effects of experience in using online channels (in years). The results for involvement produced four overlapping subsets. The first is comprised of those who have four to five (M=4.261), three to four (4.453), and more than six (M=4.637) years' worth of experience. The second is comprised of those who have three to four, more than six, and five to six (M=4.780) years' worth. The third is comprised of those who have experience of more than six, five to six years, and less than one year (M=4.908). The last subset is comprised of those who have five to six years, less than one year, two to three (M=5.112), and one to two (M=5.120) years' worth of experience. The results for attitude produced two subsets. The first is comprised of those who have four to five (M=4.678), more than six (M=4.837) years, and less than one year (M=4.927). The second is comprised of those who have more than six years, less than one year, three to four (M=5.105), two to three (M=5.177), one to two (M=5.186), and five to six (5.205) years' worth of experience. The results for intention produced three subsets. The first is comprised of those who have more than six (M=3.579) and have four to five (M=3.958) years' worth of experience. The second is comprised of those who have three to four (M=4.402) and five to six (M=4.435) years. The third is comprised of those who have less than one year (M=4.903), two to three (M=4.917), and one to two (M=5.051) years' worth of experience.

Conclusions

RO1: Examine the respective roles of digital trust towards influencing favorable involvement, attitudes, and favorable intentions towards continued use of online channels to do business.

The greatest takeaway from the research results is that building trust alone is not enough to sway individuals to exhibit favorable intentions towards using an online channel to continue doing business with an organization providing products and services. The research results provide ample theoretical and empirical support to the arguments of McKnight and Chervany (2001) and McKnight et al. (2002), but on a more holistic and modern-day perspective where organizations are employing not just one piece of ICT, but a multitude of ICTs in tandem with each other to support an evolving online business strategy. The research results show that both involvement in the online channel and attitude towards the online channel are important mediating variables between trust and intentions. Because of the growing complexities of ICTs being utilized for business purposes, there are many more factors to consider (Duc et al., 2013; Marcial & Launer, 2019; Vasanthakumar & Arunprakash, 2019). Hence, the results recommend that trust building must be geared first to encourage individuals to develop favorable involvement in the online channel and attitudes towards the online channel. This will strengthen prospects of them eventually exhibiting favorable intentions.

RO2: Examine the differences in these perceptions of digital trust, involvement, attitudes, and intentions towards continued use of online channels to do business.

Both the CFA and SEM results yielded interesting insights regarding both the similarities and differences among the four contexts covered in this research. Given the mean scores of the responses, the impressions are that there are currently moderate to high levels of trust exhibited across all four online channels. Social commerce earned the lowest rating in terms of trust, followed by e-commerce, and then Instagram. E-government received the highest ratings of trust. However, the story is different when it comes to involvement, attitudes, and moreso for intentions. Despite being widely touted as an emerging online channel to do business, Instagram earned the lowest ratings on involvement, attitudes, and intentions. This is followed by social commerce, and the e-government and e-commerce. This goes to show that, at least as far as Filipino online customers go, their favorable perceptions to actually follow through on their trust by exhibiting favorable involvement, attitudes, and intentions are still limited to official online presences such as e-commerce and e-government websites and mobile apps.

Implications

This research further gives empirical support regarding the theoretical underpinnings surrounding the roles of digital trust, involvement, and attitudes with respect to inducing favorable intentions in the use and continued use of ICTs. The results not only provide another means to view the seminal works of McKnight and Chervany (2001) and McKnight et al. (2002) regarding digital trust, but also emphasize the theoretical and crucial role of developing favorable involvement and attitudes as a means to induce favorable intentions (Ozturk et al., 2016; Patil et al., 2020). In other words, a better strategy would be to build trust with the objective of cultivating favorable involvement and attitudes first, rather than immediately inducing favorable intentions. That way, the chances that consumers would continue to do business with the organization via online channels will be higher and stronger. Furthermore, this research also lends further credence on the importance of trust building in the initial stages of the process of using ICTs, specifically on creating the favorable conditions on online “looks” and “feels” via website or mobile app aesthetics, functions, and other elements comprising the interface (Beldad et al., 2012; Fang, 2014; Liang et al., 2011; Teo et al., 2008). Theoretically, the design of this “look” and “feel” should be geared towards enticing individuals to get more involved in using the online channel and to induce favorable attitudes out of what they “see” and “feel” while using the said online channel.

Another theoretical implication borne out of the research results is the influence of context in the applicability of theory. The results show that despite significant strategic push towards adopting integrated ICTs, how customers of the same organization would react in terms of exhibiting digital trust, involvement, attitudes, and intentions would be different depending on the actual online channel – Instagram marketing, e-commerce, e-government, or social commerce. In other words, while it is sound to have an overall and overarching strategy when it comes to establishing online

presences, a certain degree of flexibility and customizability when it comes to the actual online channels are very much encouraged, doing away with the “one-size-fits-all” mindset when it comes to online business strategies.

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Technology Acceptance, Trust, and Privacy Concerns in Online Team Behaviors

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Abstract

The COVID-19 pandemic forcing restrictions on work-related activities has encouraged renewed attention on online technologies and teamwork dynamics. This research employs technology acceptance model (TAM), trust, and privacy concerns as the theoretical foundation to analyze 679 Filipinos working online with their respective teams regarding their insights on online team behaviors. Through structural equation modeling (SEM), perceived usefulness is found to influence knowledge sharing behavior and personal information sharing behavior, while perceived ease of use does not. This implies that Filipinos find present technologies useful, but not easy to use. Also, only knowledge sharing behavior influences participation behavior, suggesting that Filipinos do not find personal information sharing a requisite to online team participation. Furthermore, trust is a positive moderator while privacy concerns is not. This also implies that Filipinos value trust yet pay little attention to privacy concerns involving the technologies for their online teamwork. Other theoretical and practical considerations and implications for this research are discussed.

Keywords: Online teams, TAM, knowledge sharing behavior, personal information sharing behavior, participation behavior

1. Introduction

The COVID-19 pandemic has caused a lot of changes in the way people approach their tasks (Gruszczynski, 2020; Torsello & Winkler, 2020), especially those who must work in teams like students and office employees (Alshurafat et al., 2021; Zhang, Fang, Wei, & Chen, 2010). The situation has forced a lot of work-related activities to shift to online platforms and to work from home (WFH) setups, causing a lot of changes in the way people approach their tasks, especially those who must work in teams (Alshurafat et al., 2021). Furthermore, different demographics have been observed to have different reactions, praises, and criticisms towards these shifts in their work-related activities. This has triggered a renewed interest in the dynamics of working with team members in online environments, which was an intensified field of study some ten years ago (Cheung & Vogel, 2013). This is mostly due to the fact that in most developing countries, this sudden shift has caught most people unprepared, resulting in a variety of difficulties in engaging in meaningful interactions similar to face-to-face situations (Alshurafat et al., 2021).

One prominent feature of working with teams is the maintenance of good communication and coordination between team members for them to participate properly in team dynamics (Cheung & Vogel, 2013; Deng & Yuan, 2020). In this current situation requiring the use of Internet technologies, students have shifted to online learning platforms to facilitate their working on their subject requirements, while employees and freelancers have utilized Zoom and Google Suite to hold meetings, make proposals, and submit and review documents for work. This shift has caused many changes in the maintenance of good communication and coordination and in the quality of online teamwork participation. Also, the effective use of these platforms is influenced by several factors:

1. Teams can be very diverse in terms of education and professional backgrounds and their degree of dependence on tools to facilitate their work. And this can affect the way they communicate and coordinate with their teammates. Some of the issues this diversity present involves how formally or informally they communicate with one another, how much they can trust each other, and how much of their personal and professional information is being shared with each other (Deng & Yuan, 2020).

2. The kind of online platforms being used can also influence the way they work. The online environment these platforms provide has been known to present an assortment of issues ranging from perceptions of ease of use and usefulness to control of data and information being exchanged (Alenazy, Al-Rahmi, & Khan, 2019).

Because of the sudden disruptions this has caused, not many have developed and implemented good practices at the onset. More than a year into this setup, there should be more than enough time passed to review whatever practices that have been developed and implemented. With no immediate end in sight, and assuming that this will be a long-term fixture in the so-called “new normal”, these practices involving online teamwork must be collated, documented, and reviewed to determine which factors should be scrutinized in more detail.

This research will provide team leaders and managers valuable information regarding their decisions to improve the present setups of online teamwork and to enhance the participation of team members in this online environment. This research identified the factors that can influence people to maintain these communication and coordination practices integral in online teamwork participation. Specifically, the objectives of the research include the following:

- *RO1: To determine how much perceptions on technology use influence online teamwork participation*
- *RO2: To determine the influences of trust and privacy concerns affect perceptions on technology use towards online teamwork participation*

To achieve the stated research objectives above, this research integrates elements of technology acceptance model (TAM) with the conceptual arguments of trust and privacy concerns. While prior studies have integrated TAM with such other constructs to promote people's continuance intention (Chen & Qi, 2015; Deng & Yuan, 2020; Liao & Chou, 2012; Sun, Peng, Dong, & Barnes, 2014), this study will explore the moderating effects of trust and privacy concerns on the influence of TAM elements on participation behavior.

2. Literature Review and Hypotheses Development

2.1. A brief overview of virtual communities

This research on online team behaviors starts by looking back to an older concept of virtual communities. A virtual community is a group of individuals or business partners who interact based on a shared interest through technology and guided by certain protocols and norms (Porter & Donthu, 2008), and may involve public discussions with sufficient human feeling that can enable personal relationships (Rheingold, 1993). Driven by the rapid advancement of information technology, individuals, such as students and employees, have considered virtual communities as essential in communication and information acquisition (Deng & Yuan, 2020). These virtual communities also help overcome time and space limitations for both education institutions and workplaces (Zhang et al., 2010). Furthermore, the widespread use of collaborative learning technologies, which are a set of tools for task-specific collaborations associated with goal and work-oriented activities, allow members of a virtual communities to share and edit content, work together to solve problems, and participate in discussions and deliberations via online participation in a number of different ways (Cheung & Vogel, 2013; Zhang et al., 2010).

2.2. Theoretical foundation: The technology acceptance model (TAM)

TAM is widely employed to predict and explain users' acceptance of information technology (IT) (Davis, 1989). This model posits that *perceived usefulness* and *perceived ease of use* are determinants of computer acceptance behaviors. *Perceived usefulness* is the degree to which a person believes that using a particular system would enhance his or her job performance, while perceived ease of use is the degree to which a person believes that using a particular system would be free of effort (Davis, Bagozzi, & Warshaw, 1989).

Based on a wide range of theoretical perspectives and prior research on self-efficacy, contingent decision behavior and adoption of innovations, perceived usefulness and perceived ease of use determine user behavior (Davis et al., 1989). Prior TAM-related studies have also shown that perceived ease of use and perceived usefulness influence a user's decision to accept information technology (Al-Rahmi et al., 2019; Alenazy et al., 2019; Wu & Shang, 2019; Zhai, Dong, & Yuan, 2018). In the context of this research, perceived usefulness refers to an individual's evaluations on

the practical worth of the technology being used for online teamwork, and perceived ease of use is an individual's evaluation on the user-friendliness of the technology being used for online teamwork. Hence,

H1: Perceived usefulness positively influence knowledge sharing behavior
H2: Perceived usefulness positively influence personal information sharing behavior
H3: Perceived ease of use positively influence knowledge sharing behavior
H4: Perceived ease of use positively influence personal information sharing behavior

The participation of a virtual community's members facilitates the integration and cohesion of the community, thus enabling its development (Deng & Yuan, 2020). Building meaningful working relationships between and amongst team members, especially through online technologies, while important, may be difficult (Martins, Gilson, & Maynard, 2004). One way to encourage participation is to enable members to share their knowledge. Knowledge sharing behavior plays an important role in the development of virtual communities because such communities thrive on such behaviors (Lee, Vogel, & Limayem, 2003). Conversely, if there is insufficient knowledge in a virtual community, members may become hesitant to participate in the community's activities because the community is not able fulfill their knowledge-related needs (Hsu, Ju, Yen, & Chang, 2007; Wasko & Faraj, 2005).

Furthermore, virtual communities are oftentimes built within a particular organization, such as a university or an enterprise, to support the learning and knowledge exchange of only its members (Wan, Fang, & Neufeld, 2007). Therefore, memberships in these communities are closed and member participants may know some others at a personal level (Zhang et al., 2010). Therefore, it may be unavoidable that aside from knowledge, personal information sharing behavior will exist to strengthen the virtual community and encourage intensified participation. In this research, we define knowledge-sharing as the motivation to share knowledge relevant to the online teamwork behavior and personal information sharing behavior as the propensity for revealing personal information to the online team. Thus,

H5: Knowledge sharing behavior positively influence participation behavior
H6: Personal information sharing behavior positively influence participation behavior

2.3. The moderating effects of trust and privacy concerns

Some personally-driven dispositions can also be utilized as a resource that enables members of a virtual community to pursue their interests (Deng & Yuan, 2020) and to further participate, cooperate, organize, and interact (Nahapiet & Ghoshal, 1998). Trust, which is a set of specific beliefs that relates to benevolence, integrity, and reliability of another party (Nahapiet & Ghoshal, 1998), is one of the key attributes enabling participation in virtual communities (Nahapiet & Ghoshal, 1998; Tsai &

Ghoshal, 1998; Wasko & Faraj, 2005). Trust is important in activities that have social uncertainty and risk (Fukuyama, 1995; Luhmann, 1979) because it can reduce the concerns of risk, thus enhancing effective collaborative work (Mayer, Davis, & Schoorman, 1995; Zhang et al., 2010), knowledge quality (Chiu, Hsu, & Wang, 2006), and the level of knowledge-sharing behavior (Hsu et al., 2007). The situational normality resulting from trust assures members that everything in their activities is in accordance with their expectations and provide guarantees and safety nets (Gefen, Karahanna, & Straub, 2003). Under this assurance, members believe that other members are willing to collaborate with them and share their knowledge (Staples & Webster, 2008), and to provide information (Ridings, Gefen, & Arinze, 2002). Specifically, when trust is high in a virtual community, its members are more willing to share their knowledge with other members (Zhang et al., 2010), and therefore strengthens virtual community interactions (Ridings et al., 2002) through improvements in cooperation, open communication, and information sharing (Doney & Cannon, 1997; Mohr & Spekman, 1994; Smith & Barclay, 1997). Thus, we argue the following:

H7a: Trust moderates the relationship between perceived usefulness and knowledge sharing behavior
H7b: Trust moderates the relationship between perceived usefulness and personal information sharing behavior
H7c: Trust moderates the relationship between perceived ease of use and knowledge sharing behavior
H7d: Trust moderates the relationship between perceived ease of use and personal information sharing behavior

Lastly, privacy relates to an individual's, in this case students or employees using Internet technologies, ability to control access to his or her personal information, and his or her ability to control who can access the content of his or her communications (Snyder, 2010). Privacy should be a critical consideration to those who engage in online activities (Paine, Reips, Stieger, Joinson, & Buchanan, 2007) and to those who desire to exert control over how their information is handled and managed (Snyder, 2010). Moreover, context plays an important role and that an individual's willingness to disclose information is related to his or her expectations of privacy and confidentiality (Frye & Dornisch, 2010), and that situations that foster a sense of privacy will possibly encourage disclosure, especially in the case of a virtual environment (Andrade, Kaltcheva, & Weitz, 2002). In this research, we define privacy concerns as an individual's perception on defining and controlling the boundaries of disclosure and identity shaped by personal and collective experiences and expectations. Thus, we argue that,

H8a: Privacy concerns moderates the relationship between perceived usefulness and knowledge sharing behavior

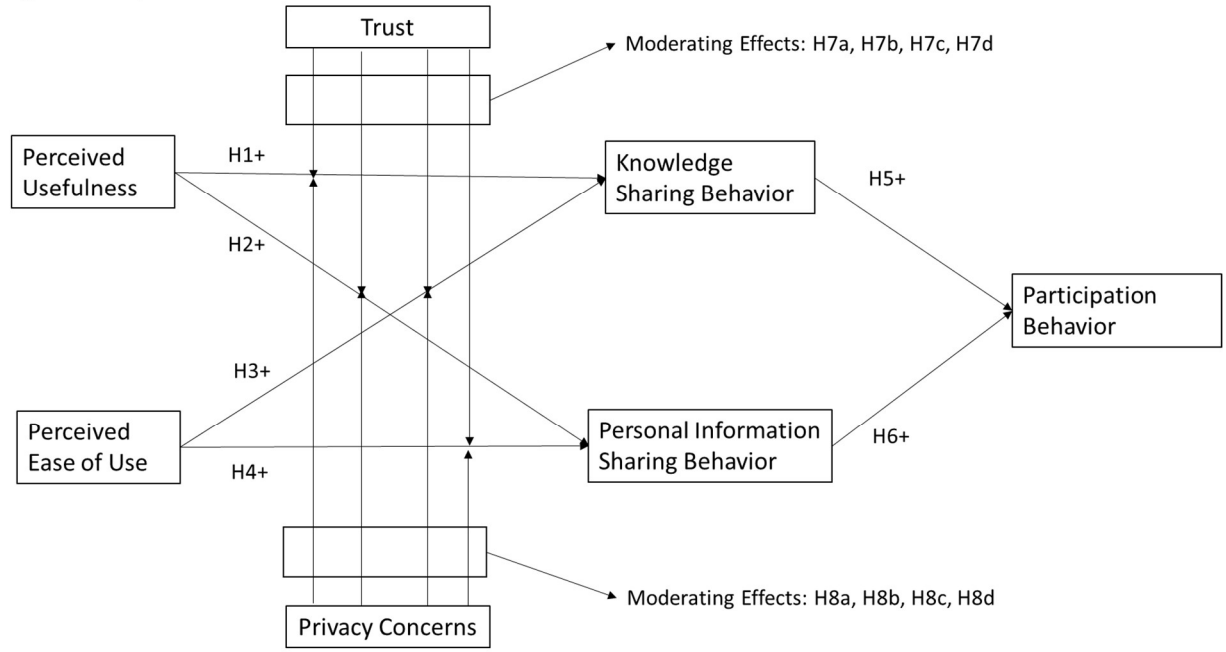
H8b: Privacy concerns moderates the relationship between perceived usefulness and personal information sharing behavior

H8c: Privacy concerns moderates the relationship between perceived ease of use and knowledge sharing behavior

H8d: Privacy concerns moderates the relationship between perceived ease of use and personal information sharing behavior

Based on these discussions on the hypotheses development, Figure 1 below illustrates our proposed model.

Figure 1: Proposed Research Framework



3. Methods

Question items for the online survey instrument were derived from previous research and reworded to suit this research's context on online teams: Three question items each for perceived usefulness and perceived ease of use according to Davis (1989), five items on knowledge sharing behavior and four items on personal information sharing behavior derived from Hsu et al. (2007)'s discussions, four items on trust based on Tsai and Ghoshal (1998), four items on privacy concerns derived from the Snyder (2010)'s discussions, and five items measuring participation behavior according to Chen and Qi (2015). Additional demographic variables on age, gender, marital status, and educational attainment to profile the respondents were also collected. Utilizing on this formulated survey instrument, a total of 679 usable responses were collected for analysis. SPSS and AMOS statistical software were used to conduct the analyses for this research.

4. Analyses and Results

4.1. Respondent Demographics

Almost two-thirds (62.0%) of the respondents are aged 18 to 24 years old, while another one-fifth (19.9%) are aged 25 to 31 years old. Females comprise 60.1% of the respondents. Most are single (87.0%). Many of the respondents are either college graduates (43.6%) or have some college-level education (29.9%) at the time of the data collection *(See Table 1: Respondent Demographics (N=679)*.

Table 1: Respondent Demographics (N=679)

Category	Demographic Item	**n**	**%**
Age	Below 18 years old	25	3.7
	18 to 24 years old	421	62.0
	25 to 31 years old	135	19.9
	32 to 38 years old	50	7.4
	39 to 45 years old	22	3.2
	46 to 52 years old	19	2.8
	53 years old and older	7	1.0
Gender	Female	408	60.1
	Male	271	39.9
Marital Status	Single	591	87.0
	Married	85	12.5
	Separated	2	0.3
	Widowed	1	0.1
Highest Educational Attainment	Some high school	19	2.8
	High school graduate	85	12.5
	Some college	203	29.9
	College graduate	296	43.6
	Some post-college	35	5.2
	Post-college	36	5.3
	Completed technical or vocational course	5	0.7

4.2. Descriptive, validity, and reliability analyses

Before subjecting the data to further analysis, Harman's single factor tests via SPSS were employed to determine if there will be any significant common method bias (CMB) issues. The first round, loading all question items into a single factor, yielded a cumulative variance of 27.80%, less than the

recommended 50% threshold. The second round, basing the number of extracted factors on calculated Eigenvalues, yielded multiple factors. The first factor had a cumulative variance of 28.04%, significantly less than half of the total cumulative variance of 65.12%. Both of these test results indicate that there is no CMB issues, and thus the data can be further analyzed with little problems. Afterwards, confirmatory factor analysis (CFA) was utilized in performing the descriptive, validity, and reliability analyses, conforming to the standard rules-of-thumb. After deletion of some items due to low standardized loadings, the resulting measurement model yielded acceptable model fit *(See Table 2: Descriptive results)*.

Table 2: Descriptive results

Variable	Item Code	Question Item	Mean	Std. Dev.	Std. Loading
Perceived Usefulness (PU)	PU03	Using this technology for online team work improves my productivity at work.	5.847	1.219	0.845
	PU02	Using this technology for online team intensifies my interactions with others at work.	5.916	1.181	0.803
	PU01	Using this technology for online team work supports a critical part of my work.	6.427	0.818	Deleted
Perceived Ease of Use (PEOU)	PEOU03	I find it easy to get this technology for online team work to do what I want to do.	6.053	0.999	0.825
	PEOU02	I find this technology for online team work to be easy to use.	6.202	1.005	0.803
	PEOU01	My interaction with this technology for online team work is clear and understandable.	6.194	0.972	0.772
Trust (TRU)	TRU02	My online team members will always keep their commitments to one another.	5.761	1.235	0.867
	TRU04	My online team members are truthful in dealing with one another.	5.951	1.143	0.866
	TRU01	My online team members will not take advantage of other members even when the opportunity arises.	5.850	1.247	0.821
	TRU03	My online team members would not knowingly do anything to disrupt the conversation.	5.965	1.105	0.742

Table 2: Descriptive results

Variable	Item Code	Question Item	Mean	Std. Dev.	Std. Loading
Privacy Concerns (PC)	PC03	I am concerned about providing personal information through the technology for online team work because it could be used in a way I did not foresee.	4.850	1.793	0.901
	PC02	I am concerned that the information I submit through the technology for online team work could be misused.	4.636	1.833	0.896
	PC01	I am concerned that I do not have complete control over my privacy when I am using the technology for online team work.	4.744	1.762	0.853
	PC04	I am uncomfortable to know that others can record and review the content that I send and receive at work.	4.582	1.856	0.778
Knowledge Sharing Behavior (KSB)	KSB03	I usually actively share my knowledge with the other members of my online team.	5.853	1.153	0.859
	KSB02	I usually spend a lot of time conducting knowledge sharing activities in my online team.	5.543	1.323	0.824
	KSB01	I frequently participate in knowledge sharing activities in my online team.	5.919	1.111	0.802
	KSB04	I am usually involved in the subsequent interactions when discussing a complicated issue with my online team.	5.839	1.115	0.787
	KSB05	I usually involve myself in discussions of various topics rather than specific topics with my online team.	5.545	1.263	0.732
Personal Information Sharing Behavior (PISB)	PISB04	I usually actively share my personal information with the other members of my online team.	3.892	1.758	0.936
	PISB03	I frequently participate in personal information sharing activities in my online team.	4.200	1.727	0.902

Table 2: Descriptive results

Variable	Item Code	Question Item	Mean	Std. Dev.	Std. Loading
	PISB01	I have a strong tendency to share my personal information with my online team.	4.249	1.682	0.839
	PISB02	I feel that my online team would benefit from me sharing my personal information.	3.966	1.641	0.795
Participation Behavior (PB)	PB02	I actively participate in the online team work.	5.881	1.148	0.893
	PB03	I frequently participate in the online team work.	5.923	1.151	0.803
	PB04	I provide useful information to the completion of the online team work.	6.071	0.949	0.777
	PB05	I contribute a lot to the content of the online team work.	6.034	0.949	0.745
	PB01	I feel excited to participate with the online team work.	5.249	1.496	Deleted

Model fit: CMIN/DF=2.095; GFI=0939; AGFI=0.923; RMR=0.054; NFI=0.953; TLI=0.970; CFI=0.975; RMSEA=0.040

The CFA results also yielded acceptable convergent validity (AVE>0.500), reliability (CR>0.700; Cronbach α>0.700), and discriminant validity (i.e. no correlation coefficient is greater than the square root of the AVE in the diagonal) results *(See Table 3: Convergent validity, reliability, and discriminant validity results)*. These numbers also validate the initial CMB evaluations as well. These all indicate that the collected data is fit for the hypotheses testing.

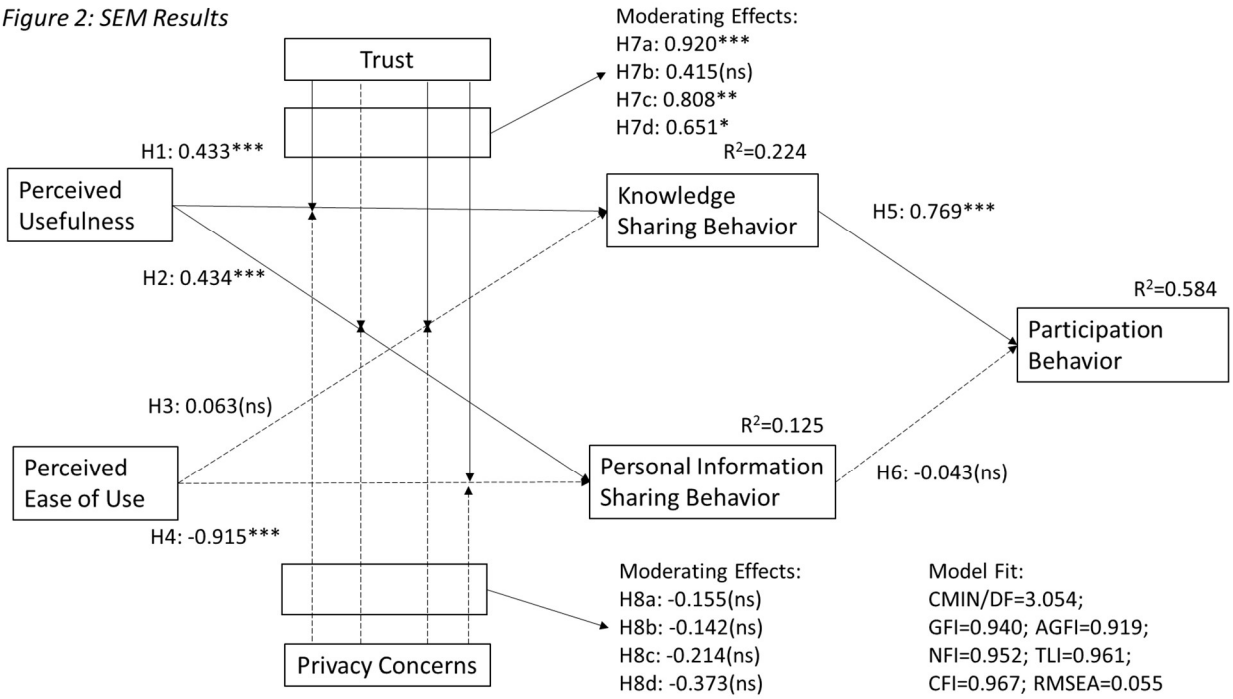
Table 3: Convergent validity, reliability, and discriminant validity results

	AVE	CR	Cronbach α	PU	PEOU	TRU	PC	KSB	PISB	PB
PU	0.679	0.809	0.809	**0.824**						
PEOU	0.640	0.842	0.841	0.598	**0.800**					
TRU	0.682	0.895	0.893	0.424	0.351	**0.826**				
PC	0.737	0.918	0.916	-0.108	-0.189	-0.112	**0.858**			
KSB	0.643	0.900	0.897	0.419	0.307	0.379	0.033	**0.802**		
PISB	0.756	0.925	0.925	0.287	0.063	0.198	0.150	0.389	**0.870**	
PB	0.650	0.881	0.888	0.465	0.419	0.387	-0.010	0.749	0.231	**0.806**

4.3. Hypotheses testing

Covariance-based structural equation modeling (SEM) was employed in the hypotheses testing *(See Figure 2: SEM results)*. As shown, the resulting structural model yielded acceptable model fit, with six of the fourteen hypotheses having statistically significant support. Between the two main independent variables of perceived usefulness and perceived ease of use, the former exerts statistically significantly favorable influence towards knowledge sharing behavior and personal information sharing behavior. In turn, only knowledge sharing behavior statistically significantly exerts favorable influence towards participation behavior. Lastly, between the two variables of trust and privacy concerns, the former exerts statistically significantly positive moderating effects on three of the four hypothesized direct effects.

Figure 2: SEM Results



It is interesting to point out that while the hypotheses on perceived ease of use are not empirically supported, its effects on personal information sharing behavior in particular is statistically significantly unfavorable. Similarly, while the moderating effects of privacy concerns are not statistically significant, it is important to emphasize that they are still negative moderating variables. The same is said where personal information sharing behavior, albeit not statistically significant, negatively influences participation behavior. In other words, while the weaknesses and concerns are indeed present, these are things to watch out.

5. Discussions

5.1. Conclusions and discussions

To reiterate, this research employs an application of the technology acceptance model (TAM) to examine a certain set of dynamics involving online team work behaviors in the Philippines. The

expectations are that perceptions on perceived usefulness and perceived ease of use on technologies such as Zoom, Google Suite, Microsoft Teams, and Discord will favorably influence online teamwork behaviors. These in turn are represented by knowledge sharing behavior and personal information sharing behavior, in which both are expected to favorably influence participation behaviors.

While research on online teams has been around for a while, many studies have focused on specialized fields, such as engineering, computer science, (Chiu et al., 2006; Hsu et al., 2007), brand communities (Porter & Donthu, 2008), professionals engaged in research projects (Alenazy et al., 2019), and college-level e-learning (Alshurafat et al., 2021; Cheung & Vogel, 2013), to name a few. This relatively unique situation with the COVID-19 pandemic has made implementation of online teamwork broader and more encompassing, covering many more areas of work within organizations and even industries that, in some cases, have never experienced working online before. To this end, two research objectives were posed, and are now answered based on the results:

RO1: To determine how much perceptions on technology use influence online teamwork participation

Between the two primary TAM factors, perceived usefulness is the more prominent one in favorably influencing knowledge sharing and personal information sharing behaviors. Specifically, based on the descriptive analysis results, Filipinos are keen on using such technologies to improve their work productivity and intensify their interactions with others at work. On the other hand, perceived ease of use is not a statistically significant factor, despite the fact that, based on the descriptive analysis results, Filipinos find it easy to get these technologies to help them do what they want them to do, easy to use, and improve interactions with teammates.

Knowledge sharing behavior, both as a dependent variable of perceived usefulness and perceived ease of use, and as an antecedent towards participation behaviors, is a significant consideration for Filipinos in their perceptions towards online team work behaviors. Aside from exerting significant effects towards participation behaviors, the descriptive analysis results show that Filipinos hold favorable views on knowledge sharing behaviors as part of their online team work participation.

On the other hand, personal information sharing behavior, also both as a dependent variable of perceived usefulness and perceived ease of use, and as an antecedent towards participation behaviors, is not a critical consideration in Filipinos' online team work behaviors. A closer look at the descriptive analysis results also show that Filipinos have somewhat unfavorable views on personal information sharing as a prerequisite in online team work dynamics. This indicates that Filipinos do not see personal information sharing as important for them to carry out their tasks and responsibilities to the team.

RO2: To determine the influences of trust and privacy concerns affect perceptions on technology use towards online teamwork participation

The results show that trust is favorably significant in three of the four hypothesized moderating effects, only failing to produce significant moderating effects towards the relationship between

perceived usefulness and personal information sharing behavior. For Filipinos, being able to trust the technologies used in online teamwork reinforces their perceptions about their usefulness and ease of use towards knowledge sharing and personal information sharing behaviors. This coincides with past studies regarding the importance of building trust towards the relevant technologies in question in order to further encourage their use.

On the other hand, interestingly enough, while Filipinos do see that privacy concerns can be an issue when it comes to their knowledge sharing and personal information sharing behaviors, they do not perceive it as a big enough threat. In fact, the descriptive analysis results for this particular variable indicate that Filipinos are largely indifferent that there are concerns about how their information is being handled and managed through these online technologies. These findings run counter to what previous research and what industry experts have raised, leading now to presuppositions that either Filipinos do not fully appreciate the consequences of not paying attention to privacy concerns, or are merely largely unaware that the technologies they use for online teamwork activities may be susceptible to intrusions and invasions of privacy.

5.2. Theoretical implications

This research reinforces previous works regarding the application and robustness of TAM across a variety of contexts. Perceived usefulness remains to be a significant antecedent influencing both knowledge sharing behavior and personal information sharing behavior. This provides further empirical support to the theoretical importance of ensuring that technologies being employed, or being required to be used, within organizations must be useful to those who are actually going to use them.

However, the results also show contradicting insights involving the influence of perceived ease of use. Despite the non-significance of this research's results, they still provide valuable insights and implications regarding a particular set of users' perceptions towards a certain set of technologies, in this case Filipinos using technologies for online work. Specifically, technologies may indeed be useful in performing one's tasks within the online teamwork setting, but them being easy to use is another issue altogether. In other words, not just because a piece of technology is useful, it doesn't mean that is easy to use. Therefore, perceptions of usefulness vs. perceptions of ease of use remain to be two distinct theoretical constructs.

