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Determinants of Knowledge Sharing among Employees of Tamale Technical University

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Abstract:

The research delved into how knowledge is shared among employees at Tamale Technical University. Using frequency and percentage scores, the study established a positive inclination towards knowledge sharing. The majority of participants demonstrated both an understanding (60%) and a willingness (71.1%) to actively engage in sharing knowledge. Also, the study identified workshops and training sessions as the primary methods for disseminating knowledge, with 28.7% of respondents preferring this approach. This underscores the significance of structured learning environments in facilitating the transfer of knowledge among employees. Additionally, the research revealed key factors influencing knowledge sharing. Trust (Beta = 2.052, Sig. = .020) computed at $p < 0.05$ emerged as a significant catalyst, indicating that as trust levels increase, so does the willingness to share knowledge. Moreover, both management support (Beta = 2.618, Sig. = .023) and university policies (Beta = 2.256, Sig. = .009) were found to have positive significant effects on knowledge-sharing behaviours, underscoring the crucial role of organisational support in fostering a collaborative knowledge-sharing environment. The study recommends a focus on initiatives such as open communication, transparent decision-making and mutual respect that will cultivate and fortify trust levels among employees for knowledge sharing.

Keywords: Knowledge sharing, trust, management support, university policies and collaboration

1. Introduction

Knowledge sharing is the cornerstone of human progress, enabling individuals, teams, and organisations to tap into a collective wealth of information, expertise, and experiences. It is the conduit through which insights are transferred, ideas are cultivated, and innovation thrives (Zhou, 2019). In a rapidly evolving world, knowledge sharing is not just a valuable asset; it is an essential driver of growth, learning, and collaboration. It is fundamental to the effective functioning and success of institutions of higher learning. It supports research, teaching, and administrative activities, fosters collaboration and innovation, and contributes to the overall growth and development of institutions and communities (Yang & Li, 2018). Efforts to promote a culture of knowledge sharing are essential for the continued advancement of higher education.

2. The Concept of Knowledge Sharing

The definition of knowledge sharing varies in the existing literature, depending on the authors' academic backgrounds and perspectives. Zahari et al. (2014) opined that scholars and academics interpret knowledge sharing from various angles, including knowledge interaction, learning, knowledge market, and communication. Adedolapo and Wole (2019) defined knowledge sharing as the exchange of knowledge among individuals. Ahmad (2017) sees knowledge sharing as the sharing of task-related information, advice, and expertise to help others, collaborate on daily tasks, address issues, and generate new ideas. In essence, without effective knowledge sharing, the knowledge held by individuals is less likely to be transferred within the organisation (Zahari et al., 2014). Oyemomi (2016) posited that knowledge sharing is a continuous process of exchanging knowledge through various channels among individuals, groups, and organisations. Ibrahim and Heng (2015) posited that knowledge sharing involves mutual interactions among members of an organisation that enables them to access knowledge possessed by their colleagues. Knowledge sharing can also be defined as the sharing of relevant information, ideas, thoughts, and expertise among people within an organisation (Vandana et al., 2017).

Knowledge sharing can be observed at both the individual and organisational levels. At the individual employee level, knowledge sharing involves communication with colleagues to enhance task performance, efficiency, and effectiveness. At the organisational level, knowledge sharing entails capturing, organising, reusing, and transferring experiential knowledge within the firm, making it accessible to others (Adedolapo & Wole, 2019). Effective knowledge sharing is essential, as it facilitates the transfer of knowledge that resides within individuals to the broader organisation (Zhu, 2016; Zahari et al., 2014). Establishing a culture of knowledge sharing requires businesses to encourage employees to collaborate more effectively, pool resources, and share organisational knowledge to enhance productivity (Zahari et al., 2014). Ahmad and Widén (2018) suggest that when employees engage in knowledge sharing, they enrich and externalise their knowledge. Numerous studies have demonstrated that knowledge sharing promotes innovative work behaviour, knowledge creation, refinement of ideas, active learning, and creativity (Hu & Zhao, 2016; Iqbal et al., 2015; Mura et al., 2016; Zhu, 2016).

Zhu (2016) argues that active knowledge-sharing enhances job satisfaction among employees. Jiang and Hu (2016) submitted that knowledge sharing enhances employees' life satisfaction by fostering quality relationships, minimising work-related stress, and reducing work-life conflict. When employees are satisfied with their jobs, this positively affects organisational performance. Some scholars contend that knowledge sharing improves organisational financial performance, including profitability, market share, return on investment, and sales growth (Gomes et al., 2017; Rezaei et al., 2016). As knowledge sharing enhances organisational performance, scholars have revealed that to establish a sustainable competitive advantage, employees must share and apply knowledge in practice (Dalkir, 2017). Other studies have asserted that knowledge sharing can assist in cost reduction, shorten product development cycles, improve client satisfaction, and enhance innovation and performance capabilities (Ozer & Vogel, 2015).

