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Ethical Climate: Analyzing the Moderation Effect on Cardinal Virtues and Employees' Cyber Security Ethical Behavior Intention in Ugandan Commercial Banks.

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Abstract

Purpose: Ethics is the last issue that organizations ponder about when planning cyber security strategies. Yet Ethical behaviors have a big impact on the interactions with software and technology. The lack of employees' cyber security ethical behavior and a weak ethical climate have encouraged security violations in the banks. Employees organize over 90% cyber security breaches and even cooperate with external attackers to cause havoc. This research aimed at understanding the moderation effect of Ethical Climate on the influence of the ethical virtues and cyber security ethical behavior in the central Ugandan commercial banks.

Methodology: Ethical climate theory provided the conceptual framework for this study. The quantitative survey method utilizing an online questionnaire was used. Data was obtained from a sample of 240 commercial banks' employees drawn from Centenary and ABSA banks' branches in central Uganda. Partial Least Squares Structural Equation Modeling was used to test for casual relations between the study's constructs. The data was analyzed and the hypothesis tested using Mod graphs.

Findings: The results reveal that ethical climate effect on temperance, courage, prudence and justice was positive but insignificant. All the lines of the mod graphs were parallel meaning that the slope and the influence of cardinal virtues on cyber security ethical behavior intention is the same at all levels of the ethical climate. Inferring that Ethical climate does not moderate the influence of cardinal virtues and cyber security ethical behavior. Ethical Climate on the other hand had a positive and significant influence on cyber security ethical behavior. An increase in ethical climate positively influences an increase in cyber security ethical behavior.

Contribution to theory and Practice: This research makes a theoretical contribution in promoting ethical climate as a theory that has a positive effect on employees' cyber security ethical behavior. The research further provides a significant understanding to Ugandan banks administrators, policy makers and cyber security policy implementation committees of the substantial positive influence of Ethical Climate on connection between Virtue ethics and employees' cyber security ethical behavior.

Recommendation: The study recommends that the banks need to establish strong ethical climate to allow employees to continue observing cyber security ethical conduct. When the ethical climate is strong, employees experience a lesser amount of force to breach the banks' cyber security.

Keywords: *Cyber security, ethical climate, ethical behavior.*

Introduction

Banks have embraced good technological security actions to defend their possessions, Zahoor et al., (2016). Cyber-attacks on banks continue finding a way despite improved cyber security infrastructures, (Ahmad & Minu, 2020). Bele et al., (2014) posit that cyber security professionals can install firewalls, antivirus software, and enable regular updates of the operation system, antivirus software and other technological strategies. But strategies alone have failed to protect users and the systems from the human beings who are known as the feeblest connection.

Cyber security breaches in the banks can bear serious financial consequences, (Lowry et al., 2013). For instance, in 2019, DFCU bank lost billions of shillings in Uganda that were withdrawn by hackers who had connivance with the DFCU Bank officials according to Bernard Sisye Kiirya for Director Criminal Investigations Uganda police. Also Bank of Uganda (BoU) the overall supervisor of commercial banks in the country, lost Shs285 million in 2018 to Kahjjhjh Mukasa a fraudster when he connived with BoU officers. Kuepper (2019) argues that cyber security breaches in the banks affects their performance. Cyber security breaches can also repel foreign investors. They are the ones owning big shares in the banking industry and if their money is stolen through Cyber fraud the entire Uganda's economy can be affected. No jo creation, low savings, standards of living and welfare may all be affected. This study aimed at understanding the moderation effect of ethical climate on the influence of the cardinal ethical virtues and Cyber security ethical behavior in the Ugandan commercial banks.

Ethics is the last issue that organizations ponder about when planning cyber security strategies, Shoemaker et al., (2019). Yet Ethical behaviors have a big impact on the interactions with software and technology, (Ait Maalem et al., 2020). Most research on cyber security focus on improving computer network systems, (Moustafa et al., 2021). Yet 80% of security breaches are attributed to user behavior. It is described in the Cost of Data Breach Report (IBM Security, 2020) that about thirty-six percent of substantial cyber security breaches are caused by employees' compliance failures, remote work, and security skill shortages. The lack of strong ethical climate and negative cyber security ethical behavior have encouraged security violations in the banks at the hands of the employees who organize over 90% cyber security breaches and even cooperate with external attackers to cause havoc.

A vital measure in defending cyber threats is to discover real and viable ways to inspire employees to successfully protect their personal and organizational information assets. Li et al., (2022) posit that behavioral aspects contribute a lot to cyber security defense since people develop, manage, and use the technology. Nakato et al., (2021) established that cardinal virtues and undeviating inspiration of ethical climate have a positive impact on an employee's ethical behavior. Ethical climate is an organization that encourages high ethical values and uprightness in its employees (Otaye- Ebede et al., 2019). Strong ethical climates help to comprehend, inspire and support the workers' moral values and cyber security behavioral intentions. An ethical work climate wins over ethical decision-making and behavior (Martin & Cullen, 2006). Thus, Ugandan commercial banks are encouraged to form and maintain strong cyber security ethical climate to inspire ethical behavior among employees.

2. Literature review

Dinc (2018) posit that employees are the most important bank assets. Their performance and that of the bank is synonymous. Employees need to feel and report that they are working in an ethical climate. Positive ethical climate and employees' good behavior are a foundation for customer trust, and backs employees' positive ethical behavior. According to Otaye- Ebede et al., (2019), ethical climate are the collective perceptions of the companies' ethical values and behaviors as practiced by the organizations' personnel. Ethical climate is an atmosphere that is vital to the Persons' ethical growth besides the personal influences. Ethical Climate (EC) are the particular features of work climate that determine what institutes ethical behavior at work (Victor & Cullen 1988). Ethical climate refers to the comprehensive impression that persons have concerning ethical rules, practices, and processes within an entity or organization (Mayer et al., 2010; Victor et al., 1988). Martin and Cullen (2006) defined ethical climate as shared insights among people in an organization or part of the organization as to what institutes right behavior and acceptable conduct among organizational members. They further vie that ethical climate has a bearing on which glitches are considered ethical. On the same note organizational employees are focused on how to overcome possible ethical problems and to demonstrate ethical correct behavior in this process. Shafer et al., (2013) highlight about the significance of ethical climate in a business and employees' ethical behavior.

Kul (2017) contends that management has an obligation to preside over moral, authentic and ethical practices from organizational employees. Koh and Boo (2001) posit that when workers know that they are working under ethical organizations, they might probably regard their organizations as being reasonable to them. This means that these workers are more likely to react with a positive job attitude. Newman