In addition, the statistical weaknesses found involving personal information sharing behavior indicate that sharing personal information may not be a critical theoretical component to drive individuals to participate in online team work dynamics. This is an interesting case since this runs contrast to intuitive remarks and observations that in order to strengthen team dynamics and overcome some relational barriers between and amongst team members, it is encouraged that there should be some degree of "team-building" initiatives, especially online where technologies can have a very rich array of features to enable better levels of social presence (Martins et al., 2004). In this case, it can be further surmised that Filipinos are focusing on the "task-oriented-ness" of the technologies involved,

rather than a tool to strengthen team dynamics. This is more in line with counterarguments that communicating and interacting via technologies does not necessarily produce meaningful relationships (Potter & Balthazard, 2002).

Furthermore, trust as a powerful motivator encouraging behaviors via technology use is supported in this research. Indeed, the previous theoretical arguments and implications emphasizing on how critical trust in technology use is are echoed in this research. There is little question indeed that even in online team environments, trust must be cultivated in order to strengthen team dynamics. However, the non-significance of privacy concerns as a moderating influence, and the perceived indifference towards privacy concerns, are something to be considered for future research as these are contrary to what previous research have pointed out.

5.3. Limitations and directions for future research

Theoretically, the statistical weaknesses of a critical variable in the discussions on technology acceptance should be further studied. As this research did not delve into this interesting finding in a rigorous manner, deeper studies as to why perceived ease of use in the Philippine context of online teamwork behaviors is not a significant antecedent should be made. The same is true with privacy concerns. As pointed out, not only does privacy concerns not exert any significant influence, but Filipinos seem to not really care about it as well. Exploring the reasons as to why this is so is another obvious area for future research.

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Digital Trust in Mobile Technologies in Gastronomy - a Case from Poland

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Abstract

Mobile technologies are one of the key characteristics of the ongoing digitalisation process, as they are becoming ubiquitous around the world. Digital solutions are definitely gaining ground faster. Banking and catering companies, have accelerated the digitalisation of their services (Ramli et al., 2021, p. 353; Santander Bank Poland, 2021). The increased use of smartphones has made digital platforms a key channel for accessing banking services. Approximately 80% of Americans prefer digital banking over visiting an in-person branch, and about 70% of customers seek online and mobile banking services when choosing a bank. In April 2020, around 70% of customers of the four largest US banks were using mobile banking apps. In addition, 41% of bank account holders used mobile apps to pay bills and 48% to transfer funds to someone (Peranzo, 2021).

The mobile technologies play an increasingly important role in the economic and social life. The ability to simply connect users regardless of their location, allows many companies to function that would not be able to reach customers in the analogue world (Digital Centre, 2021). The technological innovations and changing consumer preferences are also changing the way we use money (Bilotta and Botti, p. 19). Bank customers can access their account information, set up automatic bill payments, perform payment transactions and much more. Customers' preferences are changing. They are learning to expect the convenience of banking anytime and anywhere (Peranzo, 2021; Ramli et al., 2021, p. 353).

Despite the growing importance of digital technologies in today's economy, measuring platform activity in official statistics is still insufficient. Platforms often refuse to make their data available to independent researchers, making it difficult to publicly understand their performance or impact on the economy and society (OECD, 2021, p.6).

The primary objective of this study was to understand the user behavior of selected mobile applications used for restaurant management, food ordering and online payment in the food service market in Poland. The analysis was made on the basis of sales data provided by a provider of mobile technologies aimed at food service businesses.

The study shows a change in the mechanism of customer behavior in this market especially in a crisis situation, such as under the influence of the covid pandemic, the economic crisis or finally in the face of the war in Ukraine. There have been relatively few attempts in the literature to combine the results of the study, i.e. focusing on the practical applications of mobile devices in the context of mobile e-commerce (m-commerce) or mobile electronic banking (m-banking) (Chmielarz, 2021, p. 2). Typically, there are no opinions on the mechanisms of using m-commerce or m-banking, especially in the food service market and in a crisis situation. This article aims to fill this gap.

The findings indicated that security is the most critical factor that affects customer trust in mobile banking followed by shared values and integrity respectively. However,competence and benevolence do not affect the level of Thai customers' trust in mobile banking with statistical significance at 0.05 level. Banks should provide service by highlight improving security in order to enhance trust of their customers and increase usage of mobile banking.

The theoretical and practical implications of the results are presented. The share of online payment forms in food service increased noticeably during the pandemic period. It increased the most during lockdown. There was a more than three-fold increase in the share of online payments compared to 2019. During crisis periods, customers were more likely to substitute cash and checks for online payments. There was a significant increase in ordering food using mobile applications dedicated to food service during the period under review. The consumer shopping preferences changed during this period.

The study can be seen as a preparatory stage for in-depth and international research on the use of these technologies. It should be noted that the research carried out in this way will make it possible to predict future trends related to the use of modern mobile technologies during the crisis, also in other areas of economic life.

Keywords**:** mobile technology, m-commerce, mobile payment, m-banking, food service

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Digital Trust in Financial Transactions

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Abstract

Purpose

This study aims to explore why digital trust requires more viability and imperativeness throughout the world. Paying for goods and services with currency has been a long process. In which the availability of currency and the transfer of currency from one place to another, buying goods and services in currency is a difficult process. Gradually, the nature of currency transactions changed and transactions started happening through digital/online medium.

Methodology

The paper is theoretical. For this purpose, secondary data has been studied which includes research papers, government reports, and other authentic reports. Digital payments completely changed the landscape of the goods and services market. Now neither currency related problems like handling of cash, fear of theft, maintaining total quantity, problems like duplicate currency got rid of. This was the reason that a new dimension of payment started and online payment came into vogue.

Results

Digital payments increase significance in last few years and a buzzword in the world. Digital payments make life convenient and with the fraction of second's transactions happens flawlessly. Online payment also became a reason for the increasing demand for the Internet. With the increasing rate of internet users and cheap hi-tech and low budget smartphones, the scenario has changed completely. This significantly reduced the time and risk of the customers, sellers which introduced a new term in the field of goods and services which we hear as digital trust. Digital trust emerged as an integral part of online payment and all buyers, sellers, banks and new fintech companies have all adopted and appreciated this changing nature. As the confidence of the people in digital payments is huge, so is the risk in digital transactions. Data misuse, hacking, phishing traps or the danger of getting caught in online frauds, etc., have been an obstacle in the way of digital trust. Trust and security is one of the determinants which can enhanced the relationship between stakeholders who want to transact through online mode. Without trust, no stakeholders get benefited, no matter how pervasive whether the network itself. It is very important to pay attention to all these too. Government's across the world come into this regime and trying to overcome from these safety issues. Government also involves in this matter because to resolves the issue of corruption, not want

to print currency notes too much due to availability of counterfeit currency. Counterfeit currency reducing the real value of money with this inflation in the economy increases with this increase in the prices of goods and services and whole national economy ruined.

Discussion and Implications

Country who has the best technology in the world, then that country is considered to be more developed. Any work can be done very easily and quickly by using new techniques from small to idle work. That is why today importance is being given to digitization in everything. Therefore, it is imperative that a framework be created by the governments of the world that is broadly effective and flexible, so that digital trust in payments can be further strengthened.

Keywords**:** Phishing traps, stakeholders, digital trust, counterfeit currency.

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Embedding Digital Trust in FinTech Platforms

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Abstract

Rationale

Technology is undergoing innovation everyday. It is impacting various aspects of human life (Marcial and Launer, 2019). In the last few years, especially after the broke down of COVID-19, a significant change has been seen in the mindset of people. Their perception about use of technology has also undergone mutation. In the ongoing scenario of volatility, uncertainty, complexity and ambiguity (VUCA), when it comes to the use of digital platform for financial purposes, trust level of consumers play an important role. Trust is a crucial factor that influences the success of any business. It is the foundation on which buyer and seller relationship has built up (Luo, 2002). In the era of digitization, trust has become even more important as it greatly affects consumer's decision making process. Digital trust is the level of confidence in digital world (Marcial and Launer, 2019). Digital trust, while using a particular website or mobile application, affects the consumers' loyalty. An increase in ease of use of technology and with the availability of user friendly interface, usage of financial technology (FinTech) has also increased (Stewart and Jurjens, 2018). With this backdrop, this theory building research is primarily aimed at measuring the degree of digital trust that consumers show while using the financial technology. There are various factors that affect the level of confidence of consumers. While using the FinTech platform, people have been concerned about losing their privacy and financial details on electronic media.

This study also throws light on how their level of confidence in FinTech has been increased and concerns regarding privacy has been decreased.

Methodology

The objective is to determine the level of digital trust of consumers in FinTech platform. The data sources include literature review and the opinions of several academicians/researchers.

Discussion and Conclusion

Various studies has been conducted to understand the trust in FinTech. According to Lewis and Weigert (1985), trust is a complex and multidimensional phenomenon that affects business relationships. There are various factors that influence the level of trust in FinTech innovation. These are data confidentiality, availability, integrity, constant wireless connection (Zhang & Lee, 2003), mobile application usability, transaction security, cultural influences and the trustworthiness of organizations (Whitman & Mattord, 2009; Siau et al., 2003). Other studies reflect upon the level of

digital trust at workplace (Marcial and Launer, 2019). Various factors of the employees such as demographic profile, technologic profile, employment background, technology integration, decision-making skills, and personality has been studied to understand their level of confidence in technology (Marcial and Launer, 2019). Privacy concerns and ways to increase the trust level has also been discussed.

Discussing about the acquaintance with technology, consumers consider two factors. These are perceived usefulness and ease of use (Gefen et al., 2003). It refers to how much useful the technology has been considered by the consumers and how much effort less it is to use that technology. It is also affected by the devices they are using such as smart phones, tablets or PCs, and also by the various applications they are using. If the people feel more acquainted with technology, their trust level increases.

Regarding the privacy concerns, loss of consumers' privacy is an important factor (Chang et al, 1999). In a survey of 100 websites, it has been found that privacy policies were often confusing, incomplete, and inconsistent. Such confusion might frustrate the consumers while deciding which website provides best privacy policy. This in turn aggravate the consumers and thus negatively impact their trust level in FinTech platform. To cope up with this issue, a set of guidelines has been provided by the government for fair collection of consumer information. In the business industry, online seal programs are used to build consumer confidence regarding privacy. Examples of these online seal programs include TRUSTe, MasterCard, Visa, and BBBOnLine. If an online business adheres to certain privacy principles, it is allowed to display a special seal of approval on its website (Luo, 2002). Such activities would increase the consumers' digital trust level in financial technology.

Implications

This study can be used to understand consumers' perspective in a better way and to increase their level of confidence in FinTech platform. The study can be used to have better understanding of different perspectives with respect to the behaviour that consumers show while using the digital platform. It can be used to make the consumers aware about various online privacy policies so that their privacy concerns can be reduced and their digital trust level can be improved, hence enabling them to use FinTech platform with more confidence.

Originality

Various issues has been studied from consumer's point of view and a bridge has been established between these causes and privacy concerns of consumer.

Keywords: Digital Trust, FinTech, VUCA, Privacy

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Educators' Trust to the Virtual and F2F Learning Environments

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Abstract

When one talks about digital trust, different thoughts come to our minds. For the user, it is the trust for the medium they use in the digital environments; to some it is the processes that take place in the digital environments and in some cases digital trust is related to the people whom we work with in the online environments. Corritore et al. (2003: 740) describe digital trust as "an attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited". This definition mainly explains digital trust as the feeling of confidence that one has towards the online situation even if there is a risk. On the other hand, Paliszkiewicz et al. (2014) defines the digital trust from the relational perspective in a working environment as the belief that others; a) will not act in a way that is harmful to the trusting firm; b) will act in such a way that is beneficial to the trusting firm; c) will act reliably, and d) will behave or respond in a predictable and mutually acceptable manner (Paliszkiewicz et al., 2014).

According to the model by Marcial & Launer (2019) digital trust is defined as "the general belief that technology, people, and processes act or are aligned in ways that will fulfill people's digital expectations, such as a sense of confidence, security, or control to support the creation of a secure digital environment." The factors, technology, people and processes, cover and structure the key mechanisms of digital trust in the workplace and provide a well-founded theoretical basis for future research. These factors are explained as below:

- Technology: It is employees' perceived trust in the reliability and effectiveness of the results of performed actions of technological artifacts, such as the quality of technologies, the devices used in the workplace, the hardware and software systems, and the information systems.
- People: It is employees' perceived trust in other people in the online platforms in the workplace or environment, such as managers from different managerial levels, co-workers, supporting and technical employees, and also people from the immediate external environment such as customers, suppliers, and stakeholders.
- Processes: It is employees' perceived trust in the accuracy and success of the data collection, processing, and protection systems in the workplace or between companies, and the Internet and social media.

Thus, the current study which aimed to research educators' digital trust in the learning environments took into consideration these factors while measuring digital trust. Thus, we measured how much educators trust in these factors in their educational environments. For this aim, the instrument based

on the core structure of the digital trust model was used. The factors in the model are classified and defined under three dimensions: technology, people, and processes with 10 subdimensions explaining digital trust in the workplace (Launer, Çetin & Paliszkiewicz, 2022). Thus we aimed to find out:

- Are there any differences between teachers' digital trust from the factors of technology (quality, device, hardware/software, information systems), people (management, supporters, externals) and processes (data processing, data protection, internet and social media) in the f2f and virtual learning environments?

Method

In the study, the instrument developed by Launer, Çetin and Paliszkiewicz (2022) was used for measuring digital trust in educational environments and the data was analyzed with quantitative methods.

Data Analysis

A one-way analysis of variance (ANOVA) was conducted to evaluate the effect of digital trust from the factors of Technology (Quality, Device, Hardware/Software, Information Systems); People (Management, Supporters, Externals) and Processes (Data Processing, Data Protection, Internet and Social Media) in the f2f and virtual learning environments.

The Results

There were 899 participants in the study. The countries of these participants are indicated in Table 1.

Most of the participants are between the ages 29-38 (n=213) and 39-48 (n=279). 50% of the participants are female, 34.5% are male while 15.5% are queers. A great majority of the participants have (n=832) either a bachelor's degree (n=173); a master's degree (n=266); a PhD degree (n=288) or a postdoc degree (n=105).

As for the results on the measurement of digital trust, ANOVA analysis in Table 2 reveal that the test was significant for the Quality $F(1,645)= 6.569$, $p < 0.05$ and Device $F(1,470)= 6.116$, $p < 0.05$ sub-dimensions under Technology dimension; Data Processing $F(1,453)=16.216$, $p < 0.01$ and Internet and Social Media $F(1,559)= 30.146$, $p < 0.01$ sub-dimensions under Processes dimension and Externals $F(1,466)=7.664$, $p < 0.05$ sub-dimension under People dimension for educators teaching in Virtual and F2F learning environments. The other subdimensions did not indicate any significant differences in Virtual and F2F learning environments.

Table 1. The number of the participants in the study

Country	N	Country	N	Country	N	Country	N
South Korea	33	American Countries	2	Argentina	9	United Kingdom	17
Vietnam	34	India	49	Chile	12	Ghana	26
Germany	60	Oceanian Countries	2	African Countries	2	Ukraine	58
Thailand	106	Russia	30	Switzerland	3	Taiwan	22
Philippines	104	Japan	11	European Countries	5	Nigeria	17
Asian Countries	5	Sweden	4	Spain	7	South Africa	2
China	57	Brazil	46	Slovakia	21	Portugal	9
Poland	26	Paraguay	25	United States	20	Malaysia	20
Kenya	24	Romania	30	Austria	2		

Table 2. The Results of one-way analysis of variance by dimensions

Dimension	Sub-dimension	Mode	N	Mean	SD	F	Sig.
Technology	Quality	Virtual	294	3,09	0,74	6,569	**0,011**
		F2F	605	3,69	5,72		
	Device	Virtual	294	2,94	0,80	6,116	**0,014**
		F2F	605	2,81	0,62		
	Hardware/ Software	Virtual	294	3,10	0,91	3,125	0,078
		F2F	605	2,99	0,79		
	Information Systems	Virtual	294	3,02	0,73	0,285	0,593
		F2F	605	2,99	0,58		
People	Management	Virtual	294	3,02	0,70	0,038	0,845
		F2F	605	3,03	0,65		
	Supporters	Virtual	294	3,00	0,71	0,023	0,877
		F2F	605	2,99	0,63		
	Externals	Virtual	294	2,96	0,75	7,664	**0,006**
		F2F	605	2,83	0,57		
Processes	Data Processing	Virtual	294	2,82	0,81	16,216	**<,001**
		F2F	605	2,60	0,60		
	Data Protection	Virtual	294	2,99	0,66	1,182	0,277
		F2F	605	3,04	0,62		
	Internet & Social Media	Virtual	294	2,75	0,77	30,146	**<,001**
		F2F	605	2,45	0,74		

One-Way ANOVA (Welch's)

As the test was significant for all other sub-dimensions apart from the Quality sub-dimension, it indicated that educators favor virtual learning environments more than the F2F learning environments. However, the Quality dimension indicated a difference in favor of F2F learning environments.

Discussion and Conclusion

Regarding the results of the analyses, some sub-dimensions (Quality, Device, Externals, Data Processing, Internet & Social Media) indicated significant differences between f2f and virtual learning environments. As the original instrument for data collection was developed for the workplace, the researchers redefined these subdimensions complying with educational environments.

According to the researchers, the Quality sub-dimension under the Technology dimension is associated with the level of how much these educators trust in the technologies they use for teaching. The Device sub-dimension under the Technology dimension is associated with the devices used in the environment like tablets, laptop computers, smartwatches, and other smart wearable devices. The Externals sub-dimension under the People dimension include the external entities and environments that the teachers work and communicate with apart from the managers and supporters in the learning-teaching processes. Thinking of an educational environment, these externals may be the parents, students and other individuals that are indirectly related to the process apart from the managers and the teaching staff. The Data Processing sub-dimension under the Processes dimension is related to the processes such as automation systems, workflow management, inventory management the accuracy, timeliness, and quality of which influence users' level of digital trust. Internet and Social Media sub-dimension under the Processes dimension is related to the channels that permit educators to enable knowledge transfer, form virtual social capital, maintain professional networks, reduce uncertainties, etc.

Thus, the following discussions may be made. The Quality sub-dimension is associated with the level how much these educators trust in the technologies they use in their online/virtual learning environments. With this finding it may be asserted that although the teachers have trust in the devices (laptops, computers etc.) that they use in the virtual learning environments, they seem to question the quality of them. Briefly, they trust in the devices that they use in the virtual learning environments but they seem to have problems in using them. As they seem to trust in the quality of them in f2f learning environments more than virtual learning environments.

The teachers have trust in the accuracy, timeliness, and quality of the Data Processing systems such as automation systems, workflow management, inventory management in the online/virtual learning environments compared to F2F learning environments. Besides, they also have trust in the Internet and Social Media channels in online/virtual learning environments compared to F2F ones. As online/virtual learning is heavily based on the internet technologies, data processing systems and social media this result is not confounding. Finally, teachers seem to develop

confidence through external entities that they work and communicate with apart from the managers, other teachers and supporters in the online/virtual learning environments compared to F2F learning environments. These externals could be the students, parents and other individuals that are indirectly related to the learning process.

As the concept 'digital trust' has been very rarely studied previously in educational environments, this study is expected to contribute to the related literature. Based on the results of the current study, why teachers have more trust in externals like students and parents in online/virtual environments compared to F2F environments and the reasons why they do not trust in the quality of the devices or technologies that they use should be further studied. The study is supposed to contribute to the definition of digital trust in educational environments. Whether digital trust in education only means individuals' feeling of trust to the digital learning processes itself; towards the technologies being used in these processes or it is the trust in the people whom these individuals interact with in the digital teaching/learning environments are the questions in minds.

Acknowledgement

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Word-of-Mouth & Attitude as Predictors of Digital Trust in Social Media Marketing

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Abstract

This paper is based on study of related literature and own quantitative survey result. We tested two variables, that may be predictors of trust in social media marketing. It was found that both SM WOM and attitude toward SM increase digital trust.

Introduction

In social media marketing enterprises face a challenging issue of consumers' trust due to the absence of face-to-face communication. Compared to traditional computer communication, social media communication focuses on social connections and relationships, therefore building trust differs from other contexts (Mičík et al. 2022, Westerman et al., 2013). Although the importance of trust has been highlighted in the marketing literature, yet there are very few studies that have explored the consumer trust and its predictors in the context of social media marketing.

Hypothesis

Basing on literature reviewing we decided to investigate two possible predictors for consumer trust in social media marketing: social media WOM and Attitude toward SM marketing. We proposed structural model (Figure 1) and three hypotheses:

H1: Social media WOM positively predicts Digital Trust in SM marketing.
H2: Attitude toward SM marketing positively predicts trust in SM marketing .
H3: Attitude toward SM plays a mediator role in between Social media WOM and Digital Trust in SM marketing.

Method

Sample

Data were collected within an online survey with using a convenience sampling method. Participants were 400 individuals (52.5% female and 47.5% male) who are using social media frequently.

Instruments

Social media WOM. We used 9-item social media word-of-mouth scale, used in the previous studies (Al-Debei et al, 2015; Kwiatek et al, 2021). The 5-point Likert type of rating ranging from 1 (strongly disagree) to 5 (strongly agree) was used for measurement. We used a 5-point Likert type of rating ranging from 1 (strongly disagree) to 5 (strongly agree). An example item was "*I often read other consumers' reviews and recommendations of brands, products and services on social media*".

Attitude toward SM marketing. We used 5-item scale for measuring attitude toward SM marketing, used in the literature (Mikalef et al 2013; Raji et al 2017). The 5-point Likert type of rating ranging from 1 (strongly disagree) to 5 (strongly agree) was used. An example item was "*The idea of connecting with brand via social media is a good idea*".

Trust in SM marketing. We used 5-item trust in SM marketing scale that were adapted from the previous studies (Raji et al, 2017; Kwiatek et al, 2021). The 5-point Likert type of rating ranging from 1 (strongly disagree) to 5 (strongly agree) was used. An example item was "*I believe in the sales deals offered on social media*".

Statistical Procedures

In the first step the measurement model was tested for the validity and reliability. Then structural equation model (SEM) was used to test the hypotheses with using Jamovi v2.3 program.

Results

Table 1 shows the measurement model results that indicate the goodness of fit in terms of validity and acceptable reliabilities.

Table 1 Measurement model fit statistics, validity and reliability

	Factor loadings	CFA Fit indices				Validity		Reliability	
		χ^2/df	CFI	TLI	RMSEA	AVE	CR	α	ω
1.Social Media Word-of-Mouth	from .76 to .92	3.09	.99	.99	.072	.73	.94	.94	.94
2.Attitude toward SM Marketing	from .75 to .90					.69	.90	.90	.90
3.Digital Trust in SM	from .70 to .90					.69	.89	.89	.89

The structural model was constructed through digital trust in SM, attitude toward SM marketing as endogenous variables, and SM word-of-mouth as an exogenous variable (see Figure 1). The results presented that social media word-of-mouth increases digital trust in SM (beta=.84, p<.01, *H1* accepted); attitude toward SM marketing increases digital trust in SM (beta=.49, p<.01, *H2*

accepted); attitude toward SM marketing plays a partially mediator role in between social media word-of-mouth and digital trust in SM (indirect effect= .44, p<.01, *H3* partially accepted).

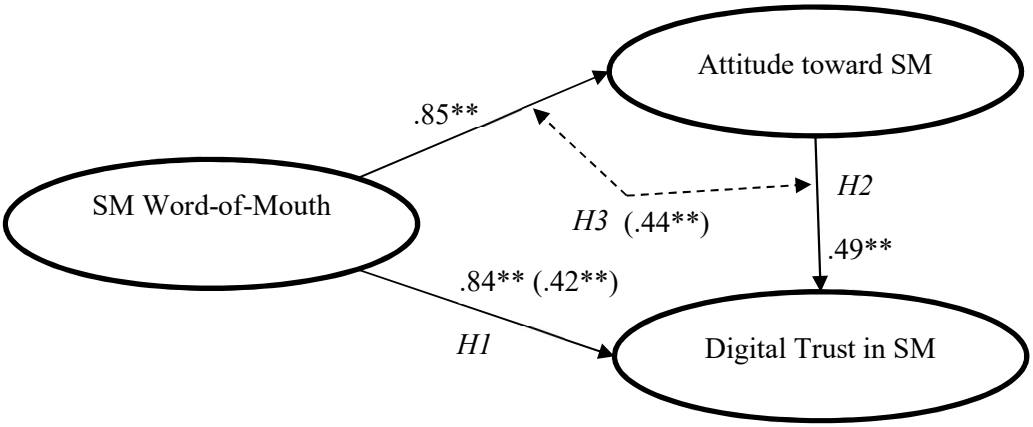


Figure 1 Structural model

Discussion

First and second hypothesis were confirmed: social media word-of-mouth and attitude toward SM marketing increase digital trust in SM. Previous studies tested the influence of eWOM on digital trust and it was found that it significantly affects trust (for instance Ladhardi and Michaud, 2015, Jasiulewicz et al. 2023). Moreover, according to Aziz et al. (2019) trust is an important variable in affecting consumers' attitude. But to our best knowledge no direct correlations between variables SM WOM, attitude toward SM marketing and digital trust in SM marketing were explored before. Therefore, the results of our research are novel and make contribution to understanding the antecedents of digital trust in social media.

Keywords: Word-of-mouth, Attitude, Digital Trust, Social Media Marketing

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Digital Trust, Transformation, Entrepreneurship & Innovation in Higher Education

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Abstract

Higher education has an important place in providing socio-economic development in the world for sustainable goals. Higher education institutions are generally accepted as institutions that have undertaken various tasks in order to meet the high-level manpower needs of the society and to help solve the social problems through scientific research. Higher education institutions have been evolving in parallel with social changes since the day they existed and keeping up with the times in line with sustainable goals. With the industrial revolutions brought by the age, all kinds of educational organizations continue to develop upon welfare of society. It is clear that the main reason for this is the rapid development in technology and globalization. In the light of the developments, we closely follow the reflections of the digital age, which is experienced in parallel with the changes in technology for the higher education sector (Akcil & Bastas, 2020). In this process, in which the ever-increasing globalization and international competition accelerated, the developing “university-industry cooperation” activities led to the formation of entrepreneurial universities. In the understanding of the university in the knowledge economy, universities give more importance to entrepreneurship, form their staff accordingly and commercialize the results of their research. In the transformation experienced in universities, new technologies, new student formats, new higher education providers, for-profit corporate universities, virtual universities, expectations of globalizing students and the job market come to the fore (Scott, 2011). In the fourth evolutionary process, which started from the first quarter of the 21st century, it is seen that universities play a leading role in transforming society. Universities are becoming a necessity in terms of both bringing the society they are in to a further point and integrating the society with the university. Due to the competitive nature of the world, it now directs universities to obtain different resources and provide service differentiation in terms of service management. Universities have become institutions that are intertwined with the industry, have their own patents, can profit from their own centers and institutes, and combine criteria such as R&D, innovation, new initiatives, production and competition. In this century we live in, the concept of Entrepreneurial and Innovative University is constantly encountered. Entrepreneurship,

which derives from the French verb "entreprendre" and means "to do something different", is accepted as a part of a new economic model. Entrepreneurship approach and applications; Regardless of the size, type and background of organizations, it has a high priority in improving performance, efficiency and competitiveness for any organization. In this respect, the concept of entrepreneurial university refers to the application of entrepreneurship to universities. An entrepreneurial university is a university that can create innovative perspectives, create value for the society, be different and develop it. Innovation is one of the sources of entrepreneurship and innovation can be defined as a university that enables entrepreneurs to make changes in order to create a different business or service, can conduct interdisciplinary studies, establish collaborations, and in short, produce value.

Another important feature of entrepreneurial universities is that they are innovation-oriented. Therefore, entrepreneurial universities should create their corporate strategies in the center of innovation. Because the most important factor for the emergence of innovation lies in being an entrepreneur (Schumper & Swedberg, 2017; Salamzadeh, et al, 2022). When considered within this framework, the innovative and entrepreneurial structure of higher education institutions will have a direct impact on both the institution and the society. It has been suggested that universities should be "entrepreneurial" with the adaptation of neo-liberal government policies to universities. It is understood that the evolutionary process in question has an effect in the conceptual definitions for entrepreneurial universities. In this context, socio-entrepreneurial and innovative; able to carry out education-training, research and social development activities together; In its mission statement, it combines the objectives of economic, social development, innovation, knowledge production, providing innovative benefits to the society and technology transfer; It is expected that they will be institutions that have quality research and development activities and an ecosystem that will provide new products and services (Etzkowitz, 2003; Etzkowitz et al., 2000; Mets, 2010; Montesinos et al., 2008; Walker, 2012).

On the way to the realization of all these, the necessity of integrating the entrepreneurship culture into universities and a related transformation are advocated (Yamamoto, 2020). It is known that in the 21st century, the role of higher education institutions in raising the needed human profile is higher than other educational institutions. Because in meeting the needs of the society; It is seen that university graduates shape the workforce that the market hears. With this awareness, in order for universities to be entrepreneurial and innovative, their educational content and structures must be innovative and meet the needs of the business world. Universities need to bring their entrepreneurial and innovative culture while educating their students. The aim of this project was determined as the Development of Entrepreneurship and Innovation Criteria of Higher Education Institutions.

This research design a mixed method in which qualitative and quantitative research is used together was used. In the findings obtained in this project, especially in the context of technology, an evaluation was made about whether universities have centers that are considered important as an indicator of Entrepreneurship and Innovation. In this context, technological research and

development of universities such as technopark, technological transfer office, applied artificial intelligence center, computer information systems, research and technology center, entrepreneurship and innovation center, information technologies research and development center, communication technologies research center, world system science research centers were found.
Within the scope of the results;
According to the results of qualitative research data, it is seen that the entrepreneurial and innovative activities of universities are at a low level. as a result against it; At the quantitative stage, it was concluded that the entrepreneurship and innovativeness behaviors of academicians are high. Thus, it can be said that university infrastructures should be developed.
It has been understood that universities are not at a level to export technological and technology-supported products in order to create employment, and it can be said that universities should make serious breakthroughs in this direction. It has been concluded that universities should be open to scientific and technological development in order to be more prone to creative research and studies in a framework of service management. In this context, universities need to be able to design scientific and technological products to put forward for service differentiation and competitive advantage. As universities become a bridge of digital transformation, establishing digital trust through the importance of digital education policies is highly needed (EUA, 2022). In this respect, paying attention to the reports of European Universities Association report (2021) as considering universities without walls by reflecting social responsibility through adding value projects for shaping future based on solidarity is crucial.
Therefore, it has been concluded that universities should be developed within the scope of innovation and education-oriented process management. So that they can become institutions that can manage technological power correctly and ensure its integration into human life. In the light of these results, technology transfer offices, incubation centers and technoparks, should be created in all universities to develop higher education and industry cooperation, to ensure sustainable goals. While the digital world is surrounding all aspects of our lives, digital trust in the workplace, technology transformation need to be explored as research project in higher education institutions.

Keywords: digitalization, digital trust, entrepreneurship and innovation, higher education, technology transformation

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Digital Trust in Social Media of Indian Tourists' Travel Planning Decisions

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Abstract

Purpose

Social media plays an important role in the traveller's trip planning process. To reduce the risk involved in trip planning, travellers often use consumer-generated content (CGC) from social media. This CGC in the form of travel reviews significantly impacts the travellers' initial trip planning decisions. Hence, the credibility of travel reviews is essential to ensure digital trust for such reviews on social media. This paper's primary purpose is to examine travelers' digital trust level for trip-planning decisions. This paper primarily aims to examine the influence of the significance of travel reviews on the initial travel planning decisions of Indian tourists, which would determine the travellers' level of digital trust. Secondly, the general trip planning behavior of Indian travellers for the number of trips made, advance time for trip planning, and travel information sources, following social media usage at different trip planning stages (pre-trip, during-trip, and post-trip). This would help to understand travellers' digital trust in social media in the tourism industry.

Design/methodology/approach

This paper is exploratory and descriptive, with purposive and snowball sampling following. Tourists that check online travel reviews for trip planning on social media are the sample unit. In this research, social media is confined to social networking sites (Instagram, Facebook, and YouTube) and travel review websites (TripAdvisor). The primary data has been collected offline, with 250 questionnaires and 228 considered valid for further analysis, yielding a 91.2 percent validity rate. Data was obtained between January and April of 2022. The questionnaire was developed after a comprehensive evaluation of relevant literature. Academic and research viewpoints from the tourism and hospitality sectors were gathered, ensuring the questionnaire's content validity. A questionnaire with three parts was also constructed. The first section of the questionnaire examined travelers' general trip planning behavior, the number of trips undertaken, and the time travellers need to plan their journeys post-COVID. The second portion assessed the phases at which travelers utilize social media to arrange their trips. Several components of the pre-trip, during-the-trip and post-trip stages of the travel process were identified, followed by the social media degree of effect and the possibility of the travelers changing their travel plans, determining their level of digital trust for social media. Finally, in the third segment, respondents' socio-demographic characteristics were assessed. A seven-point

Likert scale has been used to evaluate the factors. The variables of the study have been adopted from various authors: the number of trips made (Gretzel & Yoo, 2008), time of advance trip preparation (Gretzel & Yoo, 2008; Yoo et al., 2009), trip planning stages (Cox et al., 2009; Fotis et al., 2012; Gretzel & Yoo, 2008), and the impact of travel reviews on vacation planning (Gretzel & Yoo, 2008; Yoo et al., 2009). This research uses descriptive statistics and a series of analyses such as exploratory factor analysis, confirmatory factor analysis, and logistic regression to verify the factors of travel review relevance to trip planning. The Logistic Regression method was used to explore the impact of travel review importance on trip planning, ensuring the digital trust of travellers because it is well-suited to determining the reason-result connection of independent variables with dichotomous dependent variables (Cheng Hua, 2021 Khan, 2021).

Findings

The findings show that social media has been a significant source of travel information. It is primarily used in the pre-trip stage of trip planning to search for information on accommodation options after travellers have already chosen a destination. Travellers contact friends and acquaintances while travelling, specifically looking for information about certain sights and recreational activities on social media. While in the post-trip phase of the trip, social media has been frequently utilized to share images and videos with friends and other travelers. Next, the reason-result link of the trip review significance for travel planning was determined using logistic regression, which predicted the travel review significance predictors (idea/information generation, fun activity, compare alternatives, surge efficiency, safe travel, and reduce risk). These predictors would cause tourists to modify their initial trip plans considering the digital content on social media. As a result, the level of digital trust of travellers in digital content in trip-planning decisions can be seen. A large portion of the survey respondents were females, belonging to the age group of 31 to 40. Most travellers had travelled 1-2 times, followed by 3-4 times a year. Next, most respondents took 1 to less than 3 weeks in advance to plan their trips efficiently.