3. Knowledge Sharing in a University Community

Knowledge sharing among employees in a university is a critical aspect of the academic and administrative ecosystem (Tams & Schäffer, 2020). It involves the exchange of information, expertise, and experiences among faculty, researchers, administrators, and support employees within the university community. This sharing of knowledge contributes to the institution's overall success, fosters innovation, and enhances the quality of education and research (Ibrahim (2019).

Universities are hubs of intellectual activity where academics engage in teaching, research, and scholarly activities. Knowledge sharing is essential for collaboration among faculty members, departments and research centres. Collaborative research projects often rely on the expertise and insights of multiple researchers, making knowledge sharing indispensable (Zhang & Liu, 2019). Many universities have community engagement and outreach programmes. Knowledge sharing with the broader community, including local organisations and businesses, can foster mutually beneficial partnerships and contribute to regional development.

Many universities encourage cross-disciplinary learning and research. Knowledge sharing enables experts from various fields to come together, exchange ideas, and address complex societal challenges that require diverse perspectives and skills (Tams & Schäffer, 2020). Experienced faculty members often share their teaching methods, strategies, and best practices with newer colleagues. This mentoring process helps junior faculty members improve their teaching and research skills. Universities have a long history and a wealth of institutional knowledge. Effective knowledge sharing ensures that valuable insights, practices, and experiences are not lost as employees members retire or move on to other institutions (Zakaria, 2015).

In addition to academic knowledge, universities can also rely on administrative employees to manage various aspects of campus life. Knowledge sharing among administrative employees can streamline processes, improve services, and enhance overall efficiency (Li & Su, 2017). Knowledge sharing may not be limited to faculty and employees. Students can also benefit from a culture of knowledge sharing. Professors can impart knowledge to their students, and students, in turn, contribute through research projects, discussions, and group work (Seremani & Madinga, 2017).

Universities often employ technology to facilitate knowledge sharing. Intranet systems, online collaboration platforms, and digital libraries provide tools for sharing documents, research findings, and other resources among the university community. Besides, Universities can encourage employees to engage in professional development opportunities, including workshops, seminars, and conferences. These events promote knowledge sharing and keep employees updated on the latest trends and research in their respective fields (Addo, 2015).

4. Problem Statement

Given that universities consider organisational knowledge as a valuable source of competitive advantage (Sadia & Amjad, 2017; Osama, 2017), other scholars assert that promoting knowledge sharing is essential in maintaining a competitive edge (Sui et al., 2018; Kuusinen et al., 2017). However, the most challenging aspect of this process, particularly in higher education, is working with individuals to enhance interaction and facilitate knowledge sharing (Khoualdi & Saleh, 2015; Nourlkamar & Hatamleh, 2014). These challenges stem from issues such as a lack of trust, inadequate incentive systems, limited management support, a deficiency in team collaboration, negative organisational culture, insufficient backing from the institution, and difficulties in selecting suitable IT resources for effective communication and collaboration (Osama, 2017; Nourlkamar & Hatamleh, 2014).

Effective knowledge sharing within organisations hinges on various elements, including appropriate training, a conducive culture, an effective reward system, trust, and technology (Adedolapo & Wole, 2019). These factors include proper training, cultivating a conducive culture, establishing rewarding systems, fostering trust, and leveraging technology (Wang et al., 2015). Hanna and Jianzhong (2018) highlight the importance of university faculty members participating in

knowledge sharing as a means to enhance their professional performance. Despite its importance, knowledge sharing in universities can face challenges. These may include issues related to competition for research funding, concerns about intellectual property, and a lack of incentives or recognition for knowledge-sharing activities (Zhou, 2019). In the specific context of Ghana, there is a paucity of quantitative studies that have delved into the factors influencing knowledge sharing among employees of higher learning education, particularly within Tamale Technical University. Therefore, this research sought to address this gap in the literature by investigating the key determinants of knowledge sharing among university employees in this setting.

5. Theories of Knowledge Sharing

Knowledge sharing is a critical process in organisations and communities that involves exchanging information, expertise, and insights among individuals or groups. Several theories underpin knowledge sharing, helping to explain why people share knowledge and how organisations can facilitate this process. These theories collectively provide a framework for understanding the motivations, mechanisms, and factors influencing knowledge sharing in various contexts. Some key theories that provide a foundation for understanding knowledge sharing are:

5.1. The Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)

Various behavioural and social theories have been employed to ascertain the determinants of knowledge sharing in diverse organisational settings. Among these theories, two prominent ones are the Theory of Reasoned Action (TRA) and its expanded version, the Theory of Planned Behaviour (TPB), which have been utilised in investigations related to knowledge sharing (Jolaee et al., 2014; Krok, 2013). The Theory of Reasoned Action posits that individual beliefs and attitudes are the primary drivers of most human behaviours (Lin, 2007). It assumes individuals to be rational and postulates that their behaviour is influenced by three key components: their attitude towards the behaviour, subjective norms, and behavioural intention (Jolaee et al., 2014). In other words, according to the TRA, an individual's beliefs about knowledge sharing shape their attitude toward it, the opinions of individuals in their social circles influence subjective norms, and the combination of attitude and subjective norms shapes their intentions to engage in knowledge sharing. This intention, in turn, leads to the actual behaviour of knowledge sharing.