Research Implications

This study focused on social media usage in India while studying its influence on the initial trip-planning decisions of travellers depicting the level of digital trust for social media. The study's findings indicated that social media is being used as a tool before, during, and after the trip in India, showing diversification in its demand-and-supply patterns. Regarding general trip planning behavior, stages of the trip planning process, travel information sources, and the impact of online travel information on travelers' trip planning, usage is varied.

Practical implications

By leveraging social media to execute marketing efforts to draw more visitors, destination marketers and the tourism sector may pay attention to and respond to the demands of travellers. Links to travel

experience feedback should be provided to travelers via emails, SMS, messaging apps, or exit feedback collected to extract their service experiences at hotels, allowing future travelers to plan their trips more effectively and increasing their trust in this digital content.

Originality/value

Social media in India has expanded tourism and information and communication technologies. The influence of travel information usage factors on the travelers' initial trip planning decisions was examined. Secondly, travelers' general trip planning process was investigated with a focus on the various trip planning stages. This paper helps determine travellers' digital trust in travel reviews on social media.

Keywords: Digital Trust, *Social Media, Online Travel Reviews, Travel Planning Decisions, User-Generated Content, India.*

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What makes for Trusting Relationships in Online Communication

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Abstract

Trust is an ability that characterizes humans as social beings. It is becoming a key factor in a society that is heavily influenced by online communication (c.f. Wagener et al. 2021; Launer et al. 2019, p. 1; Eichenlaub 2010, p. 3). In the age of digitization and at the latest since the beginning of the corona pandemic, the virtualization tendencies of communication in the professional context have also increased (c. f. Pandit 2020; Unger et al. 2022, p. p. 401 ff). The consequences are agilization and new forms of work (c. f. Kuhlmann and Rüb 2020). A basic prerequisite for efficient operational cooperation, given the prerequisite of increasing virtual communication relationships, is trusting relationships between employees (c. f. Wagener et al. 2021; Launer et al. 2019, p. 15; Eichenlaub 2010, p. 11 ff; Ripperger 2003). In the current literature, e.g. on innovation research or organizational development, in the so-called VUCA world, which is characterized by volatility, uncertainty, complexity and ambiguity, trusting relationships between organizational members are the prerequisite for successful cooperation to pursue goals (c. f. Möller and Giernalczyk 2022, p. 51 ff).
Little is required, however, as trust can develop under the condition of virtual communication conditions - which entail uncertainty, complexity, insecurity and ambiguity (c. f. Wagener et al. 2021; Launer et al. 2019; Eichenlaub 2010). This is where the research work of Dr. Angelika Eichenlaub starts. As part of her dissertations, she has investigated ways to create trust in online communication when face-to-face interaction, which is usually considered an essential element of communication, is missing. The respondents were asked which factors promote or hinder the development of trust. Since online communication was a purely verbal exchange, various language styles were tested experimentally to see whether they would evoke a perception of similarity or dissimilarity with the sender of the message in the recipient, so that the recipient would then award the sender trustworthiness. The study shows that the similarity in the language code preference creates the perception of personal similarity and influences the attribution of trustworthiness to the interlocutor (cf. Eichenlaub 2010).
The research work differentiates between a macro level and a micro level of organizations. On the macro level, it is shown on the basis of a cultural-theoretical, sociological foundation that a common style of communication represents an approach to promoting trust in the virtualization of communication in companies. At the micro level, the focus is on attribution-theoretical insights. The research question is transferred as to whether the perception of similarity or dissimilarity of a conversation partner to oneself influences the formation of trust.
The focus of the lecture is on the microeconomic relationships, in particular on the attribution-theoretical insights that explain the influence of perceived similarity in the process of trust

development. A theoretical model for the connection between a common communication style and trust is presented (cf. Bekmeier-Feuerhahn and Eichenlaub 2010, p. 341 ff).

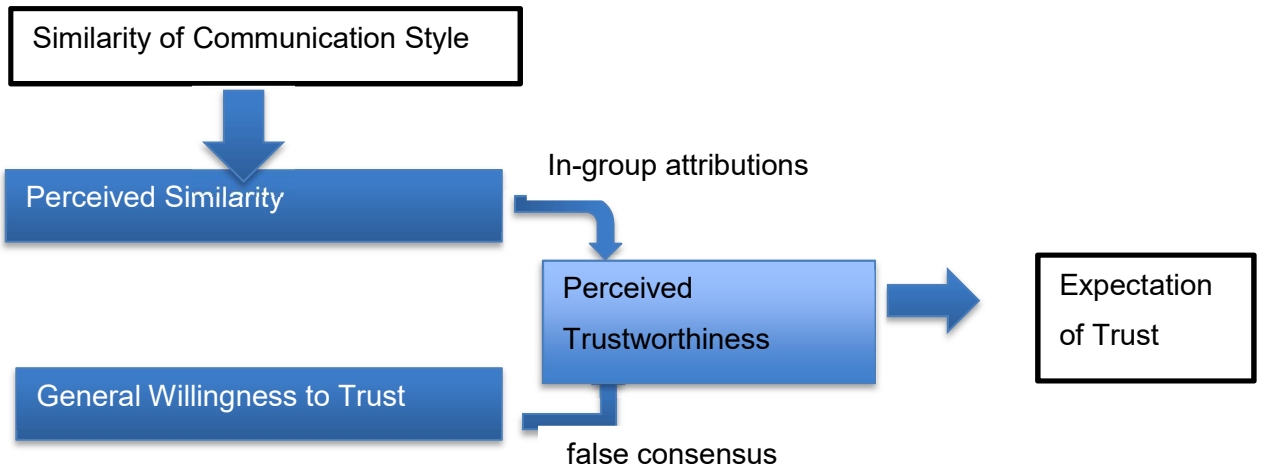


Figure 1: Attribution theory and the interrelationships in the process of building trust

The model describes the relationship between the similarity in communication style and the expectation of trust. Two basic determining factors of trust come into play: the situational willingness to trust and the individual willingness to trust (cf. Eichenlaub 2010, p. 84 ff; Kassebaum 2004, p. 19 f.; Ripperger 2003, p. 100 ff, Schweer 1997, p. 4ff.).

The situational willingness to trust includes the perceived trustworthiness of the other person and depends on personality traits such as availability, reliability, integrity or loyalty (cf. Graeff 1998 p. 60 f.; Mayer et al. 1995). It is less relevant whether a counterpart (trust-taker) objectively possesses these qualities. Rather, the subjective perception and attribution of these qualities by the trust-giver plays the decisive role. The individual willingness to trust, on the other hand, represents a characteristic of the trust-giver. It is a relatively stable personality trait that has become firmly anchored in the attitude structures of the trust-giver. People with a high individual willingness to trust generally strive to approach interaction partners in a trusting manner. People with a low individual willingness to trust tend to approach other people with suspicion (cf. Eichenlaub 2010; Neumaier 2007, 93 ff).

It is assumed that the perception of similarity in the communication style can trigger a fundamental perception of similarity to the other person. These are mostly unconscious perception and judgment processes. The basic perception of similarity in turn triggers attribution effects that affect the situational and the individual willingness to trust. On the one hand, the wrong consensus or the conclusion from oneself to others, on the other hand, the effectiveness and consequences of so-called in-group attributions are explained (cf. Eichenlaub 2010, p. 89 ff; Bekemeier-Feuerhahn and Eichenlaub 2010, p .341ff.).

In the next step, the study design for checking the impact model is presented. It is an innovative design based on game theory, in which the subjects solve a common task as part of a “trust game” (cf. Eichenlaub 2010, p. 109 ff; Bekmeier-Feuerhahn and Eichenlaub 2010, p. 344 ff.).

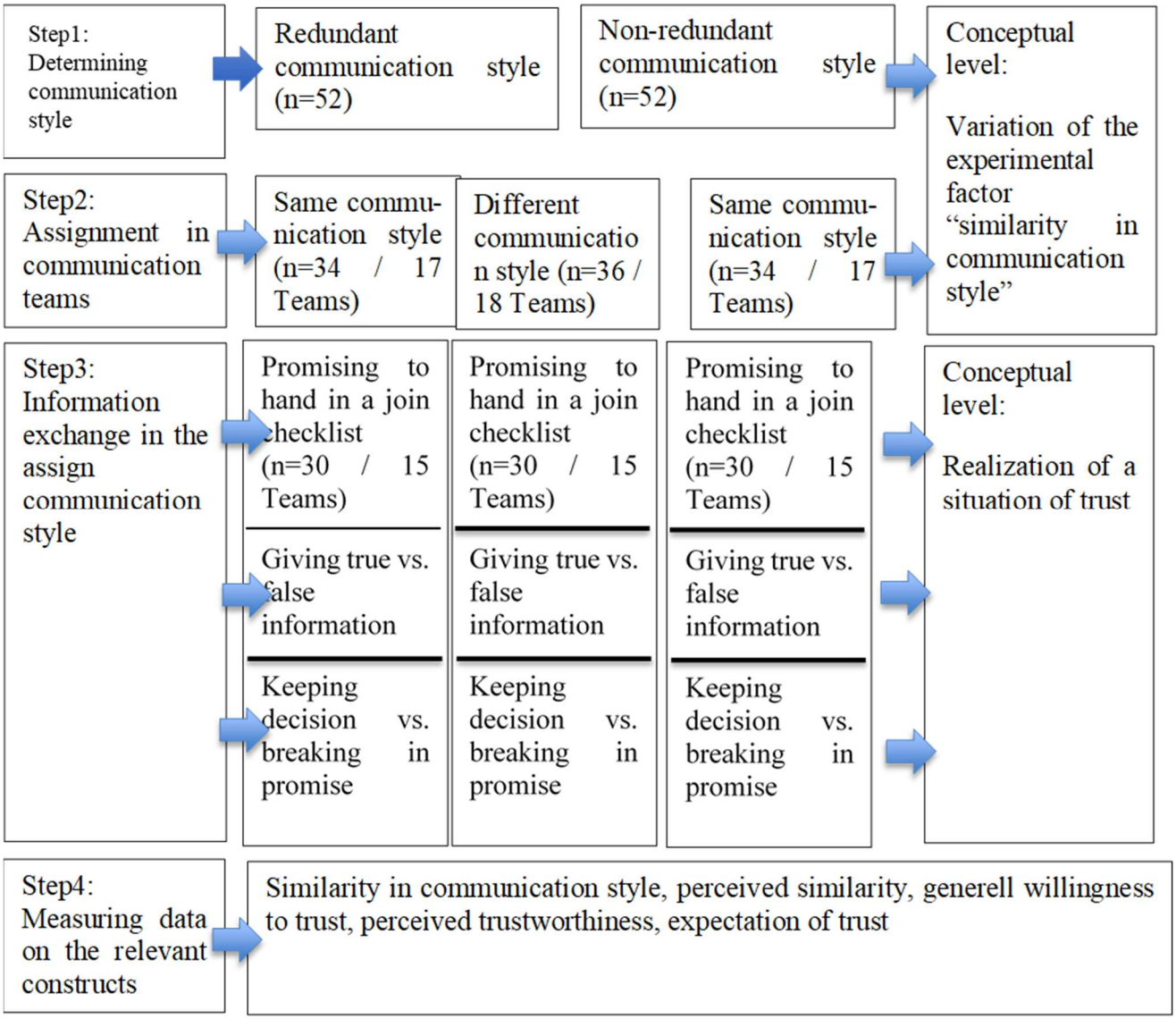


Figure 2: Steps and conceptual levels of experiment

The results of the study are presented. They prove the postulated connections between a common communication style and trust (cf. Eichenlaub 2010, p. 141 ff; Bekeier-Feuerhahn 2010, p. 347 ff.). The study examines a relatively unexplored field. Its originality lies in developing a framework from attribution theory and in its experimental design. The experimental results are useful to make an innovative contribution to the development of socio-technical communication strategies in online communication and suggest further scientific research into the determinants of online communication and their practical implementation. An outlook on the possibilities and limits of socio-

technical communication strategies in online communication is given (cf. Eichenlaub 2010, p. 160 ff; Bekmeier-Feuerhahn and Eichenlaub 2010, p. 349 f).

Keywords: Virtualization tendencies of communication, Trust building, Attribution theory, Judgement process

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Enhancing Digital Trust in Banking & Insurance

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Abstract

Increased trust in online banking and insurance products and services could enhance the appeal of a range of financial services products by converting more users to digital. Digital trust is vital when it comes to online financial services. Developing digital trust is a complex process since it requires the alignment of several different parameters, including business processes, technology, regulation and consumer expectations. The first step in this process is the online interface which consumers use. In addition to security, research indicates that the look and feel of websites could influence consumer trust and use of online services. This study is about how visual aesthetics and sound influence consumer trust in relation to online financial services.

The financial services industry (FSI) is likely to continue to digitalise with an ever-increasing momentum, meeting consumer expectations for real-time, ubiquitous, on-the-go service convenience. Consumer trust remains among the widely acknowledged barriers to achieving a full digitalisation of financial services. Consumer subscription to digital financial services (online, mobile and omnichannel) is being held back by trust and security issues, real and imaginary. Cybersecurity is a major hurdle and all financial services including start-up FinTech and RegTech companies are innovating to address this issue, with the overall aim of enhancing digital trust among consumers.

This study on the relationship between trust and visual aesthetics, multisensory perception and the design of online space in the FSI was undertaken by the Asian Institute of Finance (AIF) in conjunction with the Imagineering Institute. A first of its kind in Malaysia, if not, we believe in the region. This study was undertaken not only to demonstrate how visual and auditory cues can impact the way in which consumers perceive, feel and engage with financial services, but to capture the interaction effects between various sense-perception stimuli in terms of online trust in financial services. In the future omnichannel consumer interactions are likely to be multimodal, where consumers will be faced with multisensory stimuli. The relevance of the study is to demonstrate to players in the FSI that the multisensory cues of online interfaces do moderate and can directly influence consumer trust. It is important that the financial services industry embraces the concept.

Keywords: Digital Trust, Banking, Insurance

Swift trust and AI

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Abstract

Swift trust is a unique form of trust created out of the pressure to quickly build trust on people with whom you have little or no prior experience working together. The pressure comes out of a need to accomplish a shared and temporary goal to meet a deadline. Since there is little or no preexisting experience working with the partners, it would not be easy to build trust based on traditional means (i.e., relationship or knowledge-based trust). Because of this reason, category-based trust, personality-based trust and institution-based trust have been shown to drive the initial formation of swift trust. Most studies in this area concerns about swift trust with other humans, but today's work environment requires one to work with technologies as well. In this study, we explore the possibilities of swift trust with AI and review the conditions required for such trust to happen.

Intuition

Acknowledgement of our Intuition Team

In 2018, we started the new local EFRE research project “Intuition (RHIA)” financed by the European Union and the State of Lower Saxony and expanded it to a multi-dimensional RIEHUAD approach. Thank you to my dear friend Dirk Schneider (Bechtle AG, Germany), who had the idea, the knowledge, and the patience to apply for this project. Thank you to my research team at Ostfalia University: Prof. Dr. Frithiof Svenson (now professor at UIT – the Arctic University in Norway), Dierk Ohler, Michael Ferwagner, and Johanna Klatt (before Meyer). Thank you also to my colleague Prof. Achim Michalke for his support and showing the “Limits of Intuition”.

This project would not have been possible without the great support of an excellent researcher and now dear friend: Prof. Fatih Çetin from the Niğde Ömer Halisdemir University in Turkiye. In long hours during the pandemic, you supported the team not only with deep statistical knowledge but also with great knowledge in Organizational Behaviour.

Thank you also for the deep knowledge and support from Prof. Joanna Paliszkiewisz from Warsaw University of Life Sciences, The Management Institute, in Poland. Special thanks we owe to the University of Paderborn, Germany, Prof. Christian Harteis and Bianca Steffen.

We are very proud to work together with great researchers in the field of Intuition. It is an honor to work together with Prof. Eugene Sadler-Smith from University of Surrey, UK, Dr. Marta Sinclair from Griffith Univerity in Australia and Dr. Dean Radin from Noetic Institute in California, USA.

In future, we would like to extend our new research approach. We encourage all our friends internationally to extend our survey in your country.

Towards the development of a new Measurement Instrument for Intuition (RHIA)

First Pilot Study for Scale Development measuring Intuition

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Frithiof Svenson, UIT, the Arctic University, Norway

Introduction

Today, intuition becomes a widely accepted approach to describe decision-making. Some researchers treat intuition in a unitary way (Behling, Eckel, 1991; Ambady, 2010). In psychology, the distinction between rational decision-making (deliberation) and intuition has entered psychological theory long time ago (Pachur, Spaar, 2015). Dual-process models assume a clear distinction between intuitive and deliberate processes. However, intuition is not a homogeneous concept, but a label used for different cognitive mechanisms (Glöckner, Witteman, 2010).

Hill (1981) provided evidence that multiple types of intuition exist. He suggests two types of intuition, e.g. classical intuition and inferential intuition. He defines classical holistic intuition to be an spontaneous, uncritical perception of the whole rather than the parts. The second aspect of intuition, inferential intuition, as "a heuristic that represented a logical (inferential) process in which several intermediary steps have been omitted or obscured" (p. 138). Pretz et al. (2014) developed the Types of Intuition Scale (TIntS, Pretz, Brookings, 2007; Pretz, Totz, 2007) an own development and validation of a new measure of intuition (Pretz et al, 2014) with the dimensions holistic, inferential, and affective intuition.

The Rational Experiential Inventory (REI) was developed, containing heuristic, holistic, and affective components (Epstein, Pacini, 1999). Scott and Bruce (1995) developed the General Decision Making Style inventory (GDMS). Their construct definitions was developed from prior theory, and items were defined as assess rational, avoidant, intuitive, and dependent decision-making styles. Burns and D'Zurilla (1999) developed the Perceived Modes of Processing Inventory (PMPI). Their instrument is measuring three different perceived processing styles: rational processing, emotional processing, and automatic processing. Later, the Cognitive Style Indicator (CoSI) was developped by Cools and Van den Broeck (2007). The authors concentrated on the analytic-intuitive cognitive style dimension by splitting the analytic pole in a knowing and a planning style (and creative) and developed a valid and reliable cognitive style instrument for use in organizations. Pachur and Spaar summarized all these studies in a new model based on Rationality (planning and Knowing) and intuition (affective and spontaneous).

But there are more dimensions of intuition not added to existing intuition measuremets and scales. Heuristics as a cognitive thinking-style has been researched in depth as a very fast type of intuition based on experience and job training (Gigerenzer et al, 2000), Simple heuristics that make us smart.

Oxford University Press.. Unconscious thoughts are researched as the opposite of conscious cognitive thinking (Dijksterhuis, 2004). The anticipation of future events has been develeopped to an own dimension. However, the unnormal or paranormal decision-making has not been accepted into intuition theory yet (Honorton, Ferrari, 1989). Researchers from neurology science have been researching intuitive decision-processes as well, in particular the emotional decision-making process (Craig, 2003). The so-called gut feeling is a very narrow term excluding feelings and emotions (Damasio, 1999).

Purpose of the Study

The purpose of this research is to develop and test new dimensions of intuitive decision-making styles. This is important to better describe intuition for different occupations. Current intuition measures inadequately assess job related intuition types. Intuitive decision making hardly made into business administration science. A new description on intuition is needed to relate it to decision making at the workplace.

In economics, the approach of behavioral economics still lacks intuitive decision-making processes (Beck, 2014). Critics of behavioral economics typically stress the rationality of economic agents (Myagkov, Plott, 1997), it is even stated that no behavioral research can establish an economic theory (Maialeh, 2019). (However, behavioral economics is the effort to increase the explanatory and predictive power of economic theory by providing it with more psychologically plausible foundations (Angner, Loewenstein, 2012). It was Tversky and Kahneman (1973) that described the irrationalities in human decision making which started a new era in behavioral economics (Einhorn, Hogarth, 1981). Heuristic decisions based on knowledge and experience entered the literature on behavioral economics (Gigerenzer, Selten, 2002).

The common concepts presented so far cannot handle all phenomena of intuitive decision-making we know from everyday practice (Swami, 2013; Dane, Pratt, 2007). Affective intuition may need deeper explanation differentiating feelings and emotions (Denburg, Hedgcock, 2015) based on neuroscience (Damasio, 1994). The anticipation of future developments, very important in banking (Kandasamy et al, 2016), strategic management (Liebowitz et al, 2019) especially for CEOs (Woiceshyn,2009) is seen as a type of affective intuition or a hunch. An expansion towards more para-psychological intuition promises additional insight. Most approaches towards intuition describe spontaneous decision-making. However, in business, managers may take their time to think through decisions with times of distractions from the problem. We argue that the theory of unconscious thinking may describe this decision-process best.Therefore, it is important to test and validate new structural patterns of intuition for the use in business administration: emotional intuition, quick heuristic, slow unconscious thoughts, and anticipation.

Scale Development for 4 Intuitive Decisions Types

This article describes a pilot study for subsequent Pre-Tests and Main studies in 2021 and 2022. Instead of developing completely new scales, we used existing proven scales but adapted shortened a small amount of questions for a pilot study.

Rationality and Deliberation

The rational choice theory (RCT) constitutes a major approach of sociological theory and research (Kroneberg, Kalter, 2012). The theory goes back to Meckling (1976), Lindenberg (1985 a and b) and Esser (1990, 1991). Their views on rational choice was constituting the RREEMM-Modell (Ressourceful, Restricted, Evaluating, Expecting, Maximizing Man). It was an entry question to the intuition questions and war removed later. Based on this theory, we asked the employees

- I tend to be a rational thinker (New question)

Betsch (2004, 2008) developed an inventory with different scales to measure differences between deliberation and intuition (PID scale). This goes along with the research by Burns and D'Zurilla (1999), Scott and Bruce (1995) as well as Evans (2008) and Hodgkinson and Sadler-Smith (2003). We also used parts of the Cognitive Style Indicator (CoSI) by Cools and van der Broeck (2007) and the Rational-Experiential Inventory (REI) by Pacini and Epstein (1999). This is in line with the scale development of Pachur and Spaar (2015). They called the items preference for deliberation (sub item planning) and preference for intuition. Based on these scales we asked employees

- Before I make a decision, I usually think about it for quite some time (PID)
- I think more about my plans and goals than other people (PID and CoSI)
- I think first before I act (PID)
- I prefer to make elaborate plans rather than leave anything to chance (PID)

Emotional Intuition

Affective intuition was described in literature by many authors in different scale developments such as Pretz et al (2014), GDMS (1995), REI (1999), PID (2004) and Pachur and Spaar (2015). In our research, we reduced the amount of questions to two items separating emotions and feelings with high factor loading in their original studies.

- Emotions play a significant role in my decision-making patterns (GDMS)
- I carefully watch my innermost feelings (PID)
- I prefer emotional persons (PID)

Experience-based, Spontaneous, Heuristical Intuition

For decision based on heuristics, we did not find existing scales. We based our questions on the theory of Gigerenzer and Todd (2012). However, they did not develop new specific scales. Therefore, we used the scales called Spontaneous by Pachur and Spaar (2015) based on the General Decision Making Style Inventory (GDMS) by Scott & Bruce (1995) and Perceived Modes of Processing Inventory (PMPI) by Burns and D'Zurilla (1999). These items are based on experience as described by Gigerenzer and Todd.

- I frequently make quick and spontaneous decisions based on my insights into humanity (PID, PMPI)
- I frequently make quick and spontaneous decisions based on my life experience (PID, PMPI)
- I make quick decisions by rules of thumb (GDMS)

Slow Unconscious Thoughts

For the Unconscious Thought theory we could not find existing scales. Therefore, we developed new scales based on the theory of Dijksterhuis, Nordgren (2006) and discussions with managers.

- If I have to make a decision, I always sleep on it.
- I never make decisions right away, and I always wait for a while
- Before I make a decision, I first focus on doing something else

Anticipation and Pre-Cognition

The questions on Anticipation are more problematic. The existing scales are not for direct use for managers in organizations. Therefore, we adapted the scales. First, we used the question style from the Perceived Modes of Processing Inventory (PMPI) by Burns and D'Zurilla (1999) and the Rational-Experiential Inventory (REI) scales by Pacini and Epstein (1999). Than we adapted the questions to the scales by Radin (2004), Bem et al. (2015) and the AEI scales by Thalbourne (1993).

- I frequently have a premonition as to what will happen (REI)
- I can often predict emotional events (PMPI)
- Before the phone rings, I frequently know in advance who the caller is (new question)
- I can frequently predict the outcome of a transaction (PMPI)

The instrument consisted of 21 items measuring six different decision main styles with a four-point response type (1 strongly disagree to 4 strongly agree).

Method

The data in this study were part of two EU-funded research projects named “Digital Trust @ the Workplace” (Launer, *n.d.*) and Intuition (RHIA). An electronic questionnaire was used to collect data with a snowball sampling method through the international personal network of first author. Following the European data protection rules, the voluntariness and confidentiality were used to invite individuals to participate. The final online questionnaire was developed was translated into 15 different languages German, Español, Português, Français, Russian, Polski, Română, Slovenský, Traditional Chinese, Simplified Chinese, Japanese, South Korean, Vietnamese, and Thai.

Participants of the research were 5.574 employees working in 43 different industries from over 30 countries from the research project. Gender distribution was 41.2% female, 8.4% LGBT-Q, and 50.3% male. Of the professional experiences of participants, 9.3% were less than one year, 19.7% were 1 to 3 years, 40.3% were 4 to 10 years, 18% were 11-20 years, 6.6% were 21 to 30 years, 1.3 % were 31 to 40 years, and 0.3% were more than 40 years. The employment status was mostly permanent (85.8%).

The methodology of this study is based on a self-report instrument. Self-report studies always have validity problems. Respondents may answer questions in the way they would like to see themselves. In terms of intuition, it is critical to measure the real intuitive decision-making. In particular, it is difficult to asks about unconscious decisions.

Results

The Construct Validation Rational and Intuition Styles based on PID (Table 1)

First, we tested the items from the original PID theory by Betsch. It employed an Exploratory Factor Analysis (EFA) for testing its bi-dimensional constructs. We have selected Primary Component Analysis (PCA) for exploring the components, “eigenvalues greater than one” criteria for the most interpretable solution, and “varimax rotation” technic to maximize the variance of squared loadings on a factor. The result of EFA indicated that 11 items loaded on two factors with explaining 66.2% of the construct (factor loadings ranged from .69 to .82 for intuition and from .80 to .85 for deliberation or rational). When the PID instrument has been confirmed in the explorative analysis, we have used Confirmatory Factor Analysis (CFA) for testing the two-factorial construct of PID in our sample. The results of CFA in Table 1 indicated unacceptable fit indices with the values as .83 for Comparative Fit Index (CFI), .79 for Tucker Lewis Index (TLI), .130 for Root Mean Square Error of Approximation (RMSEA), and .144 for Root Mean Residual (RMR). Based on the suggestions of the program we have modified the two-factorial PID structure, since not only the fit indices are at lower levels, but also some item loadings are at lower levels for explaining the factors. Accordingly, two items were excluded from the structure after trying all possible modification suggestions to increase fit. Thereby, the modified two-factorial PID instrument confirmed the fit of two construct (*X2/df= 10.6, TLI=.99,*

CFI= .99, RMSEA= .041, RMR=.028). But concerning the cut of a maximum value of 5 for the acceptance, the calculated ratio of chi-square on the degree of freedom (*X2/df*) was higher level.
Since one of the reasons for this result related to the larger sample sizes, we conducted more analysis through decreasing sample size by random selections. We tested the confirmed structure on three random subsamples selected from the total sample to get an acceptable ratio and increase the generalizability. For determining the random samples, we used the case selection option in the SPSS program with a random selection about 33% of the total sample. The confirmed factorial structure was tested on each sample (n= 1862 for the random sample 1, n= 1825 for the random sample 2, and n= 1812 for the random sample 3) and found acceptable fit indices (values were ranged *X2/df=3.9 to 4.5, CFI=.99, TLI=.99, RMSEA=.040 to .044*). All these findings supported the two-factorial PID and also provided evidence of the convergent and discriminant structure of the instrument in a diversified sample.
After confirming the factorial structure, we calculated Cronbach's Alpha coefficients of factors for determining the internal consistencies. The coefficient of modified two-factorial PID ranged from .86 to .90, and the Cronbach's Alpha coefficient between factors ranged from -.41 to -.43 ($p<.01$) for the total and random samples. These results presented reliability of the instrument.

The Construct Validation of rational and the types of intuition Styles (Table 2)
After confirming the two-factorial PID, we have tested the structural patterns of unconscious thoughts, emotional intuition, quick heuristic, and anticipative decision-making styles with rational decision-making style. We have used CFA for testing the multifactorial structure of instrument in the sample. In the first analysis the CFA results produced acceptable fit indices with the values as .98 for Comparative Fit Index (CFI), .98 for Tucker Lewis Index (TLI), .035 for Root Mean Square Error of Approximation (RMSEA), and .028 for Root Mean Residual (RMR). But the calculated ratio of chi-square on the degree of freedom (*X2/df*= 5.10) was higher level than highest acceptance value of 5 and also strict value of 3 (….). Therefore, we followed the modification suggestions of the program and excluded five inconsistent items loaded on other factors causing an inflating chi-square value. Thus, the modified version of the construct confirmed the fit of five construct of four types of intuition and rational decision-making (*X2/df= 2.5, TLI=.99, CFI= .99, RMSEA= .029, RMR=.021*). We also tested the modified and confirmed factorial structure on the same three random subsamples selected from the total sample to increase the generalizability. The confirmed structure was tested on each sample (n= 1862 for the random sample 1, n= 1825 for the random sample 2, and n= 1812 for the random sample 3) and found acceptable fit indices (values were ranged *X2/df=3.9 to 4.5, CFI=.99, TLI=.99, RMSEA=.040 to .044*).

Table 1 CFA results of PID Instrument

	n	NOIs	FLs	*X*2	df	*X*2/df	TLI	CFI	RMSEA	RMR
Two-factorial PID	5574	11	from .18 to .83	6096.16	64	95.2	.79	.83	.130	.144
Two-factorial PID modified	5574	9	from .74 to .83	275.35	26	10.6	.99	.99	.041	.028
Two-factorial PID modified	Random sample 1 (n=1862)	9	from .72 to .86	113.55	26	4.3	.99	.99	.043	.030
Two-factorial PID modified	Random sample 1 (n=1825)	9	from .74 to .84	101.67	26	3.9	.99	.99	.040	.031
Two-factorial PID modified	Random sample 3 (n=1812)	9	from .73 to .83	117.79	26	4.5	.99	.99	.044	.033

NOIs= Number of items, FLs= Factor loadings

Table 2 CFA results of five-factor Instrument

	n	NOI	FL	*X*2	df	*X*2/ df	TLI	CFI	RMSEA	RMR
Five factor structure	5574	19	from .71 to .83	1128.41	142	7.9	.98	.98	.035	.026
Five factor structure modified	5574	14	from .74 to .83	341.21	67	5.0	.99	.99	.027	.020
Five factor structure modified	Random sample 1 (n=1862)	14	from .73 to .84	172.13	67	2.5	.99	.99	.029	.021

Five factor structure modified	Random sample 1 (n=1825)	14	from .74 to .83	125.31	67	1.8	.99	.99	.021	.022
Five factor structure modified	Random sample 3 (n=1812)	14	from .73 to .83	127.03	67	1.9	.99	.99	.021	.022

NOI= Number of items, FL= Factor loadings

We then calculated Cronbach's Alpha coefficients of confirmed factors for determining the internal consistencies. The coefficients of the sub-dimensions of the modified five-factor structure ranged from .76 to .85 for the total sample and all random samples. These results presented reliability of the multifactorial structure.

Table 3 The statistics of the confirmed construct

Factors	N	Min.	Max.	Mean	SD	Skewness	Kurtosis
Rational	5579	1.00	4.00	2.80	.95	-.595	-.682
Emotional	5579	1.00	4.00	2.71	.91	-.319	-.752
Slow Unconscious	5579	1.00	4.00	2.68	.88	-.336	-.660
Quick Heuristics	5579	1.00	4.00	2.56	.87	-.054	-.768
Anticipation	5579	1.00	4.00	2.40	.90	-.043	-.911

The factors in the instrument and the statistics were presented in Table 3. The factor means ranged from 2.34 to 2.80 (SD ranged from .87 to .95), and the skewness (ranged from -.595 to -.043) and kurtosis (ranged from -.911 to -.660) statistics were at acceptable levels for the univariate normality. We also calculated Pearson correlations among factors in the Table 4. According to the results there were significant positive relationship between rational and unconscious thinking ($r= .591$, $p<.01$), negative relationship between rational and emotional ($r= -.336$, $p<.01$), quick ($r= -.039$, $p<.05$), and anticipation thinking style ($r= -.030$, $p<.05$). Emotional thinking was also positively related with quick ($r= .190$, $p<.01$), and anticipation ($r= .479$, $p<.01$) but negatively related with unconscious thinking ($r= -.171$, $p<.01$). Unconscious style was negatively correlated with quick thinking ($r= -.134$, $p<.01$). Lastly quick style related positively with anticipation style ($r= .077$, $p<.05$). There was no significant relation between quick and anticipation style.

Table 4 Relations among decision styles

	(1)	(2)	(3)	(4)
1.Rational	1			
2.Emotional	-.336**	1		
3.SlowUnconscious	.591**	-.171**	1	
4.Quick Heuristics	-.039**	.190**	-.134**	1
5.Anticipation	-.030*	.479**	.006	.077**

We also tested gender differences in decision-making styles with using ANOVA. Since group sizes were about the equal, the male (n= 2807) and female (n= 2300) participants were selected for the comparison. The result of Levene statistics presented that all variances were homogeneous (Levene statistics ranged from 49.12 to 114.23 with p<.01). The findings showed that there are significant differences between male and female in the emotional (F= 86.22, p<.01), quick (F= 20.18, p<.01), and anticipation (F= 113.20, p<.01) thinking styles. Results indicated that females are more emotional (female Mean= 2.84, SD= .81; male Mean= 2.60, SD= .79) and anticipative (female Mean= 2.52, SD= .84; male Mean= 2.25, SD= .92), but less quick (female Mean= 2.48, SD= .79; male Mean= 2.59, SD= .94) than males. There were no significant differences in the rational and unconscious decision-making styles.

Discussion

We have argued that intuition is not a unitary construct and specified four distinct types of intuition: emotional, fast heuristics, slow unconscious, and anticipation. This tool can be measured using a new self-report tool, the RHIA. These types are largely uncorrelated with one another, and we provide evidence for both concurrent and predictive validity of the scales. We have shown that the RHIA provides a multifaceted, more comprehensive measure of intuition than existing measures such as PID, MBTI, REI, GDMS, CoSi, and Pachur and Spaar. It may be used as a supplement to other studies. It also builds the basis for a new study on Intuition to further develop new scales (German Pre-Test in 2021and Main Study in 2022).

We suggested a broader multi-dimensional domain-specific approach to intuition. The existing scales were allocated newly based on research paradigms. The quick intuition was based on the theory of heuristics. Emotional intuition was based on the latest findings in neurology. The anticipation (e.g. hunches) got an enlarged theoretical basis based on pre-gognition-pre-monition and paranormal scales. A completely new scale was added for the unconscious thought theory. Therefore, new scales had to be derived from the theory and discussed and tested with managers.

The proposed model has the dimension rational decisions (deliberation), unconscious intuition, emotional (affective) intuition, quick heuristics, unconscious thougths, and anticipation (Pre-cognition). We found that individuals' decision styles vary considerably across the proposed decision-making domains. However, this approach does not state, that employee`s decision style

belong to one or another dimension. They have a mix of different decision-styles. We argue that there is a distinction between the different decision-making styles. Therefore, using a generalizable sample from different cultures and industries, the purpose is to confirm the rational and intuitive decision-making styles, and test and validate the structural patterns of rational, emotional, quick heuristic, unconscious, and anticipation decision-making styles with using a new instrument.

Although the differences between rational and intuitive decision making is very well known in the existing literature, the sources or forms of intuition decision making is unknown. The main intention in the paper has been to give a primary evidence about different forms of intuition.

The first findings have shown that rational and intuitive decision-making styles are structurally separate but also negatively related constructs. The second findings have confirmed that rational, emotional, quick heuristic, unconscious, and anticipation intuitive styles are not only structurally separate from each other but also related constructs. Concerning the relations, rational decision-making was positively related to the unconscious but negatively related to emotional, quick heuristic, and anticipation style of intuition. Moreover, there were significant gender differences in the emotional, quick heuristic, and anticipative decision-making styles.

The intercorrelations between the domains also suggest that a person's decision style in one domain can be relatively dissociated from her decision style in another domain.

Conclusion

This study developed and tested new dimensions of intuition in a pilot study. The four intuitive decision styles fast heuristic, slow unconscious thoughts, emotional intuition, and anticipation were proven to be valid, reliable and independent variables. This will be the basis for future studies on intuition in a broader sample.

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Keywords: Intuition, Rationailty, Emotional Intuition, Gut feeling, Unconscious Thoughts, Anticipation, Decision Making

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Pilot Study on Scale Development for measuring Intuition in Uelzen (RIEHUA)

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Introduction

The aim of this study is to develop an intuition test prototype for the EFRE research project Intuition (RHIA) funded by the European Union and the state of Lower Saxony. The aim is to measure intuition in the Uelzen area and explore opportunities to improve decision-making in the workplace. The data sheet is used for discussion with the cooperation partners in Uelzen and our specialists for intuition: Prof. Dr. Wendelin Kupers, Dr. Anne-Kathrin Auer and Dirk Schneider. With the publication of the data sheet, all employees of the cooperation companies should have access to our Uelzen study.

Literature Review

The literature supports a broad range of theories (Dane & Prat, 2009; Akinci, Sadler-Smith, 2011) and methodologies (Sinclair, 2011, 2014, 2020) for intuition. The basic approach hereby is the dual process theory distinguishing between Rational decision-making (Deliberation) and Intuition. In principal, there are two major studies:

Intuition according to Rational-Experiental Inventory (REI) by Epstein, Pacini & Norris (1998) and the new version by Pacini & Epstein (1999, REI) based on the Cognitigve-Experiental Self-Theory (CEST) by Epstein, Pacini, Denes-Raj & Heier (1996); German version by Keller, Bohner & Erb, 2000. Theoretical basis therefore is based on Epstein, 1994; Chasiken& Trope, 1999; Denes-Raj & Epstein, 1994; Kirkpatrick & Epstein, 1992; Pacini & Epstein, 1999a, 1999b; Pacini, Muir & Epstein, 1998.

- Rationality Scale (Need for Cognition or Analytical-Rational Thinking) incl. thinking, intellectual, logical, analytical, reasoning (Cacioppo & Petty, 1982; Jung, 1964/1968), natural (Tversky & Kahneman, 1983), automatic (Bargh, 1989; Higgins, 1989), heuristic (Chaiken, 1980; Fiske & Taylor, 1991; Tversky & Kahneman, 1983), schematic (Leventhal, 1984), prototypical (Rosch, 1983), narrative (Bruner, 1986), implicit (Weinberger & McClelland, 1991), imagistic-nonverbal (Bucci, 1985; Paivio, 1986), experiential (Epstein, 1983), mythos (Labouvie-Vief, 1990), and first-signal system (Pavlov, cited in Luria, 1961)
- Experiental Scale (Faith for Intuition or Intuitive-Experiental) incl. intuition in general, gut feeling, hunches, instincts, feelings, snap judgement, heart (Buck, 1985; Leventhal, 1984; Jung, 1964/1968), analytical-rational (Epstein, 1983), deliberative-effortful-intentional-systematic (Bargh, 1989; Chaiken, 1980; Higgins, 1989), explicit (Weinberger & McClelland, 1991),

extensional (Tversky & Kahneman, 1983), verbal (Bucci, 1985; Paivio, 1986), logos (Labouvie-Vief, 1990), and second-signal system (Pavlov, cited in Luria, 1961)

Preference for Intuition or Deliberation according to Betsch (2014, PID) based on Epstein et al (1996). The theotretical basis is: Wilson & Schooler (1991); Wilson, Lisle, Schooler, Hodges, Klaaren, & LaFleur (1993), Betsch (2008), Betsch, & Haberstroh (2004), Betsch, Plessner, Schwieren, & Gütig (2001), Haberstroh & Betsch (2002), Epstein (1983), Hogarth (2001), Sloman (1996), Bowers, Regher, Balthazard, & Parker (1990), Langan-Fox & Shirley (2003), Myers & McCaulley (1986).

- Deliberation (Analytical and Planning) incl. thinking, perfectionism, fact-based, self-reflection, planning and goal-orientation (Cacioppo & Petty, 1982)
- Affective Intuition (Feelings, Body Impulses, Experience-based) incl. intuition in general, feelings, gut feeling, life-experience, emotions, inner feelings (Jung, 1962; Slovic, Finucane, Peters, & MacGregor, 2001, Loewenstein, Weber, Hsee, & Welch, 2001; Myers & McCaulley, 1986; Keller et al. 2000)

In this study we do not follow the dual approach. Therefore, a multi-dimensional approach will be developed.

Studies on Rational Decision-Making

There are three major studies on rational decision-making:

- General Decision Making Style (GDMS) by Scott and Bruce (1995)
- Cognitive Style Indicator by Cools and van den Broek (2007)
- Perceived Modes of Processing (PMPI) by Burns and D'Zurilla (1999)

Analytical Style

The studies GDMS and PMPI describe the analytical decision-making style based on the theories by D'Zurilla & Goldfrid, (1971), D'Zurilla & Nezu (1990), Mayde u-Olivare s & D'Zurilla (1996).

- Search & Evaluation by Scott & Bruce (GDMS, 1995) incl. logic and systematic analysis and evaluation in terms of specific goals (Keen, 1974; Mitrof, 1983).
- Rational Processing by Burns & D`Zurilla, (PMPI, 1999) incl. thinking, structural, fact-based, goal-oriented, evaluating alternatives (Aldwin, 1994; Lazarus & Folkman, 1984).

Knowing & Planning Style

The studies by Cools, & van den Broek (CoSI, 2007) and Pachur & Spaar (USID, 2015) show two additional rational decision making styles. The basic theories are Witkin, Moore, Goodenough & Cox (1977), Shipman & Shipman (1985), Messick (1984), Miller (1987), Hunt, Krzystofiak, Meindl, & Yousry (1989), Riding, Cheema (1991), Hayes & Allinson (1994), Kirton, (1994), Grigorenko &

Sternberg (1995,; Allinson, Hayes (1996), Rayner & Riding (1997), Riding and Rayner (1998); Sadler-Smith & Badger (1998), Hodgkinson (2003), Hodgkinson & Sadler-Smith (2003), Kirton (2003), Myers, McCaulley, Quenk, Hammer (2003). They describe the rational decision making styles:

- Knowing Style
  - Knowing Style by Cools & van den Broek (CoSI, 2007) incl. facts, details, logical, reflective, objective, impersonal, rational, precise, methodical decisions.
  - Knowing Style by Pachur & Spaar (USID, 2015) incl. systematic, analysis, logical, thinking, intellectual, complexity, and abstract terms.
- Planning Style
  - Planning Style by Cools & van den Broek (CoSI, 2007) incl. sequential, structured, conventional, conformity, planned, organized, systematic, routine-based.
  - Planning Style by Pachur & Spaar (USID, 2015) incl. preparation, time-sensitive, process-oriented, reason-based and planning.
- Creating according to Cools, & van den Broek (CoSI, 2007) was not used

Multidimensional Intuitive Decision-Making

There are four major multidimensional studies with more detailed, structured dimensions:

- General Decision Making Style (GDMS) by Scott and Bruce (1995)
- Types of Intuition Scale (TIntS) by Pretz et al (2007) and Carlson (2008)
- Perceived Modes of Processing (PMPI) by Burns and D'Zurilla (1999)
- Unified Scale to Assess Individual Differences in Intuition and Deliberation (USID) by Pachur and Spaar (2015)

Intuition according to Scott & Bruce (1995, GDMS) based on the theories of by Keen (1973), Driver (1970), Harren (1979), Behling, Gifford & Tolliver (1980), Philips, Pazienza & Ferrin (1984), Hunt et al (1989), and Driver et al (1990). They define the intuition styles:

- Spontaneous incl. quick, impulsive. snap decisions in the spur of the moment feeling natural
- Intuition (= Feelings) incl. intuition in general, instincts, and feelings
- Dependent incl. assistance, consulting, advise, support by other people
- Avoidant was not used in this study

Intuitive Holistic Decision Making according to Pretz et al (2007, 2014, TIntS). They describe the intuition style:

- Holistic (Andersen, 2000; Singer, 1994, Behling and Eckel, 1991; Brockman and Anthony, 1998; Mintzberg, Ahlstrand and Lampel, 1998; Isenberg's (1984); Simon, 1987; Baylor, 2001)
  - Holistic Big Picture Intuition incl. big picture decisions
  - Holistic Abstract Intuition incl. abstract, theoretical decisions

- Inferential Intuition (= Experience-baced and Spontaneous) incl. quick, experience based, familiar decisions with reasoning, logic (Simon, 1987; critics by Hammond et al., 1987, Klein, 1998; Monsay, 1997; Crossan et al., 1999; Epstein, 1998; Hayashi, 2001; Monsay, 1997)
- Affective Intuition (= Feelings, Body Impulsess, Anticipation) incl. heart-based, feelings in general, emotions, hunches, gut feeling decisions (Bastick, 1982, Epstein, 1998; Petitmengin-Peugeot, 1999; Forgas, 1994; Frijda, 1993; Lazarus, 1999; Forgas, 2001; Agor, 1989)

Intuitive decision making according to Burns & D`Zurilla (1999, PMPI) based on the theories of Brewin (1989); Epstein (1990, 1994), Ingram (1986), Epstein & Meier (1989), Epstein, Lipson, Holsten, & Huh (1992). They describe the intuition style:

- Automated Processing (= Experience-based and Spontaneous) incl. quick, swiftly, awareness, repetitive and experience-based decisions
- Emotional Processing (= Feelings, Body Impulses, Anticipation) incl. instincts, feelings, gut feeling, hunches, emotions

Intuition according to Pachur and Spaar (2015, USID) based on the theories of Betsch (2004, 2008); Betsch & Iannello (2010) and all previous scale development studies such as REI, GDMS, CoSI, PMPI. They describe the intuition styles:

- Spontaneous (Spontaneous and Experience-based) incl. immediate, swiftly, quick, snap decisions, awareness, experience, repetitive decisions
- Affective (Feelings, Body Impulsess, Anticipation) incl. feeling, inner reactions, knowledge of human nature, life experience, gut feeling, hunches, heart

In a second step we take a broader and deeper perspective on intuition. Within the existing scales, certain dimensions should be deepened and broadened according to the latest literature and new approaches in intuition. Therefore the following dimensions will be established as an independent dimension.

Anticipation (Pre-Cognition)

The described scales on intuition describe an affective type of decisions based on hunches (Scott, Bruce, 1995; Pacini, Epstein, 1999; Pretz et al 2014; Pachur, Spaar, 2015). In this study we enlarge this characteristics to an own dimension called Anticipation (Launer, XXX). The received information in this regard comes from outside the body (Sinclair, 2011, 2014). Many researchers try to explain atypical or paranormal decision making (Honorton, Ferrari, 1989), anticipation of solutions, e.g. presentiments of future emotions (Radin, 2004), precognition (conscious cognitive awareness), premonition (affective apprehension) according to Bem et al. (2015), extrasensory perception (ESP) by Thalbourne and Haraldsson (1980) paranormal belief and experiences (Lange, Thalbourne,

2002), or automatic evaluation (Ferguson, Zayas, 2009). In sports, the concept of anticipating future moves by people, balls or ….. are called heuristics (Grush, 2004; Williams, Ward, 2007; Schultz, 2013).

Unconscious Thoughts (Time-delayed Intuition)

In a study by Carlson (2008) based on the TIntS by Pretz and Totz (2007), he included the dimension incubation based on the theory by Dijksterhuis (2004). Decisions can not only be made fast but also after a period of time and (unconscious) reflection and activation (Bowers et al., 1990; Waroquier et al, 2010), incubation (Wallas, 1920; Shirley & Langan-Fox, 1996), unconscious thinking (Dijksterhuis and Nordgren (2006), distraction (Kohler, 1969), removal of blockages (Duncker, 1945), completion of schemes (Mayer, 1996), or in intuitive step-ups (Nicholson, 2000). Despite the many critics on the quality of the decision (González-Vallejo et al., 2008; Srinivasan et al, 2013; Newell & Shanks, 2014; Čavojová, Mikušková, 2014; Abbott, 2015; Nieuwenstein et al., 2015) slow decision-making is the usual process in management.

Method

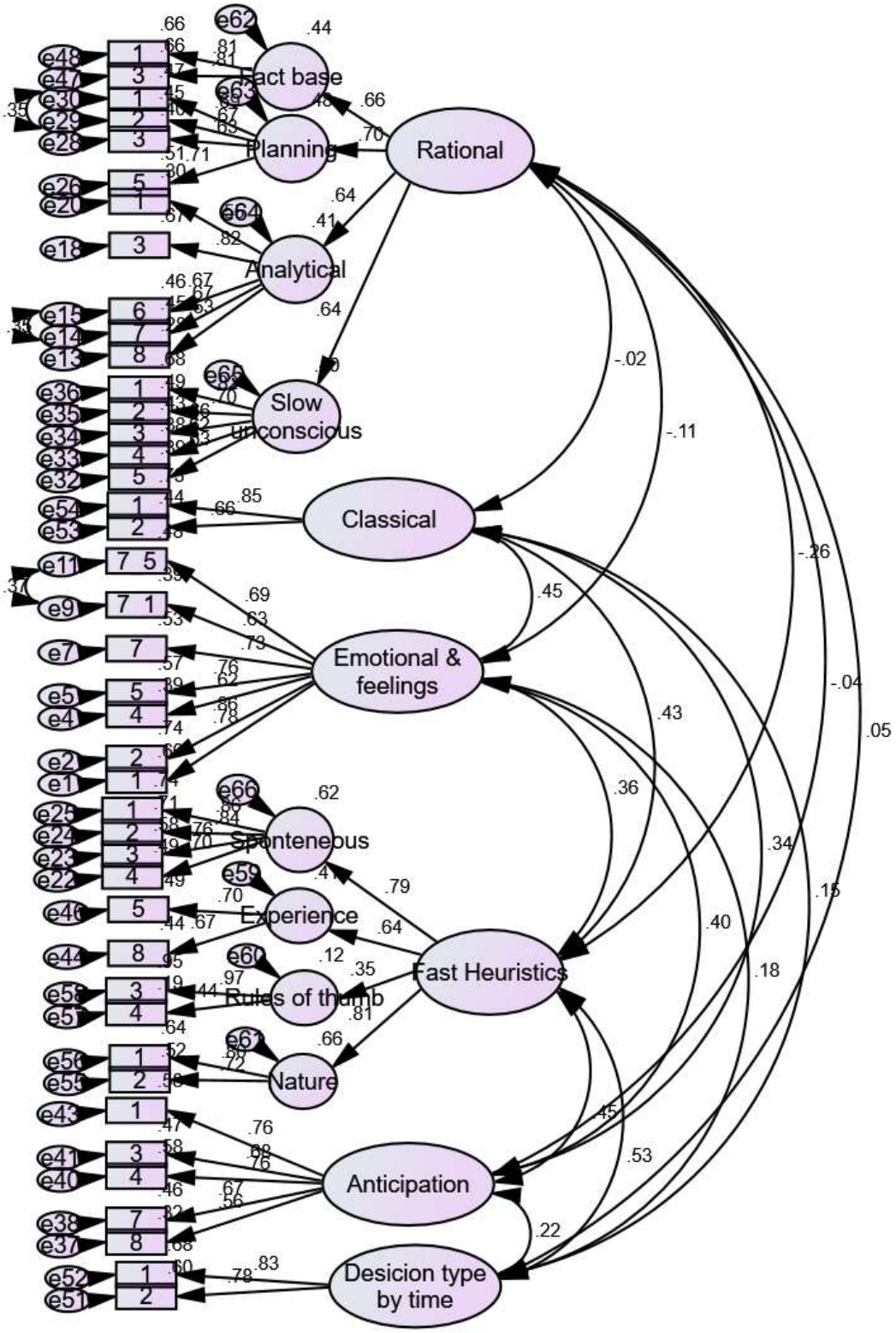
A study was conducted based on the EFRE research project “Intuition: Rationality, Heuristics, Intuition and Anticipation (RHIA)” funded by the European Union and the State of Lower Saxony. The questionnaire was distributed in the Uelzen area using a snowball system. 300 participants registered, but only 180 responses could be used in the study.

Our goal was to test the questions expected to measure rational and differential types of intuitive decision-making. Explanatory and confirmatory analyzes and internal consistencies were carried out to check the validity and reliability of the instruments. In the first step, explanatory factor analysis (EFA) was used for a priori information to identify the latent factorial structures and to construct validity. We followed the procedures of primary component analysis, eigenvalue criteria, and varimax rotation to examine latent structures and achieve the greatest possible variance, which is explained by assuming uncorrelated factors.

In the second step, we used confirmatory factor analysis (CFA) to support the factorial design and provide evidence of a convergent and discriminatory structure of the instrument. Accordingly, the maximum likelihood model estimation method was used to estimate parameters that best explain the observed data.

We tested the structural patterns of unconscious thought, emotional intuition, quick heuristic and anticipatory decision-making styles with rational decision-making styles. We used CFA to test the multifactorial structure of the instrument in the sample. Currently, only the raw data based on a factor analysis is available.

Results of the Factor Analysis



Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	110	1155.588	793	.000	1.457
Saturated model	903	.000	0		
Independence model	42	3893.623	861	.000	4.522

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.149	.771	.739	.677
Saturated model	.000	1.000		
Independence model	.355	.345	.313	.329

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.703	.678	.883	.870	.880
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.921	.648	.811
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	362.588	275.919	457.246
Saturated model	.000	.000	.000
Independence model	3032.623	2842.676	3229.998

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	6.529	2.049	1.559	2.583
Saturated model	.000	.000	.000	.000
Independence model	21.998	17.133	16.060	18.249

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.051	.044	.057	.410
Independence model	.141	.137	.146	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	1375.588	1446.185	1725.584	1835.584
Saturated model	1806.000	2385.537	4679.151	5582.151
Independence model	3977.623	4004.579	4111.258	4153.258

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	7.772	7.282	8.306	8.171
Saturated model	10.203	10.203	10.203	13.478
Independence model	22.472	21.399	23.588	22.625

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	132	137
Independence model	43	44

Discussion

We have argued that intuition is a multidimensional construct and specified five different types of intuition: holistic, emotional, fast heuristic, slow unconscious, and anticipation.

The rational decision-making style consisted of the three sub-dimensions of analytics, knowledge and planning. The result of the factor analysis shows, that the Unconscious Thought Theory is related to the rational thinking styles.

The multidimensional model of intuition had five sub-dimensions. Classical holistic Intuition, Emotional Intuition, Fast Heuristics, Anticipation, and Decision made over Time (based on the Unconscious Thought Theory). The Fast Heuristic style showed four (4) subdimensions: spontanous decisions, experience-based decisions, rule of thumb, and natural decisions.

This instrument was measured using a new self-report instrument, the RHIA approach. These different types of intuition are largely uncorrelated. We also provide evidence for both concurrent and predictive validity of the scales. We have shown that the original RHIA approach provides a multi-faceted, more comprehensive level of intuition than existing measures such as PID, MBTI, REI, GDMS, CoSi, and Pachur and Spaar. It can be used as a complement to other studies. It also forms the basis for a new study on intuition to further develop new scales in a RIEHUA approach.

Therefore, we propose a broader multidimensional domain-specific approach to intuition. The existing scales were reassigned based on the RHIA research paradigm. New questions (items) were developed in the previous RHIA scale development study (Launer, Svenson, 2020). The quick intuition was based on the theory of heuristics. The emotional intuition was based on the latest findings in neurology. Anticipation (e.g. premonitions) was given an expanded theoretical basis based on precognition/anticipation and paranormal scales. A new scale has been added for the Unconscious Thought Theory. Therefore, new scales had to be derived from theory and discussed and tested with managers.

The proposed model has the dimensions rational decisions (analytics, knowledge and planning), Unconscious Holistic Intuition, Emotional and Affective Intuition, Spontaneous and fast Heuristics, Unconscious Thinking (Time delayed Intuition), and Anticipation (pre-cognition). We have found that individuals' decision-making styles differ significantly in the proposed decision-making areas. However, this approach does not imply that the decision-making style of employees belongs to one dimension or the other. They have a mix of different decision-making styles. We argue that there is a difference between the different decision-making styles.

Conclusion

This study has developed and tested new dimensions of intuition based on the RHIA model in a second pilot study (RIEHUA). The five intuitive decision-making styles Classic Holistic Intuition, Spontaneous and fast Heuristic, slow Unconscious Thought (Time-delayed Intuition), Emotional and Affective Intuition and Anticipation (pre-cognition) proved to be valid, reliable and independent variables. Rationality was divided into three dimensions: analytical, planning, and knowing. The RIEHUA Approach will be the basis for our future studies of intuition in a broader sample.

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Embodied Presence, Digital Wisdom and Intuition in the Mindful Metaverse

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Abstract

The aim of this paper is to argue for the retention of Embodied Presence and Digital Wisdom in future metaverse/virtual reality environments, and to make suggestions regarding how that might be achieved. Embodied Presence is the state of having one's attention focused in the present moment, while retaining a strong felt connection to the body and its somatic wisdom (Anthony, 2021, 2022, 2023). Digital Wisdom is an individual's capacity to express a balanced appreciation for both somatic knowing (inner, intuitive knowledge) and how digital systems (the outer) function in relationship with that intuition, such that the individual retains an appreciation for their Authentic Selves. In turn, the Authentic Self is defined as a deeper, embodied expression of self, and especially the ability to live according to one's intuitive wisdom and deepest values.

It is commonly assumed that digital futures are primarily about creating technologies in which human perception will be focused upon external screens and/or virtual spaces. The end result may be that BigTech, driven by surveillance capitalism (Zuboff, 2019), may manipulate, exploit and disempower netizens, directing them away from their Authentic Selves. For example, concerns about the emerging "metaverse" typically suggest that its all-immersive format may subsume netizens' lives and desires, including finances, career, relationships and entertainment, with Big Tech controlling our attention. Yet this paper takes the position that embodiment and somatic wisdom are crucial to all of learning, awareness and wellbeing in online environments, and that this will only grow in importance in the near future. Pervasive learning, which spans multiple online and offline contexts and across the lifespan, will likely become increasingly important as the Digital Society morphs into mataverse-like expressions.

Reason and science are important to developed societies, yet intuitive intelligence and the interceptive are also vital in developing a deeper understanding of ourselves and the world. Research into the extended mind and brain synchronisation are now well established (Paul, 2021). This paper will also briefly outline the author's theory of integrated intelligence (Anthony, 2015, 2021, 2023), which incorporates a total of six layers of information commonly accessed by humans today: the conscious mind, the psyche, the somatic body, the worldwide web, the extended mind and the nonlocal mind. A primary argument of this paper is that competence in understanding all these layers of information will be required in order for future humans to experience a full expression of human consciousness in future, metaverse-like environments (and to honour their Authentic Selves). Finally, the scenarios method (Tighe, 2019) will be used to outline a preferred future of the metaverse - the Mindful Metaverse. Popular dystopian versions of the metaverse can be avoided, even as we build towards a Deep Future of web 3.0.

This paper also introduces a simple dichotomy between Money and Machines Futures, juxtaposed with Deep Futures (Anthony 2010, 2021, 2023). The former features an imbalanced focus upon technology and the capitalist imperative, while the later construct is more closely aligned with green-progressive worldview, and features a greater emphasis upon mindfulness, the relationship with nature and community.

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Education

Acknowledgemet of our Education Network

At this Conference, we research Education, e.g. E-Learning, since 2016. Special thanks go to my colleague and dear friend Prof. Achim Michalke from Ostfalia University at the Campus Wolfenbüttel, Germany. He brought me into the Online Study Program Business Administration at Ostfalia and thought me the basics of E-Learning.

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The educational sector will experience a dramatic change in future – actually, it has already started. New technologies will influence the way we teach and how students learn. We will further research this exciting transformation, e.g. digitalization, augmented reality, blockchain, metaverse, chatGDP, and many others.

The Flipped Teaching Journey of Turkish EFL Pre-service Teachers

Pre-service Teachers' Reflective Perspectives on the Affordances and Challenges in an Erasmus+ Project

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Abstract

Flipped learning is an innovative pedagogical approach where the in-class and out-of-class activities are performed in a reverse order (Hsieh, et al., 2017a). Flipped classrooms are characterized by the delivery of the instructional content via mainly online means such as videos or online multimodal teaching materials (i.e., the pre-class activities) before the in-class sessions that facilitate students' knowledge construction, in-depth understanding of the content and mastery learning experiences via problem-solving activities (Hung, 2017b; Shih & Huang, 2020; Wang & Qi, 2018; Zou & Xie, 2019). The flipped learning approach is based on the Bloom's revised taxonomy where the lower-order cognitive activities (corresponding to the remembering and understanding stages on the taxonomy) are addressed outside the classroom and the higher levels of cognitive activities (corresponding to the application, analysis, evaluation and creation stages on the taxonomy) are dealt with in the classroom with teachers' guidance and peer assistance (Yang et al., 2018). Apart from these, flipped learning was shown to facilitate self-paced learning or differentiation (Van Alten et al., 2019; Lo et al., 2017; Sams & Bergmann, 2013).

The flipped classroom settings promote student engagement in higher order thinking skills or problem-solving activities, peer/collaborative learning tasks under the supervision of the instructors (Zou et al., 2020). In fact, with ample opportunities it offers for the student engagement in higher-order thinking skills and the feedback provision and the negotiation of meaning (Egbert et al., 2007) the flipped methodology is likely to provide "an optimal language-learning environment" (Webb & Doman, 2020, p.44). This innovative approach promotes a ubiquitious, student-centered and autonomous learning environment for students where there is a shift of responsibility from teachers to students (Hung, 2017a; Zou, 2020). They are also supposed to be a guide motivating and giving feedback to students (See Webb & Doman, 2020; Zainuddin & Halili, 2016; Zou et al., 2000). The dynamic interactive learning atmosphere in flipped classrooms (Chuang et al., 2018; Hsieh et al., 2017b ; Lin & Hwang, 2018) is considered to be conducive to student engagement (Zou et al., 2000). Flipped classrooms are also indicated to foster inquiry-based learning and digital literacy skills (Bishop & Verleger, 2013, Strayer, 2012), as well as mastery learning practices (Webb & Doman, 2020).

Despite a variety of benefits listed in the extant literature regarding the flipped classroom approach, it is not without its challenges (Zainuddin & Halili, 2016). In an extensive review on the flipped classroom, Zainuddin and Halili (2016) revealed that insufficient or lack of training opportunities for

teachers who are novice flippers and the poor video quality could be considered two of the most frequent challenges reported in literature.

There has recently been a growing interest in the flipped learning research from multiple perspectives including the attitudes of students towards technology-enhanced language learning and the content knowledge as well as digital literacy skill development (Webb & Doman, 2016; Webb, et al., 2014), the impact of external factors on flipped classrooms (Bakla, 2018; Chang & Lin, 2019; Zou & Xie, 2019), the influence of learner factors on flipped learning (Chuang et al., 2018; Hao, 2016; Lin & Hwang, 2018), the flipped learning process (Wang & Qi, 2018), the student interactions in the flipped classroom (Kim et al., 2017). In fact, during the COVID-19 pandemic, the online synchronous flipped learning approach gained popularity to align flipped learning principles with online instruction - See Marshall (2017) and Marshall & Rodriguez Buitrago (2017). In online synchronous flipped learning out-of-class work now moves to the asynchronous space, and in-class work is completed in synchronous class sessions when the teacher and students' peers are present. It replicates the most important part of flipped learning instruction (the interactive and dynamic nature of learning) when teacher-led activities are moved out of class. By meeting synchronously on a regular basis, both the teacher and students can clearly distinguish between the in-class or synchronous learning context and the out-of-class or asynchronous learning context. In real-time class sessions they can meet and interact with their peers (Marshall & Rodriguez Buitrago, 2017) However, there is a paucity of research on the impact of online flipped teaching experiences on the English as a Foreign Language (EFL) teacher-trainees' professional development.

In fact, this qualitative exploratory case study investigated the impact of an online flipped teaching incengagement of Turkish EFL trainee-teachers within the framework of an Erasmus+ project on their professional development from a reflective perspective in the 2020 and 2021 academic year. The participants were four female senior pre-service teachers enrolled in the English Language Teaching (ELT) practicum course at an English-medium state university in Ankara who were chosen to be the project members in the Erasmus+ project called 'Flipped Impact'. They had an age range between 21 and 25 with a C1 level of proficiency in English. The purposeful sampling strategy was adopted in the participant selection. The participant pre-service teachers were engaged in designing and implementing flipped grammar lessons for eight graders at a private middle school every two weeks for the whole academic year. A private middle school in Ankara with technological facilities. The school promotes differentiated instruction and inclusive practices. Regarding the K-12 learner profile, there were ten 8th graders in the school (2 male and 8 female pupils) with a B1 level of proficiency in English. They were not so motivated to learn English and they needed some instructional support to develop their knowledge of English grammar. They were exposed to 6 hours of English at school per week. The pre-service teachers taught eight flipped lessons in total. They started flipped instruction in the third week of each semester, with the first lesson being a warm-up lesson. Each flipped lesson had a different focus (e.g., reported speech, modals, relative clauses and if clauses). The flipped lessons were observed by the university supervisor (the practicum course

instructor at university) and the two English teachers who were responsible for mentoring the students in the Erasmus+ project and in the practicum course. The data was collected via the pre-service teachers' reflection journals and the semi-structured interviews and was analyzed via content analysis. The findings were classified into two categories: affordances and challenges. The affordances included enhanced awareness towards digital material design process, enhanced pedagogical competence regarding the utilization of authentic materials and differentiation, an improvement in the technological pedagogical content (TPACK) knowledge, enhanced awareness towards the student engagement strategies in a student-centered online learning environment, insights into the diverse teacher roles and the importance of formative assessment in online educational settings. The participants emphasized the importance of obtaining feedback from multiple parties (e.g., peer feedback, supervisor's feedback and the mentor teachers' feedback) as well as the importance of peer collaboration and peer learning in their flipped lesson design and implementation processes. On the other hand, the challenges incorporated how to achieve a smooth transition between the pre-class and in-class activities, how to establish and sustain student engagement strategies in different phases of flipped lessons and enhanced teacher agency and teacher autonomy. The study suggested that engaging in the online flipped teaching experience can be considered conducive to the professional development of the Turkish EFL pre-service teachers in different ways and degrees. Although this qualitative case study was conducted with a limited sample size and in a limited duration, it could provide a road map for teachers and teacher educators who are planning to design and implement their own online flipped classes. The study also underlined the importance of the provision of ongoing pedagogical mentoring for the pre-service teachers designing *and implementing flipped classes to sustain their professional engagement and promote the* effectiveness of the online flipped lessons.

Keywords: Flipped Teaching Journey, EFL Pre-service, Teachers' Reflective Perspectives, Erasmus+ Project

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Programming Education as General Education for Non-IT Students

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Abstract

With the information revolution brought about by the development of information devices and the rapid spread of the Internet, information and communication technologies, which were previously used only by a limited number of people, mainly specialists, have penetrated the lives of the general public. In the information society, where information and communication technologies have become actively used, they are now used to solve various problems and improve people's lives. However, the solution to issues in our daily lives cannot be handled by a group of IT specialists alone but requires the cooperation and involvement of a diverse range of people. IT specialists are not necessarily well-versed in social matters, while the general public is not necessarily well-versed in information and communication technology, and both need to change. Therefore, it is necessary for everyone to acquire basic IT skills and to raise the level of skills in society as a whole, not just the specialized IT personnel that have been required up to now.