Similarly, as described by Krok (2013), the Theory of Planned Behaviour asserts that every behaviour is preceded by a deliberate intention, which is formed based on the individual's attitude toward the behaviour, subjective norms, and perceived behavioural control. However, it is important to note that both the TRA and TPB are designed to predict planned, intentional human behaviour rather than spontaneous actions resulting from sudden external stimuli (Krok, 2013). Bousari & Hassanzadeh (2012) have asserted that the determinants of knowledge-sharing behaviours can be examined through the lens of the Theory of Planned Behaviour. However, these determinants may not be sufficient to fully explain dynamic behavioural outcomes. To account for these, additional factors and infrastructural support should be considered alongside the components of the theory. Furthermore, it should be recognised that individuals may have the intention to share knowledge. However, their ability to do so may be hindered by the absence of necessary facilities, appropriate organisational culture and economic support structures (Bousari & Hassanzadeh, 2012).

5.2. The Social Exchange Theory (SET)

The Social Exchange Theory (SET), originally propounded by Blau in 1964, is a commonly used theoretical framework for examining how individuals engage in knowledge-sharing behaviours (Liang et al., 2008). This theory posits that our actions are driven by a desire to maximise benefits while minimising costs, and it reflects the fundamental aspect of human nature, which revolves around self-interest (Krok, 2013). Consequently, individuals shape their interactions with others based on a self-interested evaluation of the advantages and disadvantages of engaging in such interactions (Liang et al., 2008). According to the Social Exchange Theory, there is no concept of altruism, which is defined as behaving solely to benefit others without regard for one's own interests. However, it is worth noting that various research studies have presented evidence that challenges this notion by suggesting the existence of genuine altruistic behaviours in certain contexts.

5.3. Self-Determined Theory

The Self-Determination Theory (SDT) groups various motivational factors and personal perceived benefits according to the level of an individual's self-determination, which indicates how much a motivation originates from within or is influenced by external factors (Ryan & Deci, 2000). SDT elucidates these motivational factors as the reasons behind specific actions, focusing on how participants perceive positive outcomes resulting from knowledge sharing (AlBusaidi et al., 2017). These personal perceived benefits serve as the primary motivators for individuals to engage in knowledge sharing. SDT distinguishes between two categories of individual perceived benefits: extrinsic benefits and intrinsic benefits (Rode, 2016). Researchers have applied SDT to explore knowledge sharing in various knowledge management (KM) domains (Wu & Zhu, 2012; Wang & Hou, 2015).

Extrinsic benefits include a range of benefits for participants, including monetary rewards and non-monetary incentives like bonuses, performance appraisal systems, and organizational status (Wang & Hou, 2015). Internalised extrinsic benefits represent a portion of these incentives that originate externally but are embraced and reinforced by participants themselves. Reciprocity, a key example of internalised extrinsic benefits in the knowledge management context, fosters a positive attitude and intention toward knowledge sharing (de Almeida et al., 2016). In contrast, intrinsic benefits relate to the inherent satisfaction derived from task performance, with altruism and knowledge self-efficacy being prominent examples (Chang & Chuang, 2011; Al-Qadhi et al., 2015). Altruism is identified as the primary perceived benefit

of individual knowledge sharing in enterprise social networks, where employees are motivated by both internal and external factors to share knowledge (Razmerita et al., 2016).

While all the aforementioned theories have greatly contributed to our understanding of knowledge-sharing behaviours and intentions within organisations, relying on a single theory to explain the success of knowledge-sharing is often insufficient. This limitation arises because the determinants of knowledge sharing vary widely, making it challenging to establish a universal model that encompasses various perspectives, including psychological, business, organisational, sociological, and technological aspects (Krok, 2013). Even while employing the same theory, different studies tend to incorporate distinct factors to align with the theory (Liang et al., 2008).

This study employed the approach of Adedolapo and Wole (2019), who integrated organisational factors (such as organisational culture, reward systems, management support, and university policy), individual factors (including self-efficacy, trust, willingness to share, personal interactions, and personal expectations), and technological factors (comprising the availability of IT infrastructure and social media usage) within the framework of knowledge sharing. This study operates on the assumption that if an organisation's regular activities support these individual, organisational, and technological factors, employees will be intrinsically and extrinsically motivated to willingly share knowledge.