In Japan, the 2013 Declaration on the Creation of the World's Most Advanced IT Nation decided to introduce programming education in elementary schools, which began in April 2020. Revisions to the Courses of Study have created opportunities for all students to continue learning programming in junior high and high schools by the 2022 school year. However, there are no required courses in higher education, and not everyone has the opportunity to learn programming.

In Japan, there continues to be a shortage of digital human resources. To compensate for this, the Cabinet Office's Council for the Promotion of Comprehensive Innovation Strategy positioned knowledge and skills related to mathematics, data science, and AI (artificial intelligence) as basic knowledge for the digital society, so-called reading, writing, and abacus-like skills, in its "AI Strategy 2019" in June 2022. On top of that, it calls for the necessity of educational reform as the development of human resources is an urgent issue.

Against this background, as we look ahead to the spread of programming education in elementary schools, the nature of programming education in general information education at universities must also change. In addition, since it takes time for students who have received programming education in elementary school to enroll in university, there is an urgent need to provide opportunities for everyone to learn programming effectively in higher education as well. In addition, since it currently takes 7 or 8 years for students who have received programming education in elementary schools to enter universities, it is urgent to provide everyone with opportunities to learn programming effectively in higher education.

In higher education, it is necessary to consider the continuity from elementary and secondary education and the connection to society and to learn not only the basic knowledge of programming, but also how to use the knowledge learned. As one method to address this issue, we have proposed and implemented an education that includes the practice of software development projects in teams, which is not covered in elementary and secondary education.

Conventional introductory programming courses do not cover software development, and courses focusing on software development assume that students have already completed introductory programming. It is impossible to include both in a single course, so it has been given up.

Therefore, we have focused on introductory programming in general information education that everyone should learn in higher education, and we are developing a Project Based Learning (PBL) curriculum as an introductory level curriculum that not only teaches basic programming knowledge but also includes content to practice software development projects in teams. The curriculum is based on PBL (Project Based Learning). Drawing materials showed that understanding programming principles and acquiring knowledge of software development projects could be achieved in 2 credits (90-minute sessions, 15 lessons). This curriculum enable students to understand the concept of programming and to develop the qualities and abilities required in society.

Curriculum and Materials

The curriculum consists of two parts, as shown in Fig. 1. In the first six sessions, students individually learn basic programming knowledge (such as control structures and abstraction). In the latter nine sessions, students work on team projects according to the software development process. Since it is difficult for beginners to develop software, pictures are used as teaching materials. They draw pictures using shapes such as circles, triangles, and squares (Fig. 2). Each student creates and combines parts of a picture that is divided into several objects, using the picture as software.

This allows students who are not good at computers or mathematics to learn in a way that is easy to understand and enjoyable.

Generally, software development is not done by one person. Team members share roles and work systematically. The use of drawing materials reduces the difficulty, and the visual representation makes it easier to understand and learn about software development projects, even for beginning students.

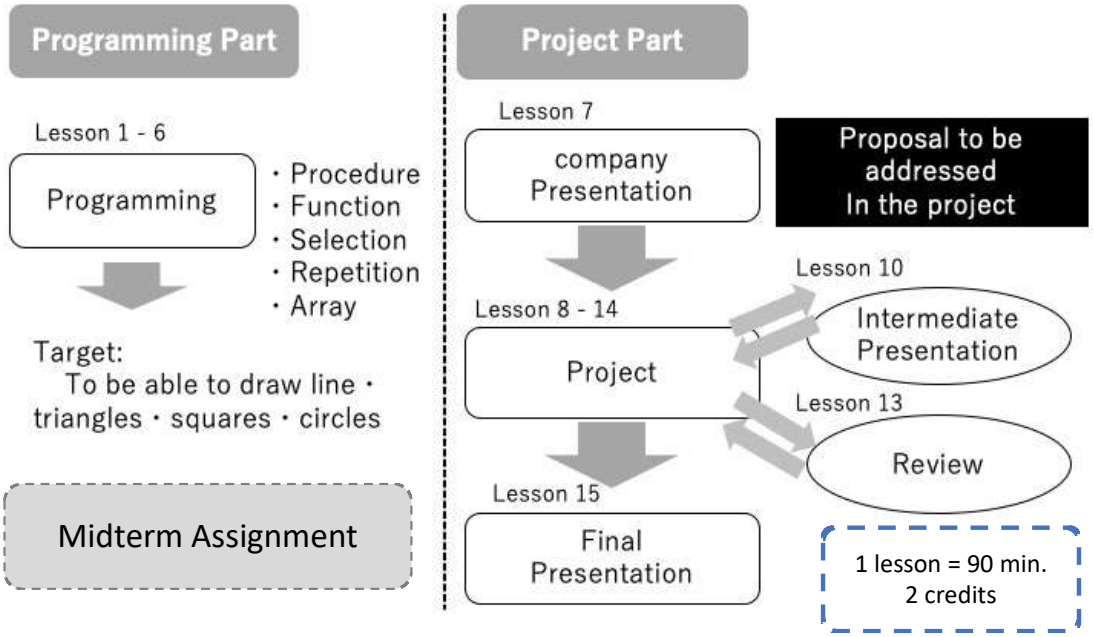


Fig. 1 Structure of the 15 Lesson

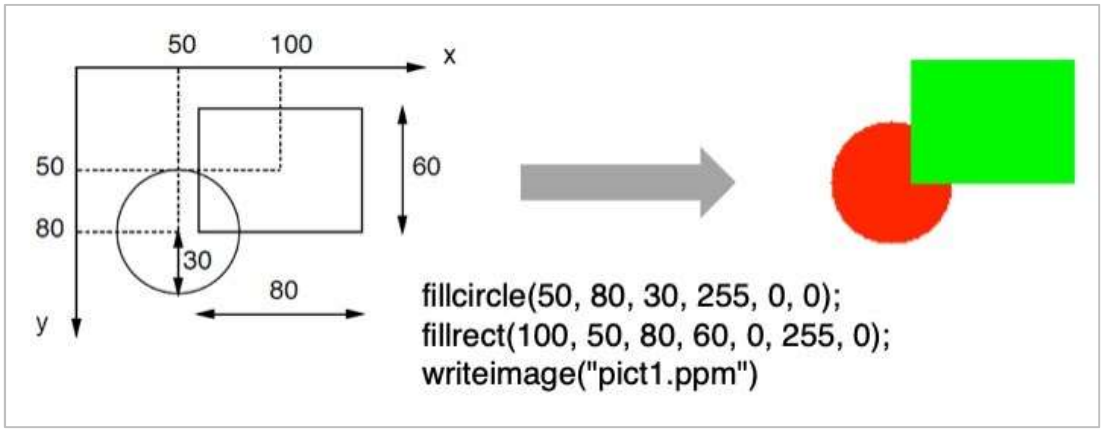


Fig. 2 Sample of teaching material

Conclusion

In the information society of the future, few things can be handled by specialists alone. It is important to develop better information systems by having a team of people with diverse knowledge working together. Students will not learn programming languages, but rather learn programming concepts and understand how it works, which will increase their interest in information technology.

Students who have studied programming in this curriculum are working in various occupations, and they say that the knowledge they have learned is useful for them in their respective positions.

In the future, we will continue to consider educational materials that foster basic knowledge not only in programming education but also in fields such as data science and machine learning.

Motivation to Work in Online Format as a Component of professional Training

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Abstract

Purpose

Intensification of digitalization processes in education actualizes new challenges and new tasks of specialists' training of the psychological profile directly involved in the organization and providing the effective functioning of the inclusive educational environment (Sheremet, Okhrimenko & Suprun, 2020). The aim of the research is to study and to improve the motivation of specialists in the field of special and inclusive education to work in online format according to European experiences and practices.

Theoretical framework

Various scientific researches are devoted to numerous issues of psychologists' professional training. Particular attention is paid to the psychologist' personal qualities as they are related to the specifics of training in higher educational institutions and indicators of the effectiveness of professional activity (Bartram, Roe, 2005; Chepeleva, 1998; Hatcher, Lassister, 2007; Maksymenko, 1999; McClelland, 1973; Panok, 2003; Syniov, 2016; Suprun, 2016, 2018, 2020, 2021 2019). The researches by T. Kanivets (2015), N. Chepeleva (1998) and others are devoted to contemporary problems of motivation to future psychologists' professional self-improvement. The ways of professional training, retraining and advanced training of correctional pedagogues and psychologists in the conditions of inclusive educational space are identified (Demchenko, 2016; Florian, Linklater, 2010; Sheremet, 2017, 2021 etc.). The values of diversity and inclusion in education and society and the vectors of influence on the quality of educational services in the conditions of internationalization and global didgitalization are revealed in the works of G. Afuzova, M. Nesterova, Y. Lyanny, A. Shevtsov, M. Sheremet, D. Suprun, M. Tripak, V. Zasenko and others.

Methodology

The empirical research was conducted during 2020-2022, which involved future specialists of Department of Special Psychology and Medicine, Faculty of Special and Inclusive Education, NPDU. The development of the researched motivation was carried out in two stages: at the first, a psychodiagnostic examination of the sample was provided, aimed at determining the formation of the motivation to work in online format of specialists in the field of special and inclusive education, at the second, the psychological effectiveness of the program for the development of such motivation was investigated. The training program "European practices of motivation development to work in

online format" was provided, based on the experience of scientific cooperation between the Faculty of Special and Inclusive Education of National Pedagogical Dragomanov University and relevant faculties of European countries: Sapienza University, Rome, Italy, Masaryk University, Brno and Tomas Bata University, Zlin, Czech Republic, The John Paul II Catholic University, Lublin, Poland etc. (Suprun, 2022).

The Program of research was built taking into account the peculiarities of the best European practice of online training. It was provided within the framework of ERASMUS Jean Monnet LS projects. Ethics Committee Approval: This research was performed according to the requirements of the Regulations on Academic Honesty of NPDU and approved by the Academic Council of Faculty of Special and Inclusive Education (Protocol No. 1 of August 31, 2022). The preliminary consent to participate in the research was obtained from all respondents.

Thus, the formative stage of the research was conducted during 2021-2022 and was attended by 130 Master's degree students (aged 25-27), specialty 053 Psychology. 71 participants made up the control group (CG) and 59 – the experimental group (EG).

Data Collection Tools:

For achievement the aim with tasks, the set of complementary methods was applied:

- theoretical methods: (analysis, synthesis, comparison, generalization) were used to find out the state of the problem of the motivation to work in online format of specialists in the field of special and inclusive education in the psychological theory and practice of activity and to determine the essence and structure of mentioned motivation;
- empirical (direct and indirect observation, standardized questionnaire survey, semi-standardized individual interviews), psychodiagnostic methods and research techniques were applied: the Rokeach Value Survey (values scales) (M. Rokich), the Bass Orientation Inventory (B.Bass), Measuring of the Motivation to Achieve Success (MAS) and the Motivation to Avoid Failure. (MAF)" (A. Rean, R. Nemov, T. Ehlers), "Motivation to professional activity" (K. Zamfir, modification by A. Rean), made it possible determination of criteria and factors of motivation to work in online format and allowed to carry out a practical test and to determine the psychological effectiveness of the program of motivation development to work in online format of specialists in the field of special and inclusive education (Sheremet, Okhrimenko & Suprun, 2020).

According to tasks, a criteria base was developed, which makes it possible to provide diagnostic of the state of formation of the researched motivation. The criteria for evaluating the level of motivation to work in online format of specialists in the field of special and inclusive education included: the criterion of needs (indicators of self-actualization and generalization of expectations), the value criterion (indicators of value and personal orientations), the personal criterion (indicators of leading trends) and the behavioral criterion (an indicator contains the set of skills and practical solutions of tasks related to the work in online format).

Statistical Analysis: The data of the study were summarized as numbers, percentages, averages, and standard deviations. The statistic methods were applied to process research results, to establish

quantitative relationships between the investigated indicators, to ensure qualitative analysis and verification of empirical data (Student's t-criterion, Fisher's φ-criterion).

Results

Thus, the results of empirical research of motivation to work in online format were next: The high (innovative) level is appropriate for 11,6% . These students were interested in professional activity in online format, had positive attitude to various aspects of it; had a clear focus on self-knowledge and self-development, confidence in the importance of their own efforts to achieve professional goals. The sufficient (productive) level is appropriate for 30,0%. They showed a positive attitude to future professional activity. The average (reconstructive) level is appropriate for 50,0%. These investigated persons demonstrate mostly positive, but in some cases an uncertain attitude towards various aspects of the future professional activity in online format; in general, they are focused on self-development. The low (reproductive) level is appropriate for 8,4%.

Table 1: Levels of formation motivational component of future psychologists to work in online format (n = 130)

The high (innovative)		The sufficient (productive)		The average (reconstructive)		The low (reproductive)	
n	%	n	%	n	%	n	%
15	11.6	39	30.0	65	50.0	11	8.4

The analysis of the obtained results made it possible to make conclusions about the general average and low level of formation motivational component of the students' professional readiness (specialty 053 Psychology, educational program – Practical psychology) to work in online format (Syniov & Sheremet, 2019).

Results after providing the formative stage according to the value criterion. The Rokeach Value Survey (values scales) (M. Rokich): the quantity of respondents of the EG increased from 55.20 to 66.10%, who considered the following terminal values of individual self-realization to be the most significant: self-confidence, productive life, active professional activity. The increase in the individually significant direction of value orientations has been established, which is an indicator of increase of the level of motivational readiness for changes, awareness of own role in the organization of life and professional activities. As example, the analysis according to the indicators of The Bass Orientation Inventory (B. Bass) showed a significant motivation development to work in online format, which was reflected in the quantity increase of participants of the EG with the type of orientation towards the task (from 23.72% to 32.20%), towards oneself (from 25.42% to 37.28%) and in the quantity decrease of interviewees with the focus on interaction and communication (from 50.86% to 30.52%) (differences are significant at $p \leq 0.05$) (Table 2).

Table 2 Comparison of orientation types in EG and CG before and after the research according to the indicators of The Bass Orientation Inventory (B. Bass), %

	Self-orientation		Interaction-orientation		Task-orientation	
	EG (n=59)	CG (n=71)	EG (n=59)	CG (n=71)	EG (n=59)	CG (n=71)
Previous cut	25.42	26.38	50.86	48.00	23.72	25.00
Final cut	37.28	26.38	30.52	47.00	32.20	26.38

The table shows that self-orientation prevails (37.28 %). The quantity with the specified orientation increased by 11.86 %, and by 8.48% – task-oriented, while there were no significant changes in the CG.

Discussion and conclusion

The diagnosis of psychologists' motivation to work in online format allow not only to receive information for reflection and further analysis, but also must be helpful to determine the directions and prospects for professional growth, formation of adequate professional self-esteem, positive self-concept and psychological comfort of the future specialists (Suprun, 2021).

Based on the results of the research it was concluded that one of the main tasks of the practical psychologists' professional training to work in online format should be the formation of specific professional knowledge, skills and abilities within the framework of special obligatory and elective training courses, special courses aimed at mastering by students basics to work in virtual environment (Suprun, 2021).

Particular attention should also be paid to the fact that the reform of the educational field under research requires development of scientific bases of their professionally oriented training to work in online format by eliminating small training courses and by creating integrative trans- and interdisciplinary complexes. This would form the basis for mastering the theoretical bases and practical skills of diagnostic, correctional, rehabilitation, advisory and educational work online.

The obtained experimental data also confirmed the advisability of psychological and pedagogical motivational training programs ("European practices of motivation development to work in online format") in the process of knowledge forming aimed at improving the components of psychologists' professional training such as motivation to work in online format (Suprun, 2020).

Keywords**:** Motivation, online format, component of professional training.

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Peeking through the Maze of eResearch
The Student Researchers' Use of Computer and ICT Applications in the Research Process

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ABSTRACT

This study utilized a descriptive design, employing quantitative research method in gathering pertinent data. It used an online platform in conducting the survey using Google Form involving 51 student researchers of Aklan State University-Banga campus randomly selected from ASU-BSN Batch 2022. These student researchers had undergone all the different phases of research, from conceptualizing to disseminating research results in international research forums. The level of competency of students on the use of technology in the research process was assessed using a modified version of the Computer Skills Assessment for Teachers Instrument by the University of British Columbia (2022) with the following six (6) competency proficiency levels: Expert, Advanced, Intermediate, Basic, and Incompetent.

The results showed that the respondents were knowledgeable about the basic concepts of computers. The tools they used during the conceptual ad design and planning phases were laptops and cellphones with SmartGlobe for internet connectivity. In terms of software applications, they commonly used Microsoft Office and Google Forms. With the search engines, Google Scholar and ResearchGate, during the empirical phase, it used MSExcel, SPSS, and SAS for quantitative data and MSExcel, SPSS Text Analytics, and NVIVO for qualitative data. In the dissemination of results, MSWord was employed for referencing and bibliography, and Grammarly for plagiarism detection.

In terms of ICT tools and software applications during the conceptual phase, their level of proficiency in using Microsoft Office Applications is ($x = 3.33$) and Google Forms Applications is ($x = 3.36$), which are both Intermediate. For literature searches, the utilization of search engines led to an $x = 2.54$ basic level of proficiency. During the design and planning/empirical phases, particularly with the use of ICT tools during data collection, is basic ($x = 2.44$); during the analytical phase, ICT proficiency using Quantitative Method is ($x = 1.80$) and Qualitative Method ($x = 1.16$), which are both developing levels of proficiency; and finally, during the dissemination phase, the level of proficiency for referencing and creating bibliographic compilations is ($x = 2.22$) and plagiarism detection ($x = 2.80$), which are both basic levels of proficiency.

In conclusion, the student researchers understand the fundamental concepts and principles of computer use; they utilize gadgets and ICT software applications across the different phases of the research process; and generally have a basic level of proficiency, which means demonstrating a minimal use of their competency in computer skills and are currently developing it.

Introduction

The use of computers in research highlights the rapid advancement in technology that has affected all aspects of the research process. Hence, according to Mohammed, AJ. et al. (2018), to use computers effectively, student researchers must develop the skills and knowledge necessary to utilize the available technology.

As student researchers traverse the path of the research process using computers, technology-based tools assist them in conducting their work more effectively and efficiently. Activities like submission of a writeshop-like final paper as well as all digital work products pertinent to the assignment, such as research project plans, concept maps, offline copies of websites, notes, annotations, source data, research and writing activity logs, and presentation materials are common (Beasley, J.D., 2004).

In the study of Mohammed, AJ. et al. (2018), The development of electronics, especially computers, has made it possible to precisely and swiftly address research issues that were previously intractable due to the enormous amount of computation needed. As a result, researchers may now carry out intricate study designs using computers to evaluate large amounts of data. Electronic computers are valuable research tools that can significantly support scientific investigation.

This study explored the utilization of technology in the research process among student researchers. It will also look at the knowledge of basic concepts of computers among students; the ICT tools and software they use in the conduct of their research; and their competence in using such technology.

Statement of the Problem

This study aimed to explore the experiences of student researchers in their application of technology traversing the different components of the research process.

Specifically, it sought to answer the following questions:

a) How knowledgeable are the student researchers on basic computer?
b) What are the ICT tools and software applications used by student researchers in the conduct of their research?
c) What is the perceived competency on the use of ICT tools and software applications among student researchers in different phases of research process?

Conceptual Framework

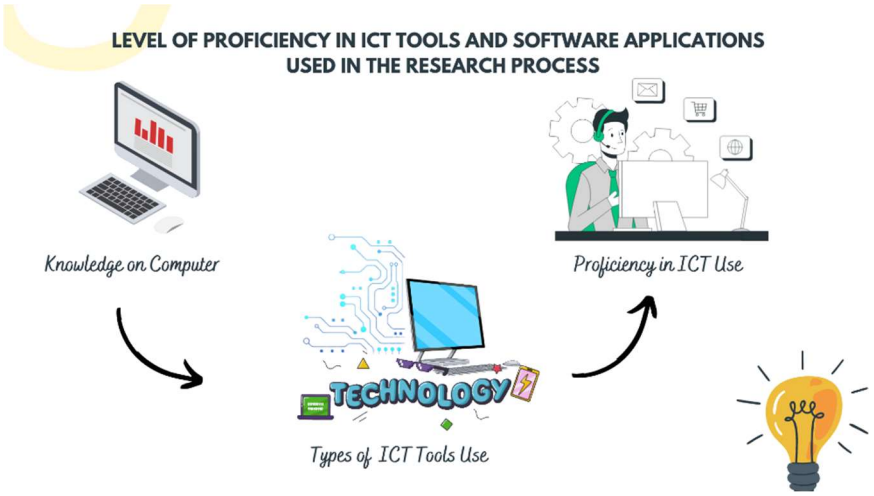


Figure 1. Conceptual Framework of the study entitled “Peeking Through the Maze of eResearch: The Student Researchers’ Experiences in the Use of Computer and ICT Application in the Research Process

Methodology

This study utilized descriptive-quantitative research in gathering pertinent data through an online platform to conduct the survey using Google Form. The descriptive design was used to describe the proficiency of student researchers in applying technology while undergoing the research process. It involved 51 student researchers from Aklan State University-Banga campus, randomly selected from ASU-BSN Batch 2022. These student researchers had undergone all the different phases of research, from conceptualizing to disseminating research results in international research forums.

The level of competency of a student in the use of technology in the research process. This study modified the Computer Skills Assessment for Teachers Instrument developed by the University of British Columbia (2022) and patterned it to the needs of this study. The competency proficiency has 6 levels, which include (5) Expert, which signifies that the respondents demonstrated broad, in-depth proficiency in computer skills; is recognized as an authority or master performer in exercising the competency; (4) Advanced, the respondent demonstrated advanced computer skills and is capable of assisting, consulting, or leading others in the application of the competency. (3) Intermediate, respondents demonstrated a level of working or functional proficiency in computer skills that allows the competency to be exercised effectively [has a working or functional command of the competency]; (2) At the most basic level, respondents demonstrated limited use of computer skills and required additional training to apply without assistance or frequent supervision. (1) Being Developed, respondents demonstrated a limited use of computer skills competency and are currently developing it; and (0) Incompetent, respondents demonstrated no competency in the application of computer skills at all. The data was collated, tabulated, and analyzed using MS Excel. The data was then interpreted using the table below.

Rate	Scale	Description	Illustration
‘ 5	4.5 – 5.0	Expert	The respondents demonstrated broad, in-depth proficiency in computer skills; is recognized as an authority or master performer in exercising the competency
4	3.5 – 4.49	Advanced	the respondent demonstrated advanced computer skills and is capable of assisting, consulting, or leading others in the application of the competency
3	2.5 – 3.49	Intermediate	The respondent demonstrated a level of working or functional proficiency in computer skills that allows the competency to be exercised effectively [has a working or functional command of the competency
2	1.5 – 2.49	Basic	The respondent demonstrated limited use of computer skills and required additional training to apply without assistance or frequent supervision
1	1.0 – 1.49	Being Developed	The respondent demonstrated a limited use of computer skills competency and are currently developing it
0	0	Incompetent	The respondent demonstrated no competency in the application of computer skills at all

Results

Demographic Characteristics of Respondents

Table 1 shows the demographic characteristics of the respondents. More than half (66.67%) of respondents were 22 years old, and more than a quarter (27.45%) were 23 years old, with 21 years old being the youngest for both males and females, and 34 years old being the oldest in females.

Type of Research Conducted

The majority of respondents (70%) used quantitative research methods, while less than a quarter (24%) used qualitative research methods and less than ten percent (6%) used both.

Results of 10-Item Quiz on Basic Computer Concepts

Basic knowledge on Computer Use. Among 51 respondents, only one (2%) failed to reach the 75% mark on the 10-item short quiz, with the majority of them (98%) having a percentile score of 75%–95%. The average or mean score is 7.33, its median is 7, and they have a score range of 4–9. In the raw and percentile scores of 51 respondents, 95% was the highest score and 70% was the lowest score.

Concept commonly known. Among the 10 concepts presented, the concept of question # 3, which is "*Any computer parts that you can touch are considered hardware,"* garnered the highest number of correct answers (98%).

The Least Known Concept Among the 10 concepts presented, less than half (49%) of the respondents failed to provide a correct answer to Question #2, which is about "*Which Windows program do you use to manage folders and files*?"

ICT Tools Used in the Research Process

ICT Tools used during the research process. Among the different ICT tools utilized by the respondents during the entire research process, laptops and cellphones topped the list with 98% and 97%, respectively, followed by Smart/Globe internet connection (74.5%) and desktop with 47.1%. The least ICT tool used was Aklan Cable Connection, with 5.9%.

Software Application in Writing research paper from Conceptual Phase to Dissemination Phase. Software applications are vital in the writing of technical papers in research. All respondents utilized MSWord. More than half (56.9%) of the respondents utilized MSPowerpoint and Google docs, respectively, and MSExcel, with less than half (41.2%) of them. The least software used was Google Slides, with the least percentage (2%).

Search Engine Software Application Used in Data Gathering. The majority (93.9%) of the respondents utilized Google Scholar and ResearchGate (75.5%) search engines in collecting data to guide them in developing their paper. Less than half (49%) of the respondents utilized Encyclopdia Britannica. The least utilized search engine was ReadCube.

Search Engines utilized during searching for literature review. The majority (93.9%) of the respondents utilized Google Scholar and ResearchGate (75.5%) as search engines in reviewing the related literature for their proposals. Less than half (49%) of the respondents utilized Encyclopdia Britannica. The least utilized search engine was ReadCube.

Software Application utilized on data analysis of quantitative data. Among Of the different software applications for analyzing quantitative data, the majority (74.4%) of the respondents utilized MSExcel; less than half (48.8%) utilized SPSS; and 16.3% used SAS.

Software Application utilized on data analysis of qualitative data. Qualitative data can now be analyzed using software applications and more than half (64.3%) of the respondents utilized MSExcel; a quarter (25%) of them utilized SPSS Text Analytics; and 21.4% used NVIVO.

Software Application utilized on referencing and bibliography. Acknowledging the works of other authors or researchers is a must in writing a technical research paper. Thus, referencing is vital, as well as creating a bibliography. The majority (97.9%) of the respondents used MSWord; 14.6% of them used endnotes; and 3.6% used SPSS Text Analytics.

Software Application utilized for Plagiarism Detection. The act of presenting someone else's ideas or work as your own, with or without that person's consent, by incorporating it into your work without giving it due credit, is known as plagiarism. This definition applies to all works, both published and unpublished, whether they are in manuscript, print, or electronic form. Plagiarism can be willful, careless, or accidental (Oxford University, 2022). All of the respondents utilized Grammarly, more than half (68.6%) of them utilized Quilbott and Article Checker (29.4%).

Level of Proficiency on Computer Skills Across the Research Process

ICT Application during Conceptual Phase

Microsoft Office Application. Table 3 shows that the respondents have an intermediate level of proficiency (x = 4.33) in terms of utilizing MS Office applications. An intermediate level of proficiency means that they have demonstrated a working or functional proficiency level in computer skills, which enables the competency to be exercised effectively. In simple terms, the respondents have a working or functional command of the competency. With specific MS Office software, they have an advanced level of proficiency in MSWord (x = 4.33) and MS PowerPoint (X = 20). MS Access has the least level of proficiency, which is Basic (x=2.41). They have demonstrated limited use of competency in computer skills and need additional training to apply without assistance or frequent supervision.

Google Forms Application. The respondents have an intermediate level of proficiency (x = 3.36) in terms of using Google forms. Intermediate means that they have demonstrated a working or functional proficiency level in computer skills, which enables the competency to be exercised effectively. In simple terms, the respondents have a working or functional command of the competency. With specific Google Drive applications, they have an advanced level of proficiency on Google forms (x =3.84) and Google Sheets (x =3.53); the Google Slides (x =3.29) and Google OpenOffice (x =2.78) with Intermediate level of proficiency. An intermediate level of proficiency means that they have demonstrated a working or functional proficiency level in computer skills, which enables the competency to be exercised effectively.

Literature Search - Utilization of Search Engines. In using search engines during literature review, the respondents' level of proficiency is Intermediate x = 2.54), as reflected in Table 4. They demonstrated a working or functional proficiency level in computer skills, which enables the competency to be exercised effectively. Nonetheless, there are two (2) search engines with Advanced levels of proficiency: Google.com (x = 4.43) and Google Scholar (x = 4.33). It means that the respondents demonstrated in-depth proficiency in computer skills and are able to assist, consult, or lead others in the application of the competency. In addition, three (3) search engines, the

Medscape online journal (x=3.060, ScienceDirect (x=2.92) & Microsoft Academic Search (2.53) that have an Intermediate level of proficiency (x = 3.06). The rest of the search engines have recorded basic level of proficiency with Proquest as the least search engine to have the lowest level of proficiency (x=1.59).

ICT Application during Design and Planning Phase and Empiric Phase

Data Collection using ICT Tools. Table 6 shows that the respondents' level of competency in the use of ICT tools in data gathering during the design and planning phase is Basic (x=2.37). Only with the use of Google forms did they have an advanced level of proficiency (x = 3.90) and one for intermediate level of proficiency which is the Telephone Interview. The rest of the ICT tools are at a basic level of proficiency.

ICT Application during Analytical Phase

Data Analysis - Quantitative Method. The respondents lacked the necessary skills in using ICT software used to analyze quantitative data. As reflected in Table 6, in general, their proficiency in it is still basic (x = 1.80) although their proficiency in utilizing excel is in intermediate level (x=3.22), The use of SPSS in still in basic level (x=2.37) same with SAS (x=1.57). The respondents' level of proficiency for rest of the software application used for analyzing quantitative data is still being developed.

ICT Application during Analytical Phase

Data Analysis - Qualitative Method. The respondents lacked the necessary skills in using ICT software used to analyze quantitative data. As reflected in Table 8, across all the ICT tools used in qualitative data, their proficiency in them is still being developed (x=1.16) except with the use of SPSS Text Analyzer which have a Basic proficiency of (x=1.65).

ICT Application during Research Dissemination Phase

References and Bibliography Compilation. As shown in Table 9 on the aspect of the respondents' level of proficiency in referencing and creating bibliographies, it is generally Basic (x=2.22). They have Advanced proficiency, though, with the use of MSWord (x = 4.22).

Plagiarism Detection.

Table 10 shows the respondents' level of proficiency on the use of ICT tools to detect plagiarism is Basic (x=2.80). They have an Advanced level of proficiency in using Grammarly (x = 4.21) and Quilbott (x=63) and Intermediate level of proficiency (x = 2.53) with the use of Article Checker.

Summary of ICT Application in Research Process

Taking into account all the ICT tools utilized in the research process, generally speaking, the respondents have a basic level of proficiency (x=2.46). They have an intermediate level of proficiency when using Google Drive (x = 3.36) and MS Office (x = 3.33). However, the level of proficiency in the use of ICT tools in the analysis of both quantitative and qualitative data is still being developed with (x = 1.80) and (x = 1.16), respectively.

Table 1. Summary table on the distribution of respondents' level of proficiency in ICT Application across the different Research Process

ICT Application in Research Process	Wt Mean	Description
ICT Application during Conceptual Phase -A. Microsoft Office Application	3.33	Intermediate
ICT Application during Conceptual Phase-B. Google Forms Application	3.36	Advanced
ICT Application during Conceptual Phase C. Literature Search - Utilization of search engines	2.54	Intermediate
ICT Application during Design and Planning Phase/Empirical - Data Collection using ICT Tools	2.37	Basic
ICT Application during Analytic Phase - Data Analysis - Quantitative Method	1.80	Basic
ICT Application during Analytic Phase - Data Analysis - Qualitative Method	1.16	Being Developed
ICT Application during Presentation and Dissemination Phase - References and Bibliography Compilation	2.22	Basic
ICT Application during Presentation and Dissemination - Plagiarism Detection	2.80	Intermediate
GRAND MEAN	2.46	BASIC

Legend

Expert	4.5 – 5.0
Advanced	3.5 – 4.49
Intermediate	2.50 – 3.49
Basic	1.50 – 2.49
Being Developed	1.0 – 1.49
Incompetent	0

Discussion

The Commission on Higher Education (CHED) pushes for quality education, particularly among higher education institutions (HEIs). An intervention by the Philippine Government aimed to address and ensure the integration of Sustainable Development Goals (SDGs) in the curricular offerings that produce professionals supporting nation-building. Research, which is part of the academic curriculum, is difficult to do, although it is important to know and understand its importance. Students struggle to come up with even the research problem; how much more is the use of ICT tools and their applications in the research process?

Computer, ICT Tools and the Research Process.

It seems like university students have a grasp of the basic concepts of computers and their utilization. The study showed that out of 51 respondents, only one failed to reach the 75% passing score. This means the majority (98%) of them are knowledgeable about operating and manipulating computers and their ICT applications. This result is similar to the study of Link, T.M., and Marz, R. (2006), where 94.4% of the students had computer knowledge. This valuable knowledge of computers is an advantage for students who undertake research.

The availability of computers and accessibility to an internet connection is also important for student researchers. In the study of Link, T.M., and Marz, R. (2006), nearly all students (94%) have access to a privately owned PC they can use for their studies, either one they own (74%) or one they share with family or roommates (20%), and five (5%) percent of users mostly rely on public computer facilities. They also have internet access, though connectivity quality varies greatly. They were connected via DSL, cable TV, or LAN. One can say that a researcher cannot produce quality research output in the absence of a computer and internet connectivity. Marketing Charts (2013) cited that majority of college students (85%) own a laptop, although the ownership of smartphones and tablets is higher than that of mobile phones (33% and 70%, respectively). Currently, nearly all (97%) two-year and AA students live off campus, so they may use a desktop computer that already exists in their household as well as a personal laptop (Gierdowski, D., 2019).

According to Mohammed, A.J., Muhammad, N.M., & Shittu, T. (2018), computers have opened up new possibilities for data processing in modern and social scientific research, resulting in valuable knowledge and information and incorporating this new technology into the research process makes it more efficient, accurate, and cost-effective. Computers are used throughout the research process wherein they performed a variety of tasks, including data encoding, storage and retrieval, analysis and interpretation, and dissemination of study findings. Every step of the research process benefits from the use of computers (Mitta, Sapna, 2018).