6. Determinants of Knowledge Sharing

Knowledge sharing is influenced by a variety of determinants that affect individuals' willingness and ability to share their knowledge with others. A number of factors, including dedication, trust (Masoudi et al., 2016), incentive systems (Roth, 2015), and technology (Azari et al., 2016), have been identified as significant determinants of knowledge-sharing behaviour. This particular investigation has categorised these elements into three distinct domains: individual, organisational, and technological factors.

6.1. Individual Factors

Knowledge sharing is initiated by individuals who create the knowledge. Research focusing on knowledge sharing from an individual perspective reveals the intricate aspects of human decision-making. The exchange of individual knowledge among employees includes various modes, such as written documentation, observations, and in-person interactions, occurring either synchronously or asynchronously (Mohammadbashir et al., 2018).

According to Adedolapo and Wole (2019), several prerequisites must be met for individuals to engage in knowledge sharing. These prerequisites include knowledge, self-efficacy, trust, personal interactions, personal expectations, and a willingness to share. Knowledge self-efficacy pertains to individuals' self-assessment of their ability to disseminate information effectively. Trust stands out as a potent and cost-effective motivator for encouraging knowledge sharing; individuals are more inclined to share knowledge when they have a high level of trust in the recipient. Conversely, low trust in an individual results in diminished knowledge sharing. The willingness to share knowledge is closely tied to the perception that the recipient can be trusted (Adedolapo & Wole, 2019). Distrust among colleagues can significantly impede the sharing of pertinent information, potentially undermining the efficiency of business processes. While trust among individuals is widely regarded as a pivotal factor in enhancing knowledge sharing, some scholars argue that it may not be the only determinative factor (Omotayo & Babalola, 2016).

Another substantial avenue for knowledge sharing is personal interaction. Knowledge sharing can occur subtly, often without conscious awareness. Increased interaction among employees is essential for acquiring knowledge. Personal expectations also play a crucial role. Individuals must believe that their contributions to others will be valued and that this value creation will yield benefits for themselves (Wasko & Faraj, 2005, as cited in Adedolapo & Wole, 2019). Expectations, such as being recognised as an expert in a specific area, contribute to enriching an institution's knowledge repository and serve as a conduit to connect with other researchers.

The willingness to share knowledge is of paramount importance. It signifies a person's readiness to share valuable and useful knowledge with others. In essence, it reflects an individual's disposition toward the practice of knowledge sharing. Willingness to share is a critical factor worthy of examination because, even when other facilitating factors are present, an individual may still opt to hoard knowledge. Factors such as altruism, personal satisfaction, enjoyment in assisting others, receptiveness of the recipient, empathy, attitude, the desire to build a reputation, and personal relationships can enhance an individual's willingness to share knowledge.

6.2. Technological Factors

According to Sadia et al. (2017), organisations make substantial investments in the development and acquisition of information and communication technologies, including tools such as email, chat rooms, bulletin boards, and internet intranets. Technology is widely acknowledged as a critical facilitator for managing knowledge and promoting knowledge sharing within entities. The utilisation of technology is associated with factors such as functionality, user-friendliness, and the perception that it demands considerable time and effort to contribute (Vuori & Okkonen, 2012, as cited in Adedolapo & Wole, 2019). Additionally, technology, including the structural aspects of the platform (Matschke et al., 2014), interface design, and meeting user needs (Hung et al., 2011), has been recognised as significant factors in influencing employees' knowledge sharing.

Furthermore, Razmerita et al. (2016) have submitted that enterprise social media plays a pivotal role in facilitating new ways of working, particularly in the context of novel forms of knowledge sharing and interactions. In an information age, technological factors are indispensable for knowledge sharing, as knowledge dissemination relies on various means and channels. These technological factors can be categorised into two key components: the availability of information technology infrastructure and the use of social media. Social media simplifies the management and externalisation of both

individual and organisational knowledge. Externalisation of knowledge can take place through diverse modalities, such as videos, images, blogs, wikis, responding to queries, or ongoing online discussions (Razmerita et al., 2014). By employing social media, employees can strategically engage in self-presentation and exercise greater control over how their messages are perceived, given the extended time available for crafting their messages through written communication (Liana, Kathrin & Pia, 2016).

Understanding the behaviour of knowledge sharing and the factors that influence such behaviours through the adoption of enterprise social media platforms provides valuable insights into how knowledge workers can be motivated to share knowledge for work-related purposes (Liana, Kathrin & Pia, 2016).

6.3. Organisational Factors

According to Adedolapo and Wole (2019), organisational factors can be categorised into four main components: organizational culture, reward system, management support and university policy.

6.3.1. Organisational Culture

Organizational culture plays a significant role in facilitating knowledge sharing, as noted by Sahar et al (2016) and Noor et al. (2015). Sahar et al. (2016) highlight that cultural attributes are key predictors of knowledge sharing within institutions. Visible culture includes the guiding philosophy, mission, and embraced values that govern an organisation's daily operations (Kathiravelu et al., 2014). An organisation that fosters a culture of vision, strategic planning for knowledge sharing, mentoring, trust and communication among employees, openness to change, and innovation is more likely to succeed in knowledge sharing.

6.3.2. Reward System

Reward systems, as defined by Süleyman & Muammer (2015), include all the incentives and benefits offered to recognise the value created by an individual's efforts. These rewards can take the form of monetary incentives, such as increased salary or bonuses, or non-monetary rewards, such as promotions, job security, recognition, research grants, and reputation (Adedolapo & Wole, 2019). Some studies have emphasised the critical role of a reward system in promoting knowledge sharing within an organisation (Mohammed & Noufou, 2018; Süleyman & Muammer, 2015). Rewarding desired behaviours increases employees' commitment to knowledge sharing and encourages collaboration with colleagues (Muhammad & Sadia, 2016). Incentive systems can motivate employees to contribute their knowledge and learn from others, thereby enhancing organisational learning (Allameh et al., 2012).

6.3.3. Management Support

The support of top management is a pivotal factor that can influence organisational knowledge sharing, as highlighted by Muhammad & Sadia (2016). Employees perceive knowledge sharing positively when they receive support from management (Hussain et al., 2015). Hussain et al. (2015) assert that supportive management can inspire employees to share knowledge. Research has consistently shown that top management support acts as an enabler for knowledge sharing (Cavaliere & Lombardi, 2015; Titi, 2013). In contrast, a lack of support from top management can hinder knowledge-sharing efforts.

6.4. University Policy

Although there is limited research on the impact of policies on knowledge-sharing, Adedolapo & Wole (2019) and Grünfelder & Hartner (2013) acknowledge the significance of knowledge-sharing policies for institutional progress. Establishing a knowledge-sharing policy is crucial for enhancing organisational performance (Lodhi & Ahmad, 2010). Such policies could encourage knowledge sharing among employees while providing guidance on transforming tacit knowledge into explicit knowledge (Grünfelder & Hartner, 2013). Additionally, policies can help management foster a culture of knowledge-sharing within the institution (Lodhi & Ahmad, 2010). Detailed promotion plans aligned with knowledge-sharing policies can incentivise employees to recognise the importance of sharing their knowledge (Grünfelder & Hartner, 2013). Adedolapo & Wole (2019) suggest that universities can also institute policies that enhance knowledge sharing by making merit-based appointments using criteria such as teaching, research, public lectures, publications, contributions to institutional repositories, and mentoring, among others.

7. Research Methodology

An explanatory study was utilised to ascertain the determinants of knowledge-sharing behaviour among employees of Tamale Technical University. Prabhat and Meenu (2015) submitted that explanatory research helps to explain the causes and effects of variables. The study's population was made up of both academic and administrative employees of Tamale Technical University. This determination was borne out of the fact that both academic and administrative employees play significant roles in generating and sharing knowledge related to strategies, policies, and guidelines aimed at enhancing academic standards. The population of academic employees was one hundred and ninety-three (193), while that of the administrative employees stood at two hundred and ninety-eight (298), making a combined total of four hundred and ninety-one (491).

The research utilised the Krejcie and Morgan table developed in 1970 to determine the sample size for the study. This has been widely used and is considered to be a suitable technique for determining sample size (Mutz et al., 2017). A total of two hundred and sixteen (216) respondents were selected from the total population of 491 as the sample for this study. This sample was further stratified into academic and administrative employees. A total of 85 administrative

employees was proportionally determined using the targeted population of 193. Equally, 131 administrative employees were proportionally determined from the targeted population of 216. A simple random sampling technique was employed to select respondents from each stratum.

The study relied on primary data and a quantitative approach to data collection. This choice holds substantial advantages, as it enabled the researcher to explore relationships between specific variables, as noted by Creswell (2014). Furthermore, the quantitative data approach is primarily concerned with concepts such as measurement, causality, generalisation, and the potential for replication, as highlighted by Bryman (2013). Given that this study aimed to investigate the determinants of knowledge sharing among employees of Tamale Technical University, the utilisation of quantitative data aligns well with the objectives and nature of the research (Kothari et al., 2014).

Data for this research were collected using a structured questionnaire, which is a widely accepted and frequently utilised research instrument (Bhattacharjee, 2017). Besides, all employees in the study were literates, hence its usage. A questionnaire was designed and administered to collect data on the demographic characteristics of respondents, knowledge sharing behaviour, means of knowledge sharing and determinants of knowledge sharing, focusing on three independent variables as: individual, organisational, and technological factors.

The first set of questionnaires contained demographic characteristics to elicit responses from respondents, such as age, gender, educational background and their experiences. This was followed by data on knowledge sharing behaviour and means of knowledge sharing, which were measured using a five-point Likert scale as: 1 - Strongly Agree, 2 - Disagree, 3 - Neither Agree/Disagree, 4 - Agree, and 5 - Strongly Agree.