ICT Tools and Their Application to the Research Process

Research process according to Singh (2021) is made up of a series of steps or actions necessary to successfully conduct research from conceptualizing of research proposal to disseminating research

results. ICT applications are primarily employed by researchers since they make the process of acquiring knowledge easier and support resource development (Mitta, Sapna, 2018). ICT technologies give researchers the freedom to choose the most original approaches to defining and resolving research challenges. ICT tools assist the researcher in providing context and accuracy (Scholarify.com, 2020). The integration of computers and ICT into the research process creates a new dimension, a new realm, causing research to immerse in the digital world, giving rise to the term "eResearch."

The study results showed respondents relied on ICT applications in almost all research activities across different phases of the research process. From identifying the research problem to searching for literature reviews, developing hypotheses, and implementing the methodology, they utilized a variety of ICT tools, like Microsoft applications like MS Word, MS Excel, and MS PowerPoint. They also engaged in different search engines for literature searches, like Google Scholar, ResearchGate, etc. The study of Strutynska, O. & Umryk, M. (2017) also reflected their respondents' scientific portals usage where Google Scholar topped the list as well followed by Research Gate. The use of computers and ICT tools aids in literature searching as well as finding relevant existing research papers, making it easier for researchers to identify gaps in the body of knowledge. ICT applications for saving references to published works were utilized (Mitta, S., 2018).

This study revealed that the respondents used software applications for analyzing both qualitative and quantitative data. These include SPSS and SAS for quantitative data. For qualitative data, the students utilized SPSS Text Analytics and NVIVO. It can be noted that they commonly utilized MS Excel in analyzing data quantitatively and qualitatively. These software applications aid researchers in determining the reliability and validity of data. It facilitates the creation of tables, figures, and graphs for simple data interpretation (Mohammed, A.J. et al., 2018). It can be said, then, that software applications for data analysis and interpretation are very valuable for student researchers, much more so in data gathering to make it easier.

This study cited MS Word, endnotes, and 3 SPSS Text Analytics for creating their bibliography and referencing. The most recent computers have the ability to automatically write references in several styles, including APA, MLA, and others (Mitta, Sapna, 2018). Aside from the importance of recognizing the works of authors, it is vital to ensure that the work of authors is not claimed by others as their own, with or without consent, without giving it due credit when incorporated into a new research output (Oxford University, 2022). The study results showed respondents utilized Grammarly, Quilbot, and Article Checker.

Level of Proficiency in ICT Application to Research Process

Research as part of the academic curriculum is difficult to do, although it is important to know and understand its importance. Students struggle to come up with even the research problem; how much more is the use of ICT tools and their applications in the research process? This is every evident in the study's results which showed respondents have only a basic level of competence overall. It

means the respondents demonstrated only limited use of computer skills and required additional training to apply without assistance or frequent supervision. This is common among undergraduate students, as cited in the study of Ismuratova, S.I., et al. (2018), who found that undergraduates lacked the basic and optimal levels of research competencies. In another study, Infante-Moro, A. et al. (2019) showed a lower degree of competency among students on (a) the use of diagrams or schemes to show the relationships between ideas and concepts; (b) visual organizers and software for creating conceptual and mental maps (CmapTool, Mindomo, etc.); and (c) the ability to design, develop, or edit a wiki (examples include Wikispaces, Nirewiki, etc.). On the other hand, the study also showed that in some aspects of ICT tool applications, the student obtained a high level of competency in computer skills in terms of (a) the ability to use various mobile devices (smartphone, tablet, PDA); (b) the ability to communicate with other people via the Web using synchronous communication tools (chat, instant messaging services, Skype, etc.); (c) the ability to effectively use the university's virtual campus (Moodle, WebCT, etc.) as support for face-to-face teaching; and (d) interaction with other colleagues and users via social networks (Facebook, Ning, Twitter, etc.

Research skills can significantly improve academic success thanks to digital resources and expertise. Student researchers must be ready to have digital competencies because interacting with others using digital tools or in digital environments is a reality. They will be able to conduct research tasks more effectively because to these competencies (Castillo-Martinez, I.M & Ramirez-Montoya, M.S., (2021).

Conclusions

This study concludes that:

1. The student researchers understand the fundamental concepts and principles of computer use.
2. The student researchers utilized gadgets and ICT software applications across the different phases of research process.
3. Generally, the student researchers have a basic level of proficiency in terms of the use of ICT tools and software during the research process. They demonstrated a minimal use of their competency in computer skills and are currently developing it.

Research Recommendations

1) The preparedness of research faculty to teach research technology integrated in the syllabus of research
2) The preparedness of the university to provide ICT needs if research technology courses are approved and implemented
3) Level of ICT Proficiency among Research faculty

University Curriculum Development Committee

1) To enhance the proficiency of students with the use of ICT tools and software intended for research, academic programs with research as a requirement for graduation should enrich their program by integrating "Research Technology courses" into the curriculum.

Academic Program with Research Requirement

1) To enhance the proficiency of students with the use of ICT tools and software intended for research, “ICT tools software applications” useful for research should be integrated into the syllabus.
2) Create interactive instructional videos on how to use ICT tools and software applications useful for research but can be accessed offline. T
3) The inclusion of capability building on the use ICT tools and software among research faculty in both faculty and training development plans and its corresponding budgets thereof.

Administration

1) The ASU Library should provide online access to web libraries that require a subscription to avoid subscription fees among students.
2) The university should provide access to internet connectivity for students who conduct research and write research papers.
3) The university should provide access to computer laboratory for students who have no capacity to buy their own gadgets like computers, laptops, tablets and the like.

Keywords: ICT Tools, software application, research process

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Evaluation of Lecturer Opinions towards Challengings during E-Learning

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Abstract

Education has been affected by the development of information and communication technology. Thus, one of the opportunities ICT brings to the educational setting is E-learning technology (Salloum and Shaalan, 2018). ELS is a state-of-the-art methodology for learning and teaching in digital environments aimed at improving education by enhancing the teaching and learning processes. Therefore, E-learning was an intelligent choice to continue education during the (CO-19-CR) period. Human lives globally have been affected by the COVID-19 pandemic. Since the suspension of universities started, e-learning has been the first notion of compensation for face-to-face education. E-learning is a familiar concept in universities and institutes everywhere. Faculties have provided e-learning services to students to allow learning, administrating, sharing, and enabling educational activities in a simulated environment close to the traditional schooling environment (Persico et al., 2014).

Furthermore, e-learning makes the learning method easier by raising the approachability and obtainability of curriculum material (Uppal et al., 2018), learning resources, updated content, individualized instructions, cost-effective, self-learning, communicative media, and interaction (Al-Fraihat et al., 2017). The lecturers' opinions are also considered an essential issue in distance education because understanding lecturers' opinions towards the e-learning systems during the pandemic will help identify the factors leading to system success or failure. Where the continuity of the current educational process proved its eligibility, there are many studies about the e-learning system during a pandemic.

However, a few research studies in Iraq, Cyprus, and Germany discuss lecturers' opinions in detail. The quantitative research method was followed to assess lecturer opinions towards e-learning system success during the pandemic. In order to achieve the aim of the study, answers were sought to the following questions: What are the lecturers' opinions related to the technological competencies of e-learning during the pandemic? What are the lecturers 'opinions about the challenges they face in e-learning during the pandemic? What is the lecturers' opinion on the benefits added to lessons through the DE process during the pandemic? An interview method was used to collect 81 voluntary lecturers. 59% of the lecturers are male, and 40% are female. 14 "Prof. Dr.", 3 "Assoc. Prof. Dr.", 7 "Assist. Prof. Dr.", 13 "Dr.", and 44 "Assistant Lecturer" attended. Interviews were conducted online and recorded. After collecting answers from the lecturers by conducting an interview; all answers are saved and downloaded to the computer, and the researchers prepare data to be analyzed by carrying out in-approach analysis; The researcher's aim of analyzing quantitative data with the

mentioned approach is to highlight important data and deep opinions of the lectures instead of summarizing it and this what promote by (Maguire and Delahunt, 2017). Further, consider implementing a flexible procedure (Terry et al., 2017).

According to Krippendorf (2018), to implement an in-depth content analysis approach, specific steps must be followed: Step1: preparing data, Listening to participants' answers, and re-reading; it is necessary to take an overview of the data. Step 2: Organize the transcript and coding, and create code for each critical data. Step 3: Create themes semantically; themes are bigger than code. Step 4: Revise themes to correct or modify generated themes. Step 5: Define each theme—step 6: Interpret report data in the result section.

Regarding lecturers' opinions, e-learning significantly benefits the lessons, and most lecturers have sufficient technological skills for e-learning. At the same time, the lack of internet service was the biggest challenge they faced. At the same time, poor educational technology experience is also a significant challenge that lecturers face during e-learning. Also, twelve lecturers faced practical course challenges. It has been shown that the students have difficulties understanding the practical lessons in some subjects. In other words, in the lecturers' opinion, student concentration in the virtual classroom is difficult to control. Students cannot be forced to pay attention while they are not in the regular classroom. Although significant numbers of them clearly stated the challenges lecturers face, three of the lecturers implied that they are not experiencing any challenges. The study recommends adopting more questions and covering more issues such as security, regulatory and educational aspects. With more questions in the interview, the lecturers could obtain accurate opinions and broader coverage of evaluation procedures such as the technical level, Institutional impression, and semantic level. The study recommends conducting comparative research to assess the success of e-learning between universities in developing countries and universities in developed countries with a larger sample size. The study outcome was expected to help academic staff and learners with further research. The research findings will also help stakeholders develop a prototype proposed to educational institutions included in the study by redesigning minimal e-learning problems during the covid-19 pandemic and whether it can be used as an alternative to regular learning.

Keywords**:** E-learning, distance education, lecturers' opinion, interview

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Students' Perceptions of Teleskwela as a Learning Platform in the Context of COVID 19 Pandemic

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Abstract

Introduction-Educational institutions worldwide were affected by the COVID-19 pandemic. Many schools shifted education to online platforms to continue teaching and learning. Despite the effort of the DepEd to provide necessary operational directives across all schools through BELCP, the shift to remote learning has brought extra difficulties for learners who have special learning needs and disabilities, such as lack of access to educational supports, difficulty interacting with technology, and personalized learning intervention. With this, educators have swiftly modified their methods in response to these difficulties and created innovative strategies for delivering quality and inclusive education for all learners. COVID-19 has upended education systems globally, posing unforeseen difficulties in delivering quality education for all. Schools quickly adapted to the COVID-19 lockdown and shifted to other modalities of teaching and learning. UNESCO (2020) mandated the different learning modalities, including TV-based learning, to clarify this issue brought about by the pandemic. Educational TV program is one of the innovative strategies for delivering inclusive education that caters to the learning needs of the students. TV-based learning is one of the best alternatives this time of pandemic and even post-pandemic because it is equitable and inclusive that promotes lifelong learning opportunities for all students aiming for Sustainable Development Goal for education no.4, achieving quality education.

Purpose

This study explores the pedagogical perceptions and experiences of the grade 12 students on Teleskwela as an educational Television (TV) program at a local network called Central Luzon Television 36 to serve Kapampangan students and teachers during the time of the COVID-19 pandemic.

Methodology

This study is an exploratory research design using a validated semi-interview questionnaire with in-depth interviews. In this qualitative study, the purposive sampling technique was used. The study was conducted among 20 grade 12 students from Senior High School in Apalit (Stand Alone 1) San Vicente, Apalit , Pampanga. The permission was asked first from the school principal and an informed assent form from the parents of the students was also provided. The participants were properly informed about the implementation of the study. Permission was received from the parents and participants to ensure the ethical consideration of this study. It was noted that the participants'

responses were kept private.The interview was conducted by the researchers through messenger and google forms modality. Responses from the participants were recorded and transcribed accordingly. For the students to not be hesitant in answering the prepared questionnaire, questions were translated into Filipino during the interview. After the individual interview, there was a need to conduct a Focused Group Discussion (FGD), to have the follow-up questions and get the main point of the participants responses. FGD was also designed to ensure the consistency and validity of student's responses. Data analysis and thematic analyses were used in analyzing and interpreting the qualitative data gathered through in-depth interviews. Thematic analysis was used to generate themes on students' best learning experiences and challenges. The data gathered from the thematic analysis were transcribed and coded accordingly to get the main point of the participants. Significant statements which consist of both anchors (words and phrases) and specific experiences were identified and presented.

Findings

The result shows that students varied perceptions such as they perceived Teleskwela as (1) a teachers and learners-friendly platform, (2) promotes transformative learning experiences through the use of media and technology, and (3) offers a quick guide to understanding the critical science concept. Also, the result shows best learning experiences of the students on teleskwela (1) students are motivated to learn, and (2) teleskwela serve as a source of information. However, there are several challenges that students and teachers are faced with: (1) the length of each episode and module (2) the planning and scheduling of Teleskwela episodes (3) unstable internet connection (4) unfavorable learning environment at home for many students.

Conclusion

Based on the result of this study, it is concluded that Teleskwela is a good alternative learning material and platform because it is a friendly platform for the learners, motivates students to learn, and offers a quick guide to understanding science concepts. Additionally, it confirms that the students have acquired their required learning competencies in science in the remote context, ensuring the DepEd learning continuity plan's success. The safety of the students is also ensured when learning while watching Teleskwela at home. While learning at home, Teleskwela also helps learners to feel excited and motivated to quickly answer their self-learning modules. Thus, this study has concluded that it is vital to provide appropriate learning material such as Teleskwela to help the students easily understand science concepts during this time of the pandemic. However, based on the responses of the students, Teleskwela has limited examples and the teacher discussants are fast in delivering the lesson due to limited airtime provided per subject. To minimize the problems and difficulties faced by the learners, Teleskwela teacher scriptwriters must simplify the lesson and provide more contextualized examples so that students could relate more to them. Thus, the findings of the study may give an opportunity to develop guidelines for producing educational TV programs and

knowledge channels in a hybrid education. In addition, the TV program production team must ensure an organized and planned knowledge channel to deliver quality learning material.

Recommendation

The result of the study recommended that Teleskwela needs to be reviewed in terms of length of episode and module and provide more contextualized examples so that students could relate more to it. Furthermore, the parent and teacher collaboration must resolve the emerging challenge brought by the surrounding at home, such as the distracting noise and the additional household workloads at home. Parents must provide a good condition of learning at home for their child to gain optimized learning. Moreover, the production and airing of Teleskwela must continue even after the pandemic in the provision of continuous improvement of the TV program. More research is recommended to be done about Teleskwela as learning material in the COVID-19 pandemic for future researchers. Employing a large sample size to generate more complete data for context generalization should also be considered.

Keywords**:** COVID-19, Inclusive Education, TV-based learning

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Knowledge Acquisition and Organizational Performance
An empirical study of National Teachers Colleges (NTCs) in Uganda

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Abstract

The role of knowledge as the essential source for competitive advantage in organizations has become critical. Many companies know that to operate effectively in today's economy, it is necessary to become a knowledge-based organization. However, only a few truly understand what that means or how to implement the changes required to bring it about. The purpose of this research is to assess the impact of knowledge acquisition on the organizational performance of NTCs in Uganda. Collecting the data was done in July 2022, targeting a sample of 141 teaching staff. It was concluded from the study that there was a significant positive impact of knowledge acquisition on the performance of NTCs in Uganda. The article consists of the following parts: a literature review, methodology part, research results, and conclusions with the description of the study's implications, limitations, and future research ideas.

Introduction

A large stream of literature has emphasized the role of knowledge management as central to any business's success. Research on knowledge acquisition and organizational performance at Higher education institutions (HEIs), however, is still needed. The purpose of this research is to assess the impact of knowledge acquisition on the organizational performance of NTCs in Uganda. The NTCs are Higher education institutions (HEIs) in Uganda. The article consists of the following parts: a literature review, methodology part, research results, and conclusions with the description of the study's implications, limitations, and future research ideas.

Conclusion

This study was conducted to investigate the impacts of acquisition processes (including data/information searching, data/information analysis, and data/information validation) on the performance of NTCs in Uganda. Using a quantitative survey method, the results demonstrate that knowledge acquisition positively impacted the performance of NTCs in Uganda. The major reason for conducting this research is to utilize its findings to propose a new approach to organizational norms and values for the NTCs in Uganda to support their knowledge management which will help in improving their performance. This approach will focus on how the NTCs can integrate their

knowledge assets that include databases, people, experience, and expertise of these people, systems, policies, and procedures during knowledge management for their better performance.

Keywords: Knowledge acquisition, organizational performance, Higher education institutions (HEIs)

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Investigation of Secondary School Teachers' Information Security Awareness Levels

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Abstract

Purpose

It is necessary for schools to inform their students about information security from a young age by taking advantage of the didactic methods and the advantage of being together with young computer users (Beyer ve Westwndorf, 2010). For this reason, it is thought that it will be useful to determine the information security awareness levels of secondary school teachers who prepare their students for the present and the future, and to determine the aspects that need to be improved. The purpose of this study is to examine the information security awareness levels of secondary school teachers.

Theoretical Framework

With the increase in internet use and the development of digital tools, our habits such as banking, education, shopping, communication, etc. have changed a lot and all these processes have become easier and faster (Dönmez, 2019). While real life and virtual life are intertwined, all the critical information of the users has started to be stored in the virtual world with devices or the applications on the technological devices (Güldüren, Çetinkaya ve Keser, 2016). As a result of digitalization, the accessibility of information via remote access, its increase in value and its unconscious use; it has increased the efforts of malicious people to obtain this information, and has led to the emergence, increasing and diversification of millions of threats such as viruses, spam, spyware on information security (Solmaz, 2020; Teker, 2019; Huang, Rau & Salvendy, 2010). For this reason, the issue of information security has gained importance day by day, and the importance of raising awareness about information security problems and threats has emerged (Olsen ve Tokerud, 2020).

Teachers should take responsibility for information security, be able to chat with their students about this issue, and be a role model for information security with their behaviors (Gallego-Arrufat ve diğerleri, 2019). For this reason, it is important to determine teachers' information security awareness levels. It is thought that teachers who can be a role model and guide their students on information security will contribute to the information security awareness of the society in the form of a chain over time.

Methodology

The relational survey model, which is one of the quantitative research methods, was used in the research conducted to examine the information security awareness levels of secondary school teachers. The study group of the research consists of 538 secondary school teachers who worked

in Tokat province and its districts in 2021-2022 and voluntarily agreed to fill in the data collection tool. Convenience sampling method was used while forming the sample of the study.

The following problems are included.

What is the level of information security awareness of secondary school teachers?

Information security awareness levels of secondary school teachers; does it differ according to the variables of gender, professional experience, branch, and the frequency of internet use?

Demographic information form and “Information Security Awareness Scale for Teachers” developed by Çetinkaya, Gülderen and Keser (2017) were used in the research. The demographic information form used in the research consists of the questions asked to be answered before the scales in order to reach the participants' gender, education level, professional experience and daily internet use. The scale used in the study, on the other hand, has a valid and reliable structure when psychometric properties are taken into account.

Results

In order to apply the parametric test, it was examined whether the data showed a normal distribution or not. It was concluded that the data showed a normal distribution.

Table 1 Information Security Awareness Levels of Secondary School Teachers

Scale and Factors	N	x̄	Ss
Security Awareness Levels	538	3.388	.845
F.1	538	3.853	.716
F.2	538	2.818	1.049
F.3.	538	3.591	.944

It is seen that; the information security awareness level of secondary school teachers is medium (x̄=3.3885). When the sub-dimensions of the information security awareness level were examined, the participants' general security (x̄F1=3.8539) average and Mobile Devices - Privacy and Communication (x̄F3=3.5911) average were high. The level of attacks and threats (x̄F2=2.8182) from the sub-dimensions of information security awareness is at medium level and has the lowest average.

Information security awareness levels were examined according to gender, it was found that the mean of male (x̄=3.5425) was higher than female (x̄=3.2718), and there was a significant difference in favor of male according to the Independent Sample t-test ($t(536)= -3.719$; $p<0.05$).

Table 2 Information security awareness level according to gender variable

Scale and Factors	Gender	N	x̄	Ss	Sd	t	p
F.1	Female	306	3.788	.717	536	-2.448	.015
	Male	232	3.940	.707			
F.2	Female	306	2.655	.992	536	-4.185	.000
	Male	232	3.032	1.086			
F.2	Female	306	3.480	.953	536	-3.143	.002
	Male	232	3.736	.913			
Security Awareness Levels	Female	306	3.271	.829	536	-3.719	.000
	Male	232	3.542	.844			

When the

Table 3 Information security awareness level according to professional experience

Scale & Factors	Experience	N	X̄	Ss	Sd	F	P	Differences
F.1	(1)0-5 years	83	3.869	.690	4	2.062	.085	No
	(2)6-10 years	171	3.772	.747				
	(3)11-15 years	123	3.938	.685				
	(4)16-20 years	86	3.975	.709				
	(5)21 and over	75	3.743	.710				
	Total	538	3.853	.716				
F.2	(1)0-5 years	83	2.885	1.034	4	1.655	.159	No
	(2)6-10 years	171	2.737	1.012				
	(3)11-15 years	123	2.889	1.019				
	(4)16-20 years	86	2.981	1.133				
	(5)21 and over	75	2.622	1.081				
	Total	538	2.818	1.049				
F.3	(1)0-5 years	83	3.678	.954	4	3.244	.012	Yes
	(2)6-10 years	171	3.546	.929				
	(3)11-15 years	123	3.701	.861				
	(4)16-20 years	86	3.715	.991				
	(5)21 and over	75	3.273	.986				
	Total	538	3.591	.944				
Security Awareness Levels	(1)0-5 years	83	3.449	.836	4	2.566	.037	Yes
	(2)6-10 years	171	3.321	.831				
	(3)11-15 years	123	3.478	.792				
	(4)16-20 years	86	3.525	.911				
	(5)21 and over	75	3.170	.860				

One Way Anova test was applied to check whether there is a significant difference in the information security awareness levels of secondary school teachers according to their professional experience. It is seen that there is a statistically significant difference in the information security awareness levels of the teachers, according to the professional experience variable (F (4-537)= 2,566; p<,05;=.037).

Table 4 Information security awareness level according to internet usage time variable

	internet usage time	N	x̄	Ss	Sd	F	P	Differences
F.1	(1) less than 1 hour	35	3,729	.696	3	5,312	.001	Yes
	(2)1-3 hours	308	3,768	.703				
	(3)4-5 hours	114	3,975	.660				
	(4)5 hours and above	81	4,061	.790				
	Total	538	3,853	.716				
F.2	(1) less than 1 hour	35	2,405	.825	3	12,373	.000	Yes
	(2)1-3 hours	308	2,654	.970				
	(3)4-5 hours	114	3,049	1,051				
	(4)5 hours and above	81	3,291	1,203				
	Total	538	2,818	1,049				
F.3	(1) less than 1 hour	35	3,276	1,051	3	6,021	.000	Yes
	(2)1-3 hours	308	3,500	.910				
	(3)4-5 hours	114	3,706	.875				
	(4)5 hours and above	81	3,908	1,026				
	Total	538	3,591	.944				
Security Awareness Levels	(1) less than 1 hour	35	3,090	.792	3	9,549	.000	Yes
	(2)1-3 hours	308	3,273	.798				
	(3)4-5 hours	114	3,546	.809				
	(4)5 hours and above	81	3,731	.958				

When the One Way Anova analysis findings are examined, it is seen that there is a statistically significant difference in the information security awareness levels of the participants according to the variable of internet usage time (F(3-537)=9,549; p<.05;=.000.

Discussion and Conclusion

According to the findings, the information security awareness of the secondary school teachers was found to be at a moderate level. When the information security awareness literature is examined, Özbek (2019) stated that the cyber security awareness of pre-service teachers was moderate in a study, and that the information security awareness of teachers was slightly above the average in a study conducted by Canoğulları (2021) with primary and secondary school teachers.

It is seen that gender had an effect on information security awareness, and males had higher awareness than females. It is thought that males more interested and positive attitudes towards technology, less anxiety about technological applications (Çelik, 2012) may have been effective in men's higher awareness of information security. In the literature, it has been stated that male teachers show higher awareness than female teachers, which supports this result (Altunbasan Yerlikaya, 2019; Canğulları, 2021; Keser & Yayla, 2021; Yılmaz, Şahin, & Akbulut, 2016).

When the awareness of information security was evaluated according to professional experience, it was seen that there was a statistically significant difference. It is noteworthy that the average of teachers with 21 years or more professional experience in the scale and in its sub-dimensions is the lowest, and the significant difference is against the teachers with 21 years and more experience. According to Weeden et al. (2013), teachers should increase their awareness of information security and provide the necessary support to students.

It is seen that there is a statistically significant difference between the mean of secondary school teachers from the information security awareness scale, according to the duration of internet use. According to the results of the analysis, it has been concluded that there is a difference in favor of users who use the internet for 4 hours or more across the information security awareness scale. When the overall scale and its sub-dimensions were examined, it was seen that the teachers who used the internet for 5 hours or more had the highest average. It can be said that this situation increases their awareness of having more experience in information security with more internet use. In the literature, teachers who use the internet more (Altunbasan Yerlikaya, 2019; Yılmaz, Şahin, & Akbulut, 2016), administrative and academic staff (Öztezcan, 2017), teacher candidates (Özbek, 2019), high school students (Dönmez, 2019), secondary school students (Derin and Gençoğlu, 2020) stated that their awareness of information security is higher. There are also studies that do not support the results of the research and state that there is no significant difference in information security awareness levels according to the variable of duration of internet use (Gökmen & Akgün, 2014; Teker, 2019).

It is recommended that teachers keep themselves up-to-date on information security. The sample of the research can be expanded and reapplied. Research can be repeated using the mixed method to obtain more in-depth results.

Keywords**:** Information security, secondary school teachers

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The Use of Online Learning in developing Intercultural Communicative Competence

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Abstract

With the acceleration of globalization with both economic and socio-cultural dimensions, open and distance learning environments accelerate the internationalization of education by bringing many learners, institutions and universities together. Developing science and technology and the widespread use of communication network led societies to get closer. It is necessary to understand the values and norms of the foreign culture in order to successfully communicate and maintain communication with people from different cultures (Haldan & Pekbak, 2019). With distance education applications, learners are provided with flexible learning environments and opportunities that are learner-centered, at their own pace, open to communication and interaction, without space and time limitations. It is clear that there are different cultural elements and these elements should be taken into account when designing courses for learners from different cultures in distance learning environments. In online learning environments where learners from different cultures take part, the choice of activities and methods related to the course is important (Kartal et. al, 2018).

The aim of this study is to reveal how personal management, personal development, group cooperation and management, knowledge management, and duties and responsibilities contribute to increasing the intercultural communication skills of teacher candidates who take ethics and morality courses in online learning environments.

For this purpose, answers to the following research questions were sought; (1) How do personal management and personal development contribute to increasing intercultural communication skills in an online learning environment? (2) What is the contribution of group cooperation and management in increasing intercultural communication skills in an online learning environment? (3) How does knowledge management contribute to increasing intercultural communication skills in an online learning environment? (4) How does the management of duties and responsibilities contribute to increasing intercultural communication skills in the online learning environment?

In order to achieve this aim of the research, qualitative research method was used. In the study, as a qualitative data collection tool, semi-structured interview form and public reports were analyzed, semi-structured interview questions were prepared and research questions were asked. In the

qualitative research approach, in-depth interview (face-to-face interview), direct observation and document analysis techniques are generally used to collect data. In the face-to-face interview technique method, the reasons that form the basis of the answers of the participants are also the source of revealing many dimensions such as emotions, thoughts and beliefs (Legard, Keegan, & Ward, 2003). Purposive sampling method was used in the research and 120 pre-service teachers took part in this study as participants. Purposeful random sampling is the purposeful classification of systematic and randomly selected case samples in line with the purpose of the research (Marshall & Rossman, 2014).

At the same time, the credibility of the information collected with this method is considered to be higher (Creswell, 2016). According to the opinions of the interviewed participants, the answers given to each question were categorized one by one and placed in the tables. After this first categorization, the data were re-examined by the researcher and basic themes and categories were created. These determined themes and categories were reviewed again considering the relevant literature, and categories showing similar patterns were combined, and those that differed were grouped under a separate category and coded. Within the scope of the findings of the study, it has been seen that if personal management is used effectively and efficiently, it has a positive effect on the personal development of teacher candidates.

It is understood from the opinions and thoughts of the participants that time management should be used effectively and efficiently for personal management or personal development in increasing personal communication skills. It can be said that in increasing communication skills, goals and priorities should be determined within the scope of personal development. The development and implementation of learning strategies in increasing intercultural communication skills can be expressed from the views of the participants. In addition, it is understood from the findings that there is a much greater need for group collaboration and management in online learning environments.

In online learning environments, it is seen that pre-service teachers especially need intercultural communication skills within the scope of knowledge management and offer suggestions for the development of intercultural communication skills. It is understood that they experience great difficulties in the management of their duties and responsibilities in group work, which is one of the most common problems they experience within the scope of intercultural communication skills. Within the scope of the most important results obtained in this study, it was concluded that the intercultural communication skills of teacher candidates in online learning environments should be improved significantly and that at least one year training should be given to prospective teachers on this subject. According to the opinions of the participants, it can be said that the appropriate information source should be found and used within the scope of the contribution of knowledge management in increasing intercultural communication skills in the online learning environment. In addition, it is understood from the participant views that technology should be used to cope with excess information and that the needs of the group should be taken into account in order to work efficiently in a collaborative environment.

It can be said that it is extremely important to create categories for duties and responsibilities, develop and implement appropriate strategies within the scope of the results obtained according to the findings of the participants' opinions in the dimension of the contribution of the management of duties and responsibilities in increasing intercultural communication skills in the online learning environment. In addition to these, it is understood from the opinions of the participants that it will be very beneficial to evaluate the results of the planning and implementation of activities in the context of the contribution of duties and responsibilities within the scope of increasing intercultural communication skills in the online learning environment. It can be said that it is extremely important to create categories for duties and responsibilities, develop and implement appropriate strategies within the scope of the results obtained according to the findings of the participants' opinions in the dimension of the contribution of the management of duties and responsibilities in increasing intercultural communication skills in the online learning environment.

Keywords: Online Education, Communication Skills, Pre-service Teachers, Intercultural Cooperation, Personal Management.

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Student Satisfaction with Online Learning

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Abstract

The online teaching may be a great alternative to traditional teaching as it provides flexibility, comfort and freedom that give students a chance to interact with their teachers while studying from home. However, it may cause significant disruptions to students who have to adjust to a new remote learning environment and may experience feelings of isolation and disconnection as they are separated from their teacher and their peers by a computer screen. Closely tied to this is the students' feeling of frustration unknowing how to engage in the content, learning activities, and assessments. All these issues may impact students' levels of satisfaction and hence participation in online classes and their decision to continue with the course.

This study is an attempt to explore student satisfaction in online learning which is defined as students' perceived value of their online educational experiences at an educational institution (Astin, 1993, cited in Bolliger and Wasilik, 2009). It is regarded as one of the main pillars of quality in online courses and the most important key to enhance the students' performance in an online learning environment (Bolliger and Wasilik, 2009). Critics of online education have questioned the perceptions of learners pertaining to the value of effectiveness and quality of online learning. They emphasized that student perceptions about their online learning influence their decision to continue with the course (Carr, 2000) and impact their levels of satisfaction with online learning experiences (Kenny, 2003).

Hence, in order to enhance student satisfaction, the current study examines the factors that impact student satisfaction with online learning through the perceptions and practices of online teachers and students at one of the higher education institutes in Oman in the context of an online learning environment. It addressed a case study that documented how learning went in three online courses and reported perceptions and practices of online learners and their teachers. There were five teachers and 25 students who participated in the study. Data were collected through semi-structured interviews, virtual observations of online teaching, and course documents.

The findings showed that there are several factors influencing student satisfaction with online learning. Most importantly, the results showed that students appreciate watching or listening to their teachers in real time. Students expressed satisfaction with synchronous learning in online classes; i.e. the type of learning in which the students and their teacher are in the same time in order for learning to take place such as live online meetings when the whole class get together. They found such mode of learning more social and enables students to ask and answer questions in real time. Nevertheless, there were a few students who preferred asynchronous learning more; i.e. a form of learning that does not occur at the same time; instead, content is available online for learners to access when it best suits their schedules. These students justified that the asynchronous learning is

more flexible in that the students may log in to their online classes at any time of their convenience. The students added that participation is not just mere attendance –logging in chat room—or just agreeing and praising others' posts, rather, it requires posting and engaging in discussions and debates with teachers and classmates. In support, teachers consider online discussions as one of the most important strategy for student participation. They argue that online learning should be much more than providing information access to students such as readings and lecture videos or audios. They explain that interaction can take place effectively when students themselves deeply engrossed with the learning materials rather than being merely passive observers.

The results also have signified the role of teacher in encouraging student participation in online classes. Based on the results, the teachers who actively participate in the online courses, provide constant guidance and support to their remote students and communicate with them frequently and effectively tend to be more motivating to their students, which ultimately affects their learning, retention, and satisfaction with the course. Some students argue that students may feel disappointed and perform less successfully when their teachers fail to respond to and interact with them instantly and provide constant and consistent feedback that their efforts are acknowledged. In support, teachers themselves believe that instructors need to access chat rooms, discussion forums and e-mails at least daily to ensure effective communication with students.

However, to activate teacher presence, this study signifies the need to build a safe learning environment with high degrees of respect and dignity that encourages students to be more willing to communicate with their teacher and have the freedom of asking him/her any question, with the expectation that it will be answered immediately. The findings demonstrated that virtual learning can reach its ultimate benefits when students feel safe and respected. The participants declared that in traditional classroom, it is typically easier to create and maintain a respectful, open, and collaborative learning environment because both the teacher and their students are being in the same room together. They confirmed that this environment can be laid in the first few class sessions through first day ice breakers, walking around meeting different students, eye contact and smiling. Nevertheless, they argued that the intentional building of trust may require a bit more effort in an online setting.

The findings emphasize the role of instructors and administrators to make students adequately supported in the online learning process. Based on the results, it is recommended that instructors should create a collaborative learning environment and include an online human touch through welcoming students, providing encouragement and answering their questions in details. As a type of ice breaker, some participants suggest that instructors may survey their students' learning preferences to guide online discussions more effectively. They also recommend getting daily feedback from their students that gives an overview of what they have done to support them. They believe that this sharing gives students a deeper sense of caring and makes them feel that there is a real person in these virtual classes who can respond to their work and queries. Other ideas that

participants propose was to have a live chat room to promote interaction and allow for real-life communication.