The next set of questionnaires contained factors influencing knowledge sharing, with the following components: Organisational factors included organisational culture (as per Jain et al., 2007), reward system (drawing from Kathiravelu et al., 2013, cited in Oluwaniran, 2015), management support (following Jain et al., 2007), and university policy (as per Adedolapo & Wole, 2019). Individual factors category included measurements of knowledge self-efficacy (as per Jain et al., 2007 & Wangpipatwong, 2009), trust (following Kathiravelu et al., 2013), personal interactions, personal expectations, and willingness to share (as per Wangpipatwong, 2009). Technological factors assessed the availability of IT infrastructure (as per Jain et al., 2007 & Kathiravelu et al., 2013) and the usage of social media (Adedolapo & Wole, 2019).

The questionnaires used to assess all these factors influencing knowledge sharing were adapted from various sources in the literature. Knowledge-sharing behaviour was measured based on previous studies, including Elogie (2010), Jain et al. (2007), and Mustapha & Abubakar (2009), as cited in Adedolapo & Wole (2019).

This study used a quantitative research approach which was characterised by the use of data rather than textual descriptions (Yin, 2014). The focus was on internal validity, which assesses whether the study's findings are unbiased and trustworthy. Chung et al. (2015) suggest that larger sample sizes enhance the internal validity of a study. To ensure the internal consistency and reliability of the scale used in this study, the Cronbach alpha coefficient was used, as detailed in table 1 below. Matkar (2012) provides a classification for Cronbach alpha values, where a coefficient greater than 0.90 is considered excellent, 0.80-0.89 is regarded as good, 0.70 to 0.79 is acceptable, 0.60 to 0.69 is deemed questionable, and 0.50 to 0.59 is considered poor. This statistical measure was utilised to assess the reliability of the scale used in this study.

Variables	N	Cronbach's Alpha
Individual Factors Composite Reliability	25	0.91
Knowledge Self-Efficacy	5	0.79
Trust	5	0.60
Personal Interaction	5	0.81
Personal Expectation	5	0.72
Willingness to Share	5	0.90
Organisational Factors Composite Reliability	20	0.90
Culture	5	0.82
Reward	5	0.84
Management Support	5	0.90
University Policy	5	0.80
Technological Factors Composite Reliability	9	0.82
Availability of IT infrastructure	6	0.90
Social Media Usage	3	0.70

Table 1: Reliability Test for the Variables
Source: Field Survey, 2023

Table 1 displays the reliability of the study's variables. It is evident that Cronbach's Alpha coefficients for most of the variables fall within the categories of excellent, good, and acceptable. The only exception is the variable "trust," which yielded a coefficient of 0.60, falling into the "questionable" range as per Matkar's (2012) classification. However, it is worth noting that in some research studies, an internal consistency level of 0.60 is considered acceptable, depending on the specific context and research goals. A value of 0.60 for internal consistency may be considered borderline or less than ideal in many cases. It suggests that the items in the assessment are moderately related to each other but may not be strongly correlated.

According to Prabhat and Meenu (2015), data analysis is a systematic analysis required to process data that involves the application of statistical and logical procedures to describe, summarise, evaluate and make decisions. In this

study, both descriptive and inferential data analysis methods were employed. For descriptive statistics, the study utilised frequencies and percentages. The Percentages were used to present the percentage of participants who either agreed or disagreed with specific items. Linear regression was used to analyse the factors influencing knowledge-sharing behaviours among employees.

8. Demographic Data of Respondents

The demographic characteristics of the study participants provide valuable insights into the composition of the sample. These demographic details provide context for understanding the perspectives of the study participants and the potential impact of their characteristics on the research outcomes. The study sample consisted of more males (80.6%) than females (19.4%). This reflects the male dominance among employees at Tamale Technical University. Historically, academia has seen a gender imbalance, with men being more represented in certain academic fields and leadership positions (Tams & Schäffer, 2021). However, efforts have been made to address this imbalance and promote gender diversity in higher education institutions. These efforts include policies and initiatives to encourage the recruitment and advancement of women and other underrepresented groups in academia (Ismail & Al-Kabi, 2014).

Respondents between the ages of 36-45 years made up the majority (72.2%) of the participants. A smaller percentage of respondents were between 18-25 years (1.4%). This suggests that the study mainly involved mature individuals who may have a greater capacity to respond to the research. The age group among employees in universities can vary significantly depending on the specific university, its location, and its hiring practices (Zhang & Liu, 2019). However, in many universities, the majority of academic employees tend to be in their 30s, 40s, and 50s (Chen & Hung, 2010). In contrast, Tams & Schäffer (2020) submitted that administrative employees in universities can have a wider age range, with some individuals in their 20s and others in their 50s, 60s, or older, depending on their roles and career paths.