Keywords: online learning, student satisfaction, student engagement, teacher presence

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Hybrid-Service Learning to Promote Sustainability, Personal Growth, and Public Service during Disasters

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Abstract

In this action research, the University of the Philippines Cebu Master of Education students in the course "Production of Language Learning Materials" conducted a hybrid service-learning project (h-SL) in May 2022-July 2022 for the selected public elementary teachers of Barili, Cebu. H-SL is a type of SL that uses some aspect of teaching and/or service conducted online or in person (Bringle, 2017). Service Learning (SL) is an experiential educational approach where students conduct a meaningful service to the partner community that provides experiences related to the course (Ash & Clayton, 2004). Due to the COVID-19 pandemic, SL was redesigned into hybrid-service learning (h-SL) to sustain instruction and community service, promoting safety among the students and the community (Ba, 2022; Schmidt, 2021; Vilbar, 2023). H-SL is a type of service-learning that uses some aspect of teaching and/or service conducted online or onsite (Waldner et al., 2010). Depending on the students and community's context, in h-SL, teaching can be conducted online, while the service can be done onsite or inversely (Dovi et al., 2021). The course was conducted in this project, while the service learning was conducted online and onsite. This aims to determine the impact of h-SL on my graduate students' course content and ESD knowledge, personal growth, and public service.

The integration of ESD concepts in the public school teachers' English reading remedial program is anchored on Content-Based Instruction (CBI), which uses academic content in English language teaching (Snow, 1998; Wesche, 2012). In this research, the content used in the reading materials were ESD themes on Environmental Conservation, Gender equality, and Cultural diversity. For example, an article about the rehabilitation of Pasig River was used as the reading text in teaching prefixes. The short story "My Muslim Friend" was used in discussing adjectives, while a story about a woman leading a country was used in discussing verb tenses.

Using authentic ESD texts in the reading program can promote meaningful learning, better language performance while learning the content, and more directed writing (Laviosa, 2020; Stoller & Fitzsimmons-doolan, 2016).

Methodology

This study uses the exploratory design (Mason et al., 2010) in which various data-gathering procedures are utilized to address the phenomenon of conducting h-SL. It uses qualitative

procedures, such as online anonymous open-ended surveys, reflections, semi-structured interviews, and focus group discussions (FGD) to determine the impact of h-SL on graduate students and teachers. It also uses a quantitative procedure, which uses an evaluation instrument to assess the quality of the remedial reading materials produced by the public school teachers.

The research participants were 13 graduate students from UP Cebu. The other participants were the seven elementary teachers and one principal from the Department of Education (DepEd) Barili District 1 Cebu Province. These DepEd teachers came from two different schools. With consent, the graduate students coached the DepEd teachers as part of their course project.

Findings

Results from the online anonymous open-ended surveys, reflections, and semi-structured interviews showed that the h-SL developed students' personal growth, public service, and academic learning on the production of language materials and ESD. Both groups expressed that h-SL offered more flexibility in conducting their coaching sessions. Due to their geographical locations, conducting weekly in-person coaching took time. It can sustain the coaching through online collaboration despite natural disasters. The planned onsite three-day onsite coaching in Barili in July 2022 was redesigned into a hybrid due to the typhoid fever outbreak in Barili. The reading materials underwent content validity by three independent experts and onsite pilot testing. All materials received a "Passed" quantitative evaluation, meaning the materials passed the standard of the Department of Education. In the pilot testing, the children evaluated the materials as informative, interesting, fun to read, attractive, and colorful.

Keywords: Sustainability, Hybrid-Service Learning, Personal Growth, Public Service, Disaster

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Digitainability Trust and Sustainability Skills in E-learning new Normal

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Abstract

The digitalization of societies, accelerated by the COVID-19 pandemic, is an unstoppable process. This article seeks to answer the question: what post-COVID-19 digital competences and skills are needed for a sustainable education development? It also aims to analyze the digitalization processes in education for shaping a sustainable digital society. A qualitative study was performed on some of the most relevant international databases of scientific literature and the selected documents were analyzed through a content analysis. It is concluded that digital education has experienced a strong increase, reinforced by COVID-19, shaping the digital presence in all dimensions of life. The new generations and digitalized teachers are naturally engaged in new norm skills and can master digital social sustainability. The results demonstrate the importance of digitalization literacy and the unavoidable promotion of sustainability skills in a digital society. However, this digitalization of the educational process poses several challenges: it requires digital literacy as a result of a complex of literacies. It also implies that teachers and students change their visions and practices with the attainment of new teaching and learning competences in order to fight the digital divide and to foster the widest possible social inclusion for the promotion of sustainable society and digitainability.

The whole educational system is revolutionalized in order to keep up the race between technology and education today This powerful technology is called digitalization. It is obvious how the internet and artificial intelligence changes teachers' job as well as change their private lives .

It is predicted that all work activities could be completely replaced because of automation to decide how they communicate with each other and how technology actually makes wise digital citizens

There is an increasing gap between those who are left behind because they lack the skills or the means to adapt once again technology races ahead and education falls behind it .

Actually the much bigger challenge and the much bigger opportunity for the teachers' society resides at the other part of race helping digital education helping and supporting teachers to catch up with the digital education conditions that have dramatically changed in recent years .

Teachers moved from the old world a situation where great learning content is rare to a new world where much of the knowledge is a commodity and often free to use either as YouTube material or some other type of material teachers also move from an old world with very stable career paths to a new world where much of the knowledge that students learn in higher education is not relevant skills.

The teachers face of these dramatic shifts in their educational classes.

Teachers don't accept the same facilities designed for one-size-fits-all teaching philosophy .

Teachers know the old world learning loses the race between digital skills and educationists.

The way teachers teach has not evolved with the dramatic shift that is required these days .
The new generation of teachers take this issue into their own hands .
The idea of digital education in the 21st century is the effective combination of digital skills and online learning platforms personalization with videos, assignments, and articles. Teachers try to provide these personalized digital learning opportunities in education .It means students are radically different and they need specific platforms, specific paths, specific learning goals, and destination
Then teachers make students get a unique personalized learning path based on their prior knowledge.Teachers help students stay motivated to keep on track with these actual learning communities so teachers kill this traditional one size fits and provide a flexible e-learning class for deep interaction with their students .

Teachers use technology to make the classroom more social
This is one of the kinds of very paradox things that actually using digital transforms a very unsocial experience students learning in a lecture hall just being quiet and listening into a social environment that embraces curiosity and diversity and just values learning new things so how does all of this look like in practice to optimize the entire this personalization.

Teachers found a way to recreate that feeling many times
It's worth fighting for learning accelerators for digital skills that this new model of education is equally well as soon to teach all sorts of digital skills that are suited for teaching students before lifelong learning before it is suited to educate the workplace with a focus on personalization while the powerful resources of the content
All are part of this education system as teachers of course but also as parents as students and colleagues at work all are responsible to help education to catch up with technology and there are so many ways for teachers to make a change if are parent or a student hold your institutions your teachers at school that work hold them accountable for providing these effective and personalized learning opportunities.
Intelligent adaptive learning in a digital culture sharing information immediately through digital media the educational content. There is so much more going on behind the screen of digital media to realize that it is shareable online easily.

Digital literacy is more than knowing how to use the digital media
It is one of the most important skills in the 21st century and it is especially important for today's youth
If literacy means the ability to read and write then digital literacy is the ability to use, understand and create content online. The first skill is the ability to use googling for answers, and it's about how to use devices, websites and other media platforms. It also involves finding credible sources of information. The second skill towards digital literacy is the ability to understand means having the skills to judge and evaluate online materials that are facts or fake resources can change students'

perception of the world. The third and last skill towards digital literacy is the ability to create blogs and posts on social media. Use, understand and create are the three skills to help accelerate students' learning and help students become digitally literate and a competent digital citizen. Students acquire knowledge and values that help them to understand complex interrelated challenges and many various perspectives. It's about learning to make sustainable thoughtful choices and gaining experience in acting for their values in their learning community.

Digitalized education for sustainable development provides the interconnected global challenges affect teachers. This new global framework is implementing sustainable development and digital literacy in a variety of ways in the personalized online platforms in action in teacher communities. Teachers shape the new norms world with digital literacy and sustainable development goals to help students understand educational and cultural challenges in their lifelong learning.

Keywords: digitainability; digital competences; digital society; digital sustainability society; sustainability development; social inclusion; digital education

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Investigating EFL Teachers' Attitudes towards the Use of Different Online Learning Platforms in the Era of Covid-19

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Abstract

The era of the Covid19 pandemic witnessed an unprecedented rush towards the integration of different types of Information and Communication Technologies (ICTs) in all aspects of life, and the field of foreign language education is no exception. In this respect, the laboratory sessions of the oral classes were canceled in all Algerian universities, the reason which led EFL teachers to explore other alternative ICTs that might substitute the computers and headphones employed in the language laboratories. Information and Communication Technology (ICT) can be considered as an interdisciplinary process of collecting, storing, transforming, sending, receiving, analyzing and other different functions that are used through an electronic devices and tools.

Similarly, Kent (2004) points out "ICT in education point of view refers to Information and Communication Technology such as computers, communications facilities and features that variously support teaching learning and a range of activities in education"(QCA schemes of work for ICT in Kent country council, 2004). In the light of his words, integrating ICTs in the teaching-learning process did open new dimensions that could raise the quality of education. Such integration can also empower education since ICTs can be seen as media that help learner to have a wide range of information with a free and easy access. Thus, students are not obliged to be in the classroom to learn as learning can happen anytime and anywhere with the help of such technological tools.(Wernet, Olliges and Delicatch, 2000).

According to Nordin et al (2010), ICT can be viewed as a professional and valuable means to foster the didactic process. For teachers, it seems to be like a delivery mode and a source of authentic and valid text different types. And for learners, it is considered as valuable tool that provides them with different opportunities to develop their communicative skills and literacy skills by allowing them to search in an easy way (Nordin et al, 2010). In addition, it facilitates finding original sources, like articles from international journals, so students can them just by sitting in front of their computers and connecting to the internet network. By doing that, students can be autonomous learners and the learner-centered approach can be encouraged as well. All in all, Yunus and Salehi (2012) claimed that the use of information and communication technologies in the didactic process improves the quality of education and provide both teachers and learners with more learning and teaching supports.

The present study intends to examine EFL teachers' attitudes towards the use of the different online platforms under the prevailing Covid-19 pandemic. The design of research functioned in the study

under inquest is an exploratory and descriptive single- site case study. The data of the research were collected by carrying out a questionnaire that was administered online among 25 instructors from different Algerian Universities.

The findings indicated that Algerian teachers showed negative attitudes towards the use of online platforms during the period of Covid 19. Among the study recommendations, we propose that online education should be gradually blended alongside conventional education while working to ensure the affordability and accessibility of ICTs in the higher education sector as well as effectively training instructors on the use of learning platforms as well as online assessment methods. As a matter of fact, students used to have online courses and assignments and they learn at ease, but now they like being absent and passive more than before Teachers tried to apply a blended process of both online and onsite learning to help students being familiar to the new situation but no changes were occurred. Overcrowded classes and lack of technological tools are one of the most problems faced by the majority of teachers. To conclude, the aim behind this study is to investigate EFL teachers attitudes toward using different online platforms in Era of COVID-19. Algerian teachers have a negative attitude toward using different online platforms because of different obstacles like: lack of interaction and learning autonomy, lack of digital skills in using such platforms like Moodle and Google Classroom. In addition, teachers believe that they should have kind of workshops or practice to be able to use them easily. The majority of teachers stated that one of the most negative sides of e-learning is the lack of real English practice and real interaction between teachers and students. Some teachers declared that they face some technical issues because of their lack of digital skills in using different online platform like Moodle and Google Classroom. Some other participants contended that they could not open online tests/ exams on their mobile phones because of some format or extension not supported by their devices

Keywords: Higher education, online education, Covid-19, online assessment.

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Impact and Integration of Artificial Intelligence along with Virtual Reality in Educational World

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Abstract

The application of digital technology in teaching has prompted the evolution of education. Students have different relationships based on digital behavior. Technology such as artificial intelligence (AI) and virtual reality (VR) provide a new driving force for the development of education and psychology. Based on a literature review, we organize our findings around seven trust challenges unique to or exacerbated by AI. Initially, this theory examines the limitations and problems of traditional education. Moreover, the influence of the teaching mode of education on the teaching of other disciplines develops a targeted student-centered digital education program. Secondly, the author used VR equipment and technology to let students experience the virtual world freely. Then, a relevant data model was developed by examining factors affecting students' creativity and concentration. Thirdly, the data model was applied to education in order to improve students' concentration and creativity. Then, the author compared and analyzed the data of students under different teaching models through questionnaires. VR and AI technology can significantly improve student concentration and creativity when introduced to education and encouraged to engage in deep learning. Finally, the influence reasons are analyzed from the perspective of literature review and psychology. The use of VR interaction and AI in education can enhance students' deep learning and enhance their learning.

Keywords**:** Digital Technologies, Artificial Intelligence, Virtual Reality, Education, Learning, Pedagogical Approaches, Educational World

The Use of Digital Technology in ESP: What Perspectives?

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Abstract

English for specific purposes (ESP) is another area of teaching that has been affected by digital technology developments. Despite the fact that there are ESP Practitioners who utilize technologies in their teaching, more research is needed in order to identify how widely technology tools are used in ESP, so that action is taken to empower practitioners and provide them with the help they need in order to integrate technology in their practices. Hence, this study discusses the implementation of computers and the Internet technology in the learning environment within the ESP context. As a matter of fact, designing and implementing digital technology in the teaching and learning process is one of the most demanding tasks. However, the use of technologies in the ESP classroom enables students to be active and collaborative, which contributes to improving learning achievements and increasing learning outcomes. Therefore, the ultimate goal is to ameliorate the quality of learning experiences, as well as to produce a highly social and authentic, supportive and productive learning environment that leads to the successful construction of relevant knowledge. Thus, the researchers opted for the descriptive methodology by examining students' perceptions towards the implementation of digital technologies in the classroom. Finally, the results of the research show that students have very positive attitudes towards computers and the Internet technologies and their integration in the ESP instructional environment.

Keywords: *ESP, digital technology, learning environment, knowledge construction.*

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Sustainability

Acknowledgement of our Sustainability Network

Sustainabilty is one of the key issues nowadays. While many actors support sustainability to a great extend, other do a kind of green washing. At this Conference, we want to support research internationally to find true support for our earth.

Special thanks go to the ZWIRN Center of Ostfalia University and the study program “Sustainabilty and Risk Management”. Thank you Prof. Achim Michalke and Prof. Stefan Zeranski for adding me as a lecturer to your program. The link to our study program you find here: https://www.ostfalia.de/cms/en/zwirn/sustainability-risk-management-m.sc./

Last year 2021, we had the great honor to support the model project “Oeko Modellregion Heideregion Uelzen”. Thank you to Dr. Christiane Kania-Feistkorn and Eva Neuls. The link to the Farmers association and the project you find here: https://oeko-fuer-uelzen.de/

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With this years Conference, we internationalized our research and support of Sustainability. Thank you so much for all your valueable contributions this year and hopefully in future.

Sustainability through Sustainable Digitalization

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Abstract

This paper investigates the relationship between digitalization and the Sustainable Development Goals (SDGs). Digitalization is widely presented as a transformative power for sustainable development. The SDGs describe digitalization technologies as enablers of sustainable development. Careful alignment of progress made by digitalization with the globally acknowledged Sustainable Development Goals (SDGs) is crucial for inclusive sustainable development in the digital age. However, limited resources have been made in SDGs about the opportunities offered by digitalization capabilities. Moreover, the research on enabling effects of digitalization considers its multi-faceted interlinkages with the SOGs.There are only limited instances in the literature examining and linking the impact of digitalization on sustainable development. To overcome this gap, this article introduces a new Digitainability Framework for context-aware practical assessment of the effects of digitalization intervention on the SDGs. Digitalization facilitates an in-depth assessment of the many diverse technical, social—ethical, and environmental aspects of a digital intervention by systematically examining its impact on the SDG indicators. Digitalization should support developers, users as well as policymakers by providing teachers' perspectives on the impact of digital services or products and hints for their possible improvement. We demonstrate the application of digitalization with the reflective study illustrating how it supports providing an inclusive view of the relation between digitalization and SDG

Educators and teachers are critical and creative thinkers in achieving the sustainable goals. It is about adopting a learner-centered approach to the entire value chain system. As the universities focus on outside-the-box thinking, modification processes, minimize wasted work, and create sustainable values, skills and development, and flexibility progress. Hence this is the promise of digitization. This approach is accelerating and the educators are ideally positioned to help to realize the plans of the future. The educators' reflection on the importance of the SDGs system is strengthening its support to countries in a digitalized way. The ever-increasing engagement of the SDGs system on digital issues and the extent to which so many of these goals have been undertaking efforts related to digital technology across all manners of topics has been truly impressive in this field. This global issue becomes even clearer during the Pandemic era as so many activities have been transferred online and taking place virtually as teachers have all experienced in fact now amid of this activity by the SDGs system it is important that the educators maintain a sense of strategy and the necessary coordination so that all this article is undertaken within a broader framework with the SDGs at its heart and this is why for instance in its roadmap for the digital

cooperation committed to mapping the technology ,digital parts and functions of the SDGs system. This is similar to the thinking underlying the mapping functions through the technology facilitation mechanism across the SDGs system. The mapping represents an attempt to understand better and bring better coherence to the vast landscape of SDGs work in this area through this mapping which supports sustainability in the survey map in the digital programs and events coordination mechanisms processes. The results indicated that the digital SDGs system-related work has been mainly focused on universities capacity building through goals and activities concentrated on the problematic area with the greatest need and there is a potential for the greater digital cooperation in their context.

So these findings are aligned with the goals of the SDGs work to improve the lives of students around the world in the countries and communities. There is no one- size- fits- all approach needed digitalization approaches are most effective considering the social contexts.

Such goals must be need-driven and related to the circumstances on the basis of students' level assessment and better coordinated globally and this is why the educators share their perspectives and their experiences to ensure that it is grounded in their experiences.

This sharing of experiences and good practices can provide on-the-ground practical lessons that will then be useful to other fields with similar challenges. So in short, digital solutions for sustainable development are many and varied in this field. This system needs more coherent coordinated global digital capacity-building support possibilities equally open and accessible to all universities.

So SDGs can best support digital knowledge transformation in an inclusive trustworthy secure and ethical manner of digital cooperation roadmap is a means to strengthen the skills on digital manner within the SDGs with continued collaboration and efforts by educators work together to realize the new horizon and visions for a more openly accessible and secure digital future. Educators planned to establish the context on the technology and set the stage for this discussion and acknowledge the role of collaborations in the context setting.

The long-term sustainable development strategy indicated in their visions aims to transfer the knowledge into a leading power in terms of its social development growth and digital citizens' quality of life in recognition of the critical role digital technology connectivity plays in accelerating the achievement of the sustainable development the educators have set out this mission to build digital platforms and technology to facilitate innovative and creativity in all events.

The digital strategy encompasses SDG goals such as digital infrastructure, e-learning information security, digital literacy, and inclusion, innovation and production, and SDG goals development accelerator.

Educators place digitalization as a high priority and most recently the system approved the establishment of new norms of digital development and communications which used to be called the communication information technology authority that indicates the priority educators give to digital development and communications in its work to support the digital strategy includes building a common approach to the educators support through the digital cooperation plan of action that is

developed within the system included working together with colleagues provide specific support in the areas of digital literacy universal access e-learning and innovation.

The educators planned the digital dialogues and contexts which will be virtual events organized jointly by the educators.

It is aimed at open-minded teachers with digital ambitions to meaningfully exchange experiences, challenges, lessons, and solutions to digital transformation focusing on the students' level implementation to participate in the global digital dialogues in this digital age.

Keywords: digitalization: sustainable digitalization; sustainable development; SDGs; digital age

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Diagnosis of the Level of Social Responsibility and Personal Adaptation in the first Post-War Years

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Abstract

The intensive development of urbanization and industrialization, the latest technological progress and artificial intelligence, globalization and digitalization forces society to think about strengthening social responsibility and preserving the environment, which involves sustainable development. The goal of sustainable development is to combine and bring into a single system human life and well-being and the development and progress of society in accordance with nature, with a balance of economic, social and ecological aspects. The primary goal of sustainable development is a modern person and a person of the future, education and quality medicine, overcoming poverty and raising the level of the quality of life and well-being of people, trust, cooperation to achieve goals. Our country is going through difficult times, the state is trying to solve pressing issues in the military, social - the economic sphere, fulfilling regulatory and political aspects that provide the prospect of Ukraine joining the European Union family.

Purpose

Ukrainian society in the first post-war years faces socio-economic, everyday and practical obstacles, decision-making sometimes puts people in front of a choice. The purpose of the article is to help the individual (displaced person) to determine his abilities, based on the theory of self-actualization and social capital, in the future using the data during the "manager-employee" interaction. The prospect of involving the TAP and SAT questionnaire (keys to the scales) in the business process, diagnosis of the level of social responsibility is relevant and requires careful study and practical application.

Theoretical Framework

The social responsibility of those fleeing the military conflict and those who were actually forced to leave their homes and apartments, lose their jobs is in a critical environment. The ability to comply with the requirements of social norms and to have a stronger personal or property duty in a crisis environment depends on adaptive capacity and personal (or resource) opportunities of the subject of social relations.

The complex system of adaptive potential and personal opportunities is activated by the desire to reveal and develop more fully their abilities, which is based on the level of education and instruments of self-development and realization of managerial/creative potential. The complex hierarchical-parity system (HPS) of adaptive potential characterizes the ability and readiness of the public relations entity to make the most optimal use of its individual resources for constructive adaptation to

situations of uncertainty. The HPS of adaptive potential includes the following blocks of adaptive qualities (adaptability): Internal-personal, interpersonal adaptability, absence of maladaptive violations, personal social-psychological potential, and competent adaptability. As a result of successful adaptation is achieved due to self-actualization, namely the force of "psychological health", and "personal growth/development".

Recalling the American psychologist Abraham Maslow, author of the theory about the hierarchical structure of needs, developing, a person passes several stages: Self-expression - self-assertion - self-realization - self-actualization - self-actualization. The concept of "self-actualization" in the classification of Maslow is a need of a person in realization of his potential, aspiration to more complete identification, and development of his abilities, this process can be long and endless. According to the psychologist, "a person should be the one who it should be". As synonyms of self-actualization often use the term "psychological health", and "personal growth/development».

In the state of self-actualization and adaptation, the person has the following features:

- effective perception of reality and own opportunities, living all the events of today's life;
- compliance with social norms in the new environment, the right choice of actions, relationships, ways of implementation;;
- centering on the task and its effective realization (in contrast to the center on itself), responsibility for freedom of choice;
- deeper inter-personal relations and building new communications links, spreading social capital and increasing the level of trust;
- a sense of humor (enjoy inspiration) and an enhanced duty in the situation, without hiding behind a wall of psychological and semantic protection.

In the discussion of psychological researchers, we can agree with the selection of eight varieties of self-actualization, and in our opinion, more precisely, it is possible to divide it into the main types of self-actualization: deep (independent overcoming and development of a person), passive (using natural talent), superficial (great desire, but without efforts), productive (active implementation of specific goals) and secondary: careful, energetic, harmonious and problematic.

Assessing personal potential is widely used in practicing psychology by the asylum-holder of personal orientations E. Shostrom (Personal Orientation Inventory, E. Shostrom), created in 1963. It is based on the ideas of self-actualization A. Maslow and other theorists of an existential direction in psychology. The scales (or components) of the applicant characterize the main spheres of self-actualization. "It must be said that self-actualization is not everything. Peace of mind and what is good for an individual cannot be truly understood in isolation... In addition to the good for yourself, you also need good for other people... It is quite clear that a purely internal, individualistic psychology without reference to other people and social conditions is not enough" (Maslow, A. H. (1966/1996). The more we learn about man’s natural tendencies, the easier it will be to tell him how to be good,

how to be happy, how to be fruitful, how to respect himself, how to love, how to fulfill his highest potentialities … The thing to do seems to be to find out what one is really like inside; deep down, as a member of the human species and as a particular individual (Maslow, 1987, p. 6). What a man can be, he must be. This need we may call self-actualization…It refers to the desire for self-fulfillment, namely, to the tendency for him to become actualized in what he is potentially. This tendency might be phrased as the desire to become more and more what one is, to become everything that one is capable of becoming. (Maslow, 1954, Motivation and Personality, p. 93) if people build love and belongingness, self-esteem, and self-actualization upon the satisfaction of physiological needs and safety, they can live happy and fulfilling lives. First, Maslow believed that social connections and intimate relationships are essential. Individuals who lack love and belongingness, experience depression, and feel miserable. Second, esteem is another critical element of the theory, which serves as the backdrop for the modern conceptualization of professional wellness as respect, fairness, and control (Hale et al., 2019)

The founder of the humanistic theory of personality believed that striving for self-actualization, self-development of tendencies towards love and creativity, self-expression is the main special characteristic of a person, which is based on the humanistic need to bring good to society, without aggression and cruelty. Self-actualization of abilities and opportunities is inherent to a smart, healthy person, the development of which will contribute to and multiply the social capital of an individual, organization, community, business or state. In the theory of self-actualization, which provides an in-depth description of the realization of a person's talent, capabilities, and abilities. in the circle of loved ones, at work, the peculiarities and principles of life, activity, relationships, communication or cooperation of spiritually rich, healthy, active, creatively gifted, happy people are investigated "people who feel that they are loved, and they are able to love, feel themselves protected and able to protect, feel respect from others and respect themselves and others" (Maslow A.), and this is social capital. An organization, a group or an individual can measure or determine the value of social capital by focusing on factors of importance, benefits and greater utility and still we will not see a single and final number. "Social capital is a social boon, actual and potential resources, the presence of a community or a system of relationships between individuals" (Hurochkina 2019.) The desire to be in a social context requires us to recognize that people are a social product, shaped by social influence and the trend of modernity. Social life in organizations also includes intergroup relations and the social preferences of a person along with group membership, and it should not be forgotten that all this takes place in the context of social processes at the level of the wider society.

Methodology

In the paper, the aspect of increasing attention to the determination of the level of satisfaction of employers of persons fleeing military conflict in the system of tap survey has been further developed in this method. The tap employer's scales (or components) characterize the main areas of management's adaptation to the work results of the new employee.

Table 1: Test for actualization of the person (TAP). For heads of structural divisions and supervisors

№	Assertion
1	A. I believe in a person when I feel that he can cope with all the tasks before him.
	B. I believe in a person when I feel that he cannot cope with all the tasks before him.
2	A. I often worry when the situation is unusual
	B. I rarely worry when the situation is unusual
3	A. I trust a person when I understand that his knowledge and skills will allow him to complete all the tasks before him.
	B. I trust a person when I understand that his knowledge and skills are not enough, while the desire to complete all the tasks in front of him dominates.
4	A. I believe that a person will find the willpower to overcome life's difficulties
	B. I do not always believe that a person will find the willpower to overcome life's troubles
5	A. I feel guilty that I once had hope for a person who did not complete all tasks on time
	B. I do not feel guilty that I once had hope for a person who did not complete all tasks on time
6	A. Which employees do you prefer? Those who, in difficult situations, act in already tested ways, because this guarantees success
	B. Which employees do you prefer? Those who are always looking for fundamentally new solutions in difficult situations
7	A. It is important for me whether my subordinates understand me
	B. It is not too important for me whether subordinates understand me
8	A. I feel like I have to tell a person the truth, no matter how unpleasant it may be.
	B. It seems to me that when the truth is unpleasant, it can affect the results of the work, so it is necessary to work around some points
9	A. I am comfortable with a person who can put off until tomorrow what needs to be done today, explaining the presence of other priority tasks.
	B. I impose administrative penalties on a person who does not want to prioritize the implementation of important tasks today, explaining the presence of other priority tasks.
10	A. I am so angry that I want to fire a subordinate
	B. I am never angry enough to want to fire a subordinate

11	A. My priority is employment a person who does not have enough equal training , but needs has work _ desire develop
	B. My priority is to employ a person who has a sufficient level of training.
12	A. I often worry when a person does not understand modern digital technology
	B. For me, it is understandable when a person does not understand modern digital technology
13	A. I am interested in the image and check the social media profile of the person I work with.
	B. I don't care about the quality of the information of the person I work with in social networks.
14	A. I am interested in the culture and traditions of the region of the foreigner I work with.
	B. I am not interested in the culture and traditions of the region of the foreigner I work with.
15	A. I support a person in a conversation with incomplete knowledge of the Polish language.
	B. I will offer a person to sign up for Polish language courses when, in conversation with him, I feel that his knowledge of the language is not complete.
16	A. I have to openly express my displeasure with others in communication with them
	B. In communicating with other people, I have to hide my dissatisfaction with them
17	A. It is important for me whether my subordinates understand me
	B. It is not too important for me whether subordinates understand me
18	A. I admit my mistakes and work on the causes of their occurrence
	B. I try to hide my mistakes and work on their causes
19	A. I constantly develop communication ties and improve the social and psychological climate in the team
	B. I do not feel the need to develop communication ties and improve the social and psychological climate in the team
20	A. Self-improvement is a basic feature of a progressive employee
	B. It is enough to have basic skills for a progressive employee

In the work, the further development of this method has taken place the aspect concerning the strengthening of attention on detection of the level not only of self-actualization, but adaptation of the person in the presented system of SAT poll. Scales (or components) of SAT applicant characterize the basic spheres of self-actualization and adaptation of a person in new conditions.

Table 2 Self-actualization and adaptation of a person test (SAT)

For employees of structural subdivisions and displaced persons

№	Assertion
1	A. I feel confident in my abilities only when I am sure that I will cope with the task in front of me
	B. I do not feel confident in my abilities when I am sure that I will cope with task in front of me
2	A. I often worry when the situation is unusual
	B. I rarely worry when the situation is unusual
3	A. I always feel the strength to overcome life's difficulties
	B. I do not always feel the strength to overcome life's troubles
4	A. I feel guilty when I don't do everything on time
	B. I don't feel guilty when I don't do everything on time
5	A. Difficult situations should be resolved using proven methods
	B. Making decisions in difficult situations, you need to look for new alternatives.
6	A. It is important for me whether the people around me understand me
	B. It is not too important for me whether the people around me understand me
7	A. I can put off until tomorrow what I have to do today without any remorse
	B. I feel guilty if I put off until tomorrow what I have to do today
8	A. I often analyze my behavior
	B. I rarely analyze my behavior
9	A. I believe that every person by his nature is capable of overcoming the difficulties that life puts before him
	B. I do not believe that any person is naturally capable of overcoming the difficulties that life presents to him
10	A. The main goal of life is search and realization
	B. The main goal of life is consumption
11	A. Actions are important in life, not reasons and explanations
	B. In life, it is important to express the reason and explanation for not completing the task as opposed to actions
12	A. I am confident in myself and know what to do
	B. I am not sure of myself and do not know what to do next

13	A. In uncertain situations with economic instability, the main thing for a person is work according to the profile of training and education
	B. It seems to me that for economic stability in an uncertain environment, a person needs any kind of work
14	A. I constantly feel obligated to do everything in my power to ensure that those I work with have good relationships
	B. I don't feel obligated to do everything in my power to have good relationships with those I work with
15	A. Criticism spoils my self-esteem, it has a bad effect on my condition
	B. Criticism spoils my self-esteem, it does not affect my condition
16	A. I cannot say that I am satisfied with the situation that has developed in my life now
	B. I can say that the current situation in my life has opened up new horizons
17	A. It seems to me that people should openly express their dissatisfaction with others in communication with them
	B. It seems to me that in communication with others, people should hide their dissatisfaction with them
18	A. A real scientist must possess a wide multi-vector spectrum of knowledge
	B. A real scientist must possess professional knowledge, only in his specialization
19	A. I am constantly developing and working on my self-improvement
	B. I do not develop or work on my self-improvement
20	A. I get very angry when something doesn't work out for me
	B. I will calmly think about what I can't do

Table 3 Keys to scales

Scales:	Basic scales				Additional scales			
	TAP points question number		SAP points question number		TAP points question number		SAPpoints question number	
Scale of orientation (in time and environment) (O)	17	A2/B1	10	A2/B1				
Scale of support (S)	1	A1/B2	2	A1/B2				
			8	A2/B1				
Scale of adaptation (A)	4	A1/B2	13	A2/B1				
	11	A2/B1						
Scale of orientation values (OV)					12	A1/B2	3	A2/B1
							17	A1/B2
Scale of behavioral flexibility (BF)					6	A1/B2	7	A1/B2
					15	A2/B1	11	A2/B1
Sensitivity scale (Sen)					2	A1/B2	15	A1/B2
					8	A1/B2		
Spontaneity scale (Sp)					16	A1/B2	16	A1/B2
Self-acceptance scale (Sa)					18	A2/B1	1	A1/B2
							4	A2/B1
							12	A2/B1
Self-esteem scale (Se)					7	A2/B1	6	A2/B1
Scale of ideas about nature and man (I)					3	A1/B2	18	A2/B1
					14	A2/B1		
Synergy Scale (S)					5	A2/B1	9	A2/B1
					9	A2/B1		
Aggression Acceptance Scale (AA)					10	A1/B2	20	A1/B2
Contact Scale (C)					19	A2/B1	5	A1/B2
							14	A2/B1
Scale of cognitive needs (Cn)					20	A2/B1	19	A2/B1
Creativity scale (Cr)					13	A2/B1	10	A2/B1

The sum of the points scored by the survey test on a separate scale is calculated.

Definition of the integral indicator as the sum of the obtained xi scores divided by the sum of the maximum possible yj scores, can be done by the formula:

$$L_{ssra} = \frac{\sum x_i}{\sum y_{imax}} \cdot 50\% + \frac{\sum x_j}{\sum y_{jmax}} \cdot 50\%, \quad (1)$$

L_{ssra} - level of self-actualization, social responsibility and adaptation, %;

$\sum x_i$ - the sum of points received on the basic scale;

$\sum y_i max$ - the sum of points, the maximum possible to get on the basic scale;

$\sum x_j$ - the sum of points received on the additional scales;

$\sum y_j max$ - the sum of points, the maximum possible to get on the additional scale.