The majority group in terms of academic qualification among employees in universities typically consists of individuals with advanced degrees, particularly doctorate-levels. In this study, a significant proportion of respondents (71.8%) held Master's degrees, indicating a high level of educational attainment among the participants. This is in line with the practices of universities since they prioritise the hiring of highly educated and qualified individuals to teach, conduct research, and contribute to the academic mission of the institution (Li & Wu, 2012). Instructively, only a small percentage (1.4%) had obtained a Ph.D., indicating the acute shortage of such personnel in the labour market in most developing countries (Ibrahim, 2019). This implies that the majority of respondents had a high level of education and literacy, enabling them to engage effectively with the research questionnaire.

The largest group of respondents (56.9%) had been with the university for 7-10 years. A substantial percentage (30.6%) had been with the university for more than ten years. A smaller proportion (4.2%) had worked for 1-3 years. The majority of respondents had considerable experience working at the university, which suggests that they possess a deep understanding of the institution and its operations (Seremani & Madinga, 2017).

Questions	Categories	Number	Percentage
Gender			
	Male	174	80.6
	Female	42	19.4
	Total	216	100
Age			
	18-25	3	1.4
	26-35 years	35	16.2
	36-45 years	156	72.2
	More than 46 years	22	10.2
	Total	216	100
Educational Level			
	Diploma/HND	18	8.3
	First Degree	40	18.5
	Master's Degree	155	71.8
	Ph.D.	3	1.4
	Total	216	100
Working Experience			
	1- 3 years	9	4.2
	4 - 6years	18	8.3
	7 - 10 years	123	56.9
	More than ten years	66	30.6
	Total	216	100

Table 2: Demographic Data of Respondents
Source: Field Survey, 2022

9. How Knowledge Is Shared among Employees at the University

The study sought to discover how knowledge is shared among employees at the Tamale Technical University. Simple frequency and percentage scores were utilised to analyse employees' views on knowledge-sharing behaviour at the

university. Instructively, the data indicates a positive trend towards knowledge sharing at the university. The outcome of this study and analysis are presented in table 3.

Data in table 3 show that the majority of respondents (42.6%) agree that there is awareness of the merit of knowledge sharing at the university, as submitted by Strobl et al. (2020), while a significant portion (27.8%) neither agree nor disagree. Again, a substantial number of respondents (45.4%) agree that they voluntarily and actively share their knowledge with colleagues. This supports the findings of Hsu & Sabherwal (2012) that lecturers willingly share knowledge with their colleagues. Similarly, a notable portion of respondents (43.5%) agree that they freely share information that can improve the performance of their colleagues. An even larger percentage (34.3%) strongly agree. Equally, the majority of respondents (51.4%) agree that they involve themselves in academic discussions concerning knowledge sharing. A significant portion (22.7%) strongly agree. Also, a substantial majority (80.6%) agree (A + SA) that they discuss their work problems with colleagues rather than handling them individually and this confirms the work of Ahuja & Yang (2017). Overall, the culture of knowledge sharing seems to be well-established and valued by the respondents.

Knowledge Sharing	SD	D	ND/A	A	SA
Awareness of Knowledge Sharing	6 (2.8%)	16 (7.4%)	60 (27.8%)	92 (42.6%)	42 (19.4%)
Voluntary Knowledge Sharing	4 (1.9%)	10 (4.6%)	42 (19.4%)	98 (45.4%)	62 (28.7%)
Freely Sharing Information	3 (1.4%)	5 (2.3%)	40 (18.5%)	94 (43.5%)	74 (34.3%)
Involvement in Academic Discussions	3 (1.4%)	8 (3.7%)	45 (20.8%)	111 (51.4%)	49 (22.7%)
Discuss Work Problems with Colleagues	2 (0.9%)	10 (4.6%)	30 (13.9%)	106 (49.1%)	68 (31.5%)

Table 3: Knowledge Sharing Behaviour

Source: Field Survey, 2020

Key: SD – Strongly Agree, D – Disagree,

NA/D – Neither Agree/Disagree, A – Agree and SA – Strongly Agree

10. Means of Knowledge Sharing among Employees

The dominant means of knowledge sharing among employees in an organisation can vary depending on the culture, industry, technology, and specific needs of the organisation (Lin, 2013). Table 4 presents the frequency and percentage distribution of knowledge sharing among employees at Tamale Technical University. A percentage of twenty-eight point seven (28.7%) of the respondents specified that knowledge sharing is mostly done through organised workshops, as was highlighted in the works of Zhou, M. (2019), Lam (2012), and Yang & Li (2018) while a few, constituting 6.5% showed that knowledge was shared through repositories and meetings. These findings provide insights into the various channels employed by employees at the university to share knowledge, with workshops and training being the most prominent methods.

Means of Knowledge Employees Sharing	Frequency	Percentage
Workshops and Training	62	28.7
Research Seminars and Conferences	22	10.2
Intranet and Knowledge Management Systems	36	16.7
Documentation and Manuals	24	11.1
Mentorship and Coaching	18	8.3
Face-to-Face Communication	40	18.5
Repositories and meetings	14	6.5
Total	216	100

Table 4: Means of Knowledge Sharing among Employees

Source: Field Survey, 2022

11. Determinants of Knowledge Sharing among Employees at Tamale Technical University

Trust (Trust in knowledge sharing) has a positive and significant influence on knowledge sharing (Beta = 2.052, Sig. = .020), indicating that as trust increases, knowledge sharing also increases, as indicated in the works of Elogie (2010), Jain et al. (2007), Mustapha & Abubakar (2009), Adedolapo & Wole (2019). Willingness to share and personal interaction have a positive but weak correlation and no significant influence on knowledge sharing (Beta = .265, Sig. = .824). Knowledge self-efficacy and personal expectation have negative correlations and no significant influence on knowledge sharing (Beta = -1.513, Sig. = .206).

Management support (Support from the organisation's management) has a positive and significant influence on knowledge sharing (Beta = 2.618, Sig. = .023), indicating strong support contributes significantly to knowledge sharing.

University policy (Policy of the university) also has a positive and significant influence on knowledge sharing (Beta = 2.256, Sig. = .009), suggesting that the university's policies support knowledge sharing. Reward (Reward system) has a negative correlation and no significant influence on knowledge sharing (Beta = -.212, Sig. = .845). Organizational culture has a positive but weak correlation and no significant influence on knowledge-sharing behaviours (Beta = 1.056, Sig. = .461).

The availability of IT infrastructure has no significant influence on knowledge sharing (Beta = -.490, Sig. = .695). Social media usage has a negative correlation and no significant influence on knowledge-sharing behaviours (Beta = -1.393, Sig. = .121).

Independent Variable	B	S.E	Wald	Df	Sig.
Individual Factors					
Knowledge Self-Efficacy	-1.513	1.195	1.602	1	.206
Trust	2.052	.883	5.402	1	.020
Personal Interaction	.066	.873	.006	1	.939
Personal Expectation	-.023	1.274	.000	1	.985
Willingness to Share	.265	1.189	.050	1	.824
Organisational Factors					
Culture	1.056	1.432	.544	1	.461
Reward	-.212	1.084	.038	1	.845
Management Support	2.618	1.149	5.190	1	.023
University Policy	2.256	.859	6.894	1	.009
Technological Factors					
Availability of IT infrastructure	-.490	1.252	.153	1	.695
Social Media Usage	-1.393	.897	2.409	1	.121
Constant	-1.306	1.705	.587	1	.444

Table 5: Factors Influencing Knowledge Sharing at Tamale Technical University
Source: Field Survey, 2022

12. Conclusion and Recommendations

12.1. Conclusion

The study delved into the dynamics of knowledge sharing among employees at Tamale Technical University. Through a comprehensive analysis using frequency and percentage scores, a positive trend towards knowledge sharing was ascertained. The majority of respondents expressed an awareness (60%) and willingness (71.1%) to actively engage in knowledge-sharing practices. This indicates a well-established and valued culture of knowledge sharing within the university. Moreover, the study identified workshops and training as the primary channels for knowledge sharing, with 28.7% of respondents endorsing this mode of dissemination. This finding underscores the significance of structured learning environments in facilitating knowledge transfer among employees. Furthermore, the research revealed critical factors influencing knowledge sharing. Trust with (Beta = 2.052, Sig. = .020) emerged as a potent driver, indicating that as trust levels increase, so does knowledge sharing. Additionally, management support with (Beta = 2.618, Sig. = .023) and university policies with (Beta = 2.256, Sig. = .009) demonstrated positive impacts on knowledge-sharing behaviours, emphasising the pivotal role of organisational backing in fostering a collaborative knowledge-sharing environment.

12.2. Recommendations

- The University should focus on initiatives that cultivate trust among employees. Encouraging open communication, transparent decision-making, and mutual respect can fortify trust levels, thereby promoting knowledge sharing.
- The University's management should continue to demonstrate strong support for knowledge-sharing endeavours. This can be achieved through clear directives, resource allocation, and recognition of collaborative efforts.
- Given the prominence of workshops and training in knowledge sharing, the university should invest in structured learning opportunities. These sessions can serve as catalysts for knowledge exchange and skill development.
- While technology plays a role in knowledge sharing, the university should prioritise face-to-face interactions. This personal touch fosters a more conducive environment for open discussions and idea-sharing.
- Since IT infrastructure may be a primary driver of knowledge sharing, the university should ensure that it remains up-to-date and relevant. This ensures that technological tools remain effective enablers of knowledge dissemination.
- Finally, the university should establish an environment conducive to smooth knowledge flow by incorporating knowledge sharing into employees' key performance indicators and using it as a basis for their annual evaluations, encouraging regular engagement in their work.

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