Results

Table 4 Diagnosis level of self-actualization, social responsibility and adaptation, %

Scales:	Basic scales		Additional scales	
	TAP	SAP	TAP	SAP
Scale of orientation (in time and environment) (O)	41,2	47,5		
Scale of support (S)	42,8	41,4		
Scale of adaptation (A)	33,5	36,5		
Scale of orientation values (OV)			24,5	25,7
Scale of behavioral flexibility (BF)			31,5	28,5
Sensitivity scale (Sen)			34,6	29,6
Spontaneity scale (Sp)			31,2	30,4
Self-acceptance scale (Sa)			32,6	33,7
Self-esteem scale (Se)			41,4	37,5
Scale of ideas about nature and man (I)			31,7	27,6
Synergy Scale (S)			27,4	28,5
Aggression Acceptance Scale (AA)			28,9	24,4
Contact Scale (C)			34,4	31,4
Scale of cognitive needs (Cn)			28,4	29,4
Creativity scale (Cr)			31,3	30,2
Arithmetic mean	39,16	41,8	31,49	29,74
L_{ssra} TAP 70,65% SAP 71,54%				

Discussion and Conclusion

Thanks to the diagnosis of the level of social responsibility and adaptation of the individual when making a decision, observation of behavioral characteristics, concentration of all possible fundamental knowledge, abilities and skills of an individual, social capital increases, which helps to

solve tasks and strategic goals, both for the individual and for individual measures and programs of state regulation, promotes the implementation of various innovations and reforms. The concept of social capital today is a promising niche of socio-economic direction, because, first of all, it concerns the person himself and his standard of living and future prosperity. The separation of this direction into a separate theory reveals unlimited spaces of research, and the final definitions, characteristics and measurements will allow us to move together on the right path, because understudied carries deep contradictions, and sometimes a dead-end direction.

Keywords**:** social capital, adaptation, social responsibility, behavioral, diagnosis.

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War and Sustainable Developmentand

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Abstract

Russia's full-scale invasion of Ukraine on February 24, 2022, affected the socio-economic and geopolitical development of most of the world and Ukraine itself. It revealed many issues related to the economy or defense issues and forced us to rethink how the modern world is organized. Among the points are:

- visualization of how interdependent our world has become due to globalization. Close interconnections between countries allow nobody to ignore problems; even if they do not directly affect us, a boomerang effect works. For example, the sea blockade of Ukrainian ports is causing a significant undersupply of grain to world markets, particularly in African countries. That, in turn, can cause a food crisis and social instability – increasing the flow of migrants from these countries to the European Union.
- reconsideration of issues of security and independence. Despite constant conversations about the need to diversify sources of resource supply and transition to alternative (green) energy and sustainable development, most countries remained on the hook for cheap gas and oil supplies. General confidence that "this will not happen to us" fueled consumerism, and affordable utilities for the electorate will win to long-term modernizing strategies. Currently, most countries are faced with the issue of energy independence rather than energy security. The answers to this challenge are also not universally accepted because the question of further coal mining and nuclear energy development arises, which leads to other discussions. Despite the numerous advantages of atomic energy, the question of nuclear blackmail, which is currently being actively used by the Russian Federation, which understands that the consequences of an accident at a nuclear power plant will be catastrophic for the EU, remains open.
- the development of civil society, when the will formed by ordinary citizens prevails over economic or political factors. For example, the exit of many brands and international organizations from the Russian market is definitely associated with financial losses, which at the same time do not outweigh the importance of the company's image on the world market. There is an understanding that public demand can influence economic decisions, and demand is essential. Another manifestation of the development of society is the extraordinary support of citizens of refugees from Ukraine, which sometimes outpaced the state's more clumsy and bureaucratized machinations.

This is far from a complete list, only the most remarkable milestones. Each of the identified challenges is important, but not all of them will be accepted quickly. Security issues remain the most pressing with the coming winter. But we shouldn't forget about other challenges. After all, it is much

easier to stay in the geopolitical "comfort zone," where some countries can solve everything without involving other participants with different opinions about the situation and ways to solve it in the discussion. And this discussion should be in the framework of sustainable development.

Currently, Ukraine is simultaneously fighting for its independence, supporting economic development (there is no talk of growth at the moment), and rebuilding what was destroyed. The key to these issues is the understanding that the so-called reconstruction should not take place on the foundations - the restoration of what existed. Revival comes from the knowledge that we are building something better and, most importantly - modern and based on the contemporary understanding of "good" and "right." It immediately brings us to the level of sustainable development - as a fundamental imperative for the further development of Ukraine.

Mentioned above means that at the macroeconomic level, we attract financing by prioritizing innovative projects using the latest materials, technologies, solutions, etc. It is essential to try to move away from "temporary solutions" which become permanent and uncomfortable for users in the future.

At the microeconomic level, this will mean increasing business flexibility and focusing on steel and "green" solutions. Moreover, this applies not only to the external environment and consumers but also to workers. Business is already beginning to understand this. The need to survive in the challenging and unpredictable conditions forces us to create the most flexible working conditions - from the ability to work remotely to a flexible work schedule. Power outages after another missile attack stimulate the search for new solutions for energy independence. At the same time, the search for the possibility of "connecting to electricity" changes the style of work and consumption of Ukrainians. The culture of working from cafes or restaurants, which turn into co-working spaces, is developing.

An example of flexibility can be educational institutions that, during quarantine, occupation, shutdowns, bombings, etc., come up with new solutions for the organization of the educational process. It is now not only about creating exciting content and attracting an online audience but also about creating informative and engaging content that can be downloaded or viewed in conditions of poor communication quality. The development of verification tasks also considers the possibility of disconnections and weak connections. At the same time, the leitmotif is the continuity and quality of education. It can be argued that Ukraine is rapidly reaching a new level in implementing the fourth goal of sustainable development - affordable and high-quality education.

In conclusion, let's conclude that the search for new solutions lies in several planes - organizational, infrastructural, institutional, etc. But for this report, we will remain at the management level. Thus, the implementation of the principles of sustainable development during the war at the management level is not only possible but also vital, in particular in the following aspects:

- energy independence, which is currently the basis for economic development at all levels, from micro to macro business and social stability;
- diversification and greening of supply chains, which will make it possible to expand the sluggishness of SMEs and protect them from undersupply of goods or services;
- ensuring high-quality and accessible education as a guarantee of the development of the social potential of the country, as well as encouraging people to receive a specifically Ukrainian education, as a possible guarantee against brain drain;
- ensuring decent and safe living conditions for the population and access to clean water, preventing hunger. Unfortunately, such issues become relevant during the war and cannot be removed from the agenda. The development of small and medium-sized businesses is also essential from this point of view.

There may be many more of the points mentioned above because there are many problems, and they are complex. But for now, it is worth putting a full stop here. It is crucial to have a general understanding that reconstruction should not be perceived as a repetition of what was, but as a step forward. That step should be based on the principles of sustainable development.

Sustainability and Digitalization via digital Cooperation

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Abstract

Digitalization provides access to an integrated network of unexploited big data with potential benefits for society and the environment. The development of smart systems connected to the internet of things can generate unique opportunities to strategically address challenges associated with the Sustainable Development Goals to ensure an equitable, environmentally sustainable, and healthy society. This perspective describes the opportunities that digitalization can provide towards building the sustainable society of the future. Smart technologies are envisioned as game-changing tools, whereby their integration will benefit the essential elements of the sustainable digital literacy skills development. It then discusses the benefits of digitalization to catalyze the main paradigm transition towards sustainable manufacturing practices and enhance teachers' wellbeing by providing shared cooperative digital access to critical creative digital contexts, particularly for the underserved communities. Finally, the perspective englobes digitalization benefits by providing a holistic view on how it can contribute to address the serious challenges of endangered planet digital diversity and digitalized paradigm change. It includes this approach to support through the digital cooperation plan of action that teachers have developed within the sustainable development system to provide specific support in the areas of digital literacy. Teachers are planning digital dialogues globally to be held in virtual events organized jointly by colleagues with digital ambitions to meaningfully exchange experiences, challenges, lessons, and solutions to the digital transformation of knowledge focus on the students' level implementation. Teachers also participate in the global digital dialogues which will be held with the sustainable development system experts to explore areas to find related areas of digital literacy, digital skills training. Digitalization is a relatively new area of teachers' work.

In this regard it is essential for the teachers to work with a common approach in this sense it is important to first narrow the focus to a few strategic areas teachers have identified digital literacy and inclusion maintaining and strengthening a close relationship with the relevant digital dialogues is essential this will help them to understand the shifting priorities and changes within the classroom to support students level activities achieving the goals that have been set out in the digital strategy in their global digital dialogues. Digital connectivity and digital transformation of knowledge are really a top priority for underpinning sustainable development goals.

The pandemic did reveal the importance of digitalization in all areas to accelerate reaching digital inclusion. It is a long-term sustainable development strategy ambition in all areas that plans the digital transformation of knowledge as the sustainable development goals accelerators in terms of Innovation and knowledge. Teachers believe in understanding the landscape of digital collaboration

and digital technologies for the digital corporation aims for comprehensive mapping and serves as a gateway for information. Teachers focus on boosting digital connectivity promoting education facilitating digital learning. Digitalization forces teachers to develop sustainable concepts for educational purposes, and students.

The concepts for education and research age-appropriate media addressing and digital media support are sustainable for learning types in the process of digital knowledge transformation.

The digitalization strategy develops a sustainable concept and implements it in the better future.

Teachers ensure that sustainable educational spaces are created socially in this field. Teachers provide the right media technology and train the students involved in this issue. There is a rapid and influential digitalization process across the world in this area.

It is inevitable to experience digital knowledge transformation in education what opportunities do technologies offer in education. It is one of the main skills that are affecting the way teachers work in this issue. The old way of education is changing at such a rapid rate in future.

The process of digitalization is about the tasks that certainly require more time for creativity, more time for problem-solving, and less for routine tasks.

The education system change is based on solving problems like problem solving and creativity.

Digitalization has a lot to do with technology in the impression of self-actualization the cooperation speed. The usage of technology heavily depends on the fact that teachers are able to come up with a digitalized education system in the 21st century.

It is rethinking how the education system can create better content and the way teachers adjust new norms in class. Digitalization starts with teachers' ability to adjust education to new approach.

The first stage of digitalized education is connected to the needs of the community. Education cannot fill the gap without digitalization. More access to digital learning materials would increase their time spent learning. Students trust teachers for advice on digital education materials at home.

Most teachers believe digital learning content will replace the fixed content books. Getting ahead of this behavioral shift is critical in helping educational organizations succeed in the digital future.

This is the principle of learning that students always learn and students cannot learn because it bears the risk of failing to learn so the learning is a complex, risky and messy process so how students manage that messy process through formal education. Students learn by making mistakes, talking to peers, and sharing information in digital platforms.

Teachers adapted technology as a tool for learning so they google, share, tweet, use WhatsApp and Skype to connect with others or academy YouTube to learn new things and master a skill.

There is a paradox in this issue because so many students use technology as a tool for learning to adopt it in the lessons. It is emotions that are the shelves upon which learning takes place and technology actually helps teachers to put up those shelves.

Thinking critically helps students practice and apply those theories to practical examples and master skills. Digitalization is the facilitator of learning and abling students to build this community by directing discussions through the personalized learning path.

The interesting thing is that the use of technology helps teachers to do different things or things differently. The assistive technologies do the real conversation with students showing emotions and supporting each other on this learning path through the application of feedback.

Keywords: Sustainability, Digitalization, Digital Cooperation

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The Sustainability of Entrepreneurship in Ukraine

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Abstract

The sustainable development of the economy is embedded for achieving the Sustainable Development Goals, with effective entrepreneurial activity to be an integral condition for it. Analysis of the economic sector of the SDG proves the importance of GDP growth as one of the indicators of sustainable development. GDP is a generalizing national indicator, which is revealed through the totality of regional gross products, which will determine the study of factors that affect its size and growth. Based on the correlation-regression analysis, the paper proved the hypothesis on the influence of the number of enterprises and employees, the volume of products sold (goods, services) of enterprises, net profit (loss) on GRP. It was established that the factor of enterprises number in the region, which characterizes the development of entrepreneurial activity, has the greatest influence. During the formation of the GRP, it was determined that the significant influence of the number of large enterprises is a Ukrainian feature.

Academic State-of-the-Art of Sustainable Energy Development

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Abstract

Energy has always played a vital role in the lives of human beings. Nowadays the energy sector is considered to be the main source of greenhouse gas emissions. That is why, there is a growing emphasis on the importance of applying the concept of sustainable development (SD) to the energy sector. So the purpose of this study is to provide insights regarding the state of the art of sustainable energy development (SED), and to suggest areas for future research. Using a systematic literature review (SLR) method, this paper provides an overview of the literature. The data search was conducted on 31 August 2022, and the selected peer-reviewed database was Scopus. The exclusion process resulted in a total of 607 journal papers and conference proceedings (only in English). The most important conclusion to be derived from this research is that many articles lack the definition of SED. Although the early research on SED can be traced back to 1992, it was only after 2019 that the number of articles on this topic increased substantially.

Keywords**:** sustainable development, sustainable energy development, systematic literature review, Scopus

General Management

Online Consumers' Purchase Intention of Second-Hand Products under Information Overload Conditions

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Abstract

Information load refers to the amount of information delivered in the presentation of an online product (Malhotra, 1982). Internet users receive not only different types but also different amounts of information when viewing online content. The literature indicates that information overload affects consumers' purchasing decision-making behaviors. Specifically, the relationship between the amount of information and the correctness of the decision is an inverted u-shape (Furner & Zinko, 2017). Therefore, information overload is a critical issue for online consumers.

Prior studies on information load have held two conflicting views. On the one hand, information overload contributes to consumers' high perceived review quality, which negatively influences their satisfaction level, although their product knowledge can moderate such influence (Hu & Krishen, 2019). On the other hand, consumers' perceived information quality could be affected negatively by perceived information overload (or positively by underload) (Huang & Zhou, 2019). The presentation of product information is mainly divided into two types (Kim & Lennon, 2008): textual and visual. However, previous studies have found conflicting results when explaining how these two different types of information influence consumers' shopping performance. Even though visual information is important in the presentation of the product, it is less so than verbal information in providing detailed product descriptions to promote consumer shopping performance (Kim & Lennon, 2008). Contrarily, consumers' perceived product quality is higher when viewing visual product information than when viewing text; however, this is true only when consumers have a high level of product familiarity (Blanco et al., 2010). Recent studies have also found similar conflicts (e.g., Shukla and Mishra, 2021; Zinko et al. 2020). Prior studies pertinent to information overload have also discussed some factors that influence consumer decision-making (Esmaeilpour et al., 2018; Furner & Zinko, 2017; Roghanizad & Neufeld, 2015).

The level of trust between buyers and sellers is an important factor in determining the success of a transaction (Furner & Zinko, 2017). Although trust is a fairly abstract idea, there are many ways to gain trust in online contexts such as online auctions. Sometimes, trust is based on consumers' intuition (Roghanizad & Neufeld, 2015). Other times, it is based on the products' brand or the seller's reputation (Esmaeilpour et al., 2018). In addition to trust, perceived risks are also a factor worthy of exploration in online contexts, especially on auction platforms where information is asymmetric, indirect, and inaccessible, and consumers have a lot of uncertainty in purchasing second-hand

products (Onur et al., 2020). And in the face of lesser-known brands or unfamiliar second-hand products, this uncertainty will become even stronger (Liu et al., 2018; Yu et al., 2018). Even though consumers can receive a large amount of product information by reading online reviews, too much textual and/or visual information may lead to information overload, resulting in spending too much time searching for the target product. As a result, the consumers may perceive excessive risks in searching for the product. They may reduce their willingness to buy it. However, if sellers can understand the types of risk that consumers are most concerned about and provide information that can reduce the perceived risk, they can increase the purchase intention of the consumers (Ariffin et al., 2018; Lăzăroiu et al., 2020; Ventre & Kolbe, 2020). On the other hand, if consumers perceive risks as they perceive the value of purchasing a product, their purchase intention can be significantly influenced (Chang & Tseng, 2013; Chen & Chang, 2012; Gan & Wang, 2017). A high perceived value can increase the consumer's satisfaction with the purchase, and the higher the customer satisfaction, the greater the chance to purchase a product (Chen & Chang, 2013). In other words, the consumer's perceived value is an important influence on the purchase intention.

The Stimulus-Organism-Response (S-O-R) theory developed by Mehrabian and Russell (1974) takes into account people's psychological processes and believes that the stimulation of a person's response is mediated by their inner psychological process. "S" stands for the stimulation of various situations or events. "O" is the psychology of the organism (human). "R" is the reaction to the stimulus. The S-O-R theory separates the consumers' individual factors from their psychological factors. Individual factors include the demographic variables of the consumers (e.g., age, gender, educational level, job title, and economic status). Psychological factors refer to the consumers' thinking and awareness about meeting their needs, which dominate their shopping intention and behaviors, including perception and preferences. Consumers actively collect information about the product and use it as a criterion for evaluating the purchase, which in turn creates a motivation for consumption. Therefore, this study adopted the S-O-R theory and proposed a model to explore the influence of perceived risk and perceived value on consumers' trust in purchasing a product on an online auction platform in the context of information overload.

As mentioned above, research gaps exist in the information processing mechanism of consumers in an e-commerce environment. Website designers may be confused about the presentation of the product information. In the context of information overload, this study explores the relationship between information overload and second-hand product consumers' purchase intention. In addition, trust, perceived risk, and perceived benefits were assumed to have a significant impact on consumers' purchase intention. Based on the S-O-R theory, two types of experimental scenarios simulating the real auction platform were developed to emphasize the textual versus the visual product information under information overload. The participants were expected to simulate buying a second-hand smartphone on an auction site and watch different options under the condition of information overload. After the participants viewed more than 10 options, they were asked to complete a questionnaire.

This study added an experimental aspect to the questionnaire, which collected responses through varied online channels to verify the proposed hypotheses and the theoretical model. As a result, this study found that under the condition of textual information overload, perceived value and perceived risk had a significant impact on purchase intention, while trust had no significant effect. Under the condition of visual information overload, perceived value and perceived risk had a significant effect on purchase intention, but trust, again, had no significant effect. Based on these results, this study suggests that website designers and managers can refer to this study's information overload scenario design and administer surveys to online shoppers periodically to understand the level of information overload they experience on the company website as a means to improve the information.

Keywords**:** information overload, trust, perceived risk, perceived value, purchase intention, stimulus-organism-response (S-O-R) theory

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The Success Factors of professional Experience Transfer by using Service Agents in Thailand

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Abstract

The purposes of this research were: A: to provide educational institutions and school practitioners with guidelines for comparing academic performance and systematically comparing knowledge and experience. B: To provide the school with guidelines for comparing academic performance and transferring knowledge and experience of the same quality and standard. C: To enable people with knowledge and experience from work to obtain a comparative assessment of knowledge and experience from work into the educational system following the certificate program. This paper presents a professional experience comparison factor analysis, which consists of five main components: a) qualifications, b) conditions, c) knowledge, d) experience, and e) professional standards. The results of the study can be applied in the implementation of the transfer of academic performance and transfer of knowledge and experience at the vocational certificate level and the diploma level. In the development of the transfer of professional experience using agents. It consists of three main components: a) import data, b) process, and c) output. Intelligent service agents filter and search for data by meeting the criteria for transferring professional experience to develop professional skills in advanced vocational training per the curriculum of the Vocational Education Committee. to develop professional skills in advanced vocational training per the curriculum of the Vocational Education Committee.

Introduction

The transfer of knowledge and professional experience in accordance with the vocational education curriculum provides opportunities for those with professional knowledge and experience. Apply knowledge and experience to be evaluated and transferred into credits as part of the vocational course performance. It is an educational arrangement in which those who are employed have the opportunity to exchange knowledge. Gain more experience and gain new knowledge and technology, and higher educational qualifications. It leads to the upgrading of labor force education. Continuous development of professional competence and workforce development. Transfer of knowledge and professional experience according to vocational education courses It can be very useful in various fields. In other words, the learner side reduces re-learning in subjects/groups that have already been experienced. Fewer classes Reduce travel time and save costs Learners are more interested in studying or training in the system because they have the opportunity to increase their qualifications and career advancement. Have the opportunity to choose your studies according to your needs. As for the curriculum side, that's it. Course administration with the comparable transfer of knowledge and professional experience into credits. It helps the state save per capita

costs. Measurement and evaluation Training materials and courses determine competencies to provide graduates with knowledge and experience. In the business side, the employer/employee has agreed on costs and how to evaluate them effectively. The establishment earns more due to the efficient operation of employees/employees. Establishments Government agencies or self-employed people do not have to waste time and money training new personnel. In addition to that, personnel are aware of the development of their knowledge and skills at all times. Learning and practicing the specific skills needed for a job on the page improves productivity. Personnel is eager to advance their careers and develop skills that are scarce. It affects the economic and social development of the nation as a whole and the establishment. Government agencies or self-employed people can create/produce quality work according to customer needs (O. V. E. C. M. of Education., 2017).

Transfer of professional Experience Courses

The principle of comparing professional experience means creating a coherent framework. eSKM, which incorporates ICT-related formats and reference standards: ESCO, e-CF, and BOK. Development as part of the eSKM project, the framework has highlighted the interconnected parts. Developed a prototype tool to assist with a large number of existing elements from all three (ESCO, e-CF, and BOK) so that redundancy detection methods can be analyzed. Inconsistencies and similarities Future work will describe the details of the framework. eSKM, while working on implementing a support system for applicants and employers, can find a self-assessment function for job applicants and how to match between the list of candidates and the job opening description. Training to set occupational goals and the feasibility of knowledge testing and testing methods (Fernández-Sanz, L., Gómez-Pérez, J., and Castillo-Martínez, A., 2016). Principles of comparing professional experience transfer. This means the Connecting, Filling, and Benchmarking mechanism, linking and benchmarking into the national qualification framework for both graduates of educational institutions and those who are certified to professional standards. There must be a flexible, diverse qualifications mechanism and system in place, and experience or competencies from the performance can be compared or fully completed throughout life. To obtain accreditation and upgrade qualifications in accordance with the national qualification framework (Office of the Education Council, 2017).

The supervisory modeling of professional experience by using the intelligent portfolio with service agents. It develops practical learning and problem solving for vocational students. Step A: Preparing for smart portfolio management begins with a student orientation, telling you the purpose of learning. Guidelines for practitioners to prepare Motivate students to have a cheerful outlook, train learners to use relevant tools. Data collection in smart ports Experience accumulation governance, interaction tools, performance tools, and online resources Step B: Start by letting trainees learn how to practice in the workplace by studying theoretical content through a prepared smart portfolio and learning to the problem-based management stage. Start with Step a) Problem

Scenarios Step b) A resolution plan that contains understanding the problem. Hypothesizing, defining learning objectives Step C: Problem solving actions Taking information from problem solving planning Problem solving actions by searching for information and synthesis of information. Hypothesis testing Students report through intelligent data storage, collecting objective contributions by artificial intelligence by service agents smart enough to screen. Identify and retrieve content that meets the criteria, which is done by instructors and trainers who must comply with the rubric criteria. The instructor then evaluates the work by a service representative, identifying the work. When the assessment is completed. The service representative collects all the points and distinguishes the results. Apply to vocational education at the diploma level to develop professional skills in accordance with the curriculum of the Office of the Vocational Education Commission (Sittidat, K., & Pallop, P. 2020).

Intelligent Portfolio refers to the collection of tasks into an integrated artificial intelligence system. The service agent is intelligent enough to filter, sort, and find content that meets a given condition that must meet the rubric criteria. The assessment has been completed. The service representative is responsible for collecting all the scores and separating the grades individually (Sittidat, K., Prachyanun, N., & Panita, W. 2020).

Factors comparing the transfer of professional experience to the import data.

Factors comparing professional experience transfers to the import data. It consists of 5-factor groups. as follows:

A: Qualifications as follows: a) Completion of Vocational Certificate (Diploma) Work in related fields Be qualified for admission to the Advanced Diploma level, count the working time. Have at least 3 years of knowledge and experience, b) Have experience after graduating high school or equivalent Not less than 2 years, c) Completion of the Diploma Program, d) Completion of Bachelor of Technology (Bachelor of Technology) or Bachelor's Degree (Bachelor's Degree), e) Have a grade according to the Diploma program and then retake the entrance exam, f) Enroll in courses in the school setting Not less than 1 semester to apply for transfer of course results, g) Have basic information for consideration to compare professional experience transfers.

B: Condition has the following elements: a) Registration for the transfer of knowledge and experience is not more than two-thirds of the number of credits according to the course structure, b) Professional experience in the workplace, c) Knowledge of subjects in accordance with such courses before entering the profession. d) Academic performance according to the structure of the Diploma Program

C: Knowledge has the following elements: a) There is evidence of knowledge and experience, b) Have a certificate of competence, c) Have a certificate of competence, d) Certificate of competence from the relevant authority to certify the competence of the assessed.

D: Experience as follows: a) Evidence of similar work experience At least 5 consecutive years during work, self-improvement in education, b) Proof of professional performance, c) Proof of award, d) Evidence of social performance, e) There is evidence currently underway, f) Have a certificate showing the results of passing the national skill standard test, g) Have a career standard certificate Show occupational standards - Institute of Professional Qualifications (Public Organization)

E: Professional Standards are as follows: a) Key performance developments, b) General competency development and professional competency.

Conclusion

According to the Office of the Board of Vocational Education. The Department prepared the Vocational Education Development Plan 2017-2036 by analyzing and analyzing the national strategy for the 20 years (2017-2036), the National Education Plan 2017-2036, and the National Socioeconomic Development Plan No. 12 (2017-2021) to provide for the development and direction of workforce development in accordance with the national strategy. By ensuring vocational education. 6 Battles In the second strategy, the production, and development of vocational manpower to enhance the country's operational capacity. In terms of strategy, Establish the strategy for the production and development of vocational manpower to enhance the country's operational capacity. Roadmap 10: Development of testing systems Measure and evaluate academic performance in accordance with vocational curriculum standards. A system for comparing transfers of professional qualifications and experience to enhance academic qualifications in accordance with the national qualification framework (M. E. Office Vocational Education Commission, M. E., 2017). From the summary of the process of comparing the transfer of professional experience, the factors for comparing the transfer of professional experience by using service agents are to be used in the actual performance of vocational students. Make transfer comparisons efficient. Increased effectiveness Teachers can monitor and evaluate results while transferring professional experience. As well as providing feedback on how students perform their tasks faster and more thoroughly. Officers or administrators of transfer of professional experience Check and record the name of the agency. Responsibilities within the student establishment and summary of the transfer results of the students, which enhance the quality of professional experience transfer management that is consistent with and linked to the establishment with an emphasis on cooperation in the management of the transfer of professional experience. Students who use professional experience transfer Transfer credits can be compared to reduce the number of academic students studying in

vocational certificate programs, which is to bring practical experience to expand the knowledge of the study.

Keywords**:** Professional Experience Transfer, Service Agent

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Demographic Determinants of Economic Growth

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Abstract

Purpose

The nation's aggregated knowledge should be regarded as its potential growth point. While the above knowledge is obtained by a plethora of people, the initial hypothesis that economic development and demographic dynamics are strongly interconnected was proposed. The scientific novelty of the obtained results is associated with the conceptual substantiation of the demographic sustainability strategy's preparation under conditions of globalization, and essential improvement in the theoretical and methodological assessment apparatus of the socio-demographic factors' impact on the economic development dynamics.

Theoretical Framework

The approaches to the interpretation of "demographic sustainability" were analyzed and summarized. The aforementioned category has got the authors' definition. Demographic sustainability could be described as the society's ability to support automatically and – using both implicit and explicit compensators – to restore as well as to improve its own structure in the context of social stratification, regarding a set of significant parameters, including the economic activity level as well as educational, professional and competence training; demographic sustainability optimizes the production proportions of intellectual and physical capital, provides intensification and continuity of production, increases the population welfare. It was substantiated that the complex of demographic factors, in particular the dynamics of population size and density, the share of economically active persons in its structure, fertility (current and retrospective) and mortality rates, average life expectancy, influenced a long-term economic growth.

The application of fiscal, monetary, innovation, investment, and social mechanisms to regulate the demographic situation was substantiated. The principles of universality, economic efficiency, multidimensionality and complexity, financial inclusion, coordination of individual and collective interests, social justice and partnership, solidarity and responsibility should be observed. It was proved that the institutional support structure for demographic sustainability was determined by the level of economic development, and the model of the national economy. It was determined that the

health care, social insurance, and pension systems' reforms were aimed at maximizing the benefits of an increased life expectancy and an extended the working age.

Methodology

Theoretical and methodological bases of this study are represented by the scientific works, addressing the problem in question. The dialectical, systemic and structural approaches, the methods of analysis, synthesis, comparison, generalization, and scientific abstraction were applied. We used a panel data analysis, which covered 45 advanced and transitional economies over the 1990-2018 period. The sample included 36 significantly different economies of the OECD states and Armenia, Belarus, Bulgaria, Croatia, Georgia, Kazakhstan, Romania, Russian Federation, and Ukraine. Regarding the critical lack of information on several emerging markets over the early 1990s, the panel data appeared unbalanced. Regarding the fact that the majority of the investigated emerging economies had successfully conducted institutional and structural reforms before joining the EU (its formation generally ended around 2004-2005), we examined two periods of 1990-2004 and 2005-2018 separately. The sources of the empirical data were represented by the World Bank's and the IMF's bases. Some essential data were drawn from the OECD and the European Commission's bases.

Results

The Ukrainian population's decline over the 1990–2021 period by more than 10 million people was derived from a set of natural factors and an imperfect and insufficiently systematic and consistent government economic policy as well. It is proved that the demographic policy's priorities should be associated with an increase in the life expectancy; a reduction in all population age strata mortality (e. g., in the working age population stratum, in the juvenile stratum, etc.). The outflow of the youth should be counteracted in order to minimize the negative impact on production and reproductive potential. Those issues require a long-term (up to 15 years) governmental strategy for socio-economic development with the elements of protectionism and a clear determination of priorities and growth models in order to increase the incomes and to finance public production.

The necessity to develop both theoretical and methodological principles and the practical protection means for the emigrants on the basis of the international agreements' ratification (regulating the employment of Ukrainian citizens abroad) – with the provision of appropriate economic and social guarantees – was emphasized. A general implementation direction for the Ukrainian economic policy aimed to increase public welfare to the level comparable to the corresponding indicators in the countries-recipients of migration flows was identified. Migrant capital was determined as an important source of financial resources for the Ukrainian population. Its institutional mechanisms provided: a) in the real sector – an increase in production and the regional development of the territories with a significant share of return migrants in their population; b) in the sphere of monetary policy – an increase in the scale of depositary activities as well as fostered development of the banking and

para-banking sectors; c) in the area of foreign economic activity – the inflow of currency, an accelerated investment processes, and the optimized structure of external borrowing; d) a particular microeconomic agents behavior with the specified profiles of production and consumption.

The Ukrainian socio-demographic policy's implementation peculiarities are represented by the lack of effective tools to impact both natural and migration population increase, critically prolonged and rather uncoordinated the national economy's structural transformations, crucial development inequality in the regional context, and mixed social sectors' funding involving private and public resources. An updated approach to investigate the effects of demographic factors on economic growth was applied.

Demographic forecasting and modeling, in particular, the aging processes simulation, are vitally important to formulate effective socio-demographic development strategies, to provide guaranteed income for the people of all age strata, and to improve the health and well-being of all citizens. It was proved that the demographic dividend should be emphasized considering both productivity and consumption. Meanwhile, the population aging could be a source for the second demographic dividend. In terms of the economically productive population stratum decline, the major challenge for the aging and aged societies is to provide a favorable framework for the specific old-age consumption and to achieve a desirable level of public welfare. The second demographic dividend gained through the intensified accumulation of human intellectual capital and the rationalized structure of savings and investments was identified as a priority.

Discussion and Conclusion

Taking the empirical data into account, over the past three decades, economic development was extremely dependent on different demographic determinants. The examined social and demographic indicators – the working-age stratum and the average life expectancy growth rates – harmed the real output. In the case of the negative interrelation between the working-age stratum and the real GDP growth rates, the possible explanation can be derived from the labor force quality. In our investigation, the working-aged stratum of the population was defined according to the ILO methodology. Moreover, the people aged from 15 to 64 objectively possess the incomparable working abilities and competencies. The observed expansions in the aforementioned stratum could be caused by an increase in the low-skilled and unskilled sub-strata. The latter was generally described by relatively weak productive capacities and an insignificant contribution to public production. Further investigations should cover the structural peculiarities of the working-aged stratum and related issues. The general adverse influence of an extended life expectancy can be explained due to the same changes in the population's distribution through the age strata. In advanced and emerging economies, longevity is directly connected to the tax burden: an increased life expectancy induces actual social contributions. Seriously aged population increases the share of medical and recreation spending – both public and private – in GDP significantly. Furthermore, investment and

consumption behavior are crucially dependent on the population's age structure. Longevity was described as the natural and direct consequence of the high economic development.

It was proved that the demographic development policy should be based on the optimal model of mixed public and private human capital funding. The conceptual bases for the demographic sustainability strategy's preparation were proposed. The aforementioned bases involved application of complex and mutually coordinated macroeconomic regulation's mechanisms, tools and levers; establishment of an optimum demographic dependency ratio, considering the compositional structure's effect, the time lags, the economic shocks, the globalization trends, and the transformations in the domestic socio-economic model, aimed simultaneously at achievement of expanded reproduction and intensive economic growth. The integrated indicator for demographic sustainability was proposed. The above indicator is based on the normalized indices of life expectancy at birth, adjusted net national income per capita, unemployment, labor force participation rate in total population, demographic dependency, fertility (present and lagged), infant and adult (male and female) mortality rates, secondary and tertiary school enrollment, and labor force participation rate of migrants. The demographic sustainability strategy should be based on the effective interrelations between business and science, private and public R&D-funding organizations. It should stimulate the professional career growth and successful employment of the most qualified economic agents as well.

Keywords: demographics, demographic sustainability, demographic dividend, economic sustainability, economic development, globalization.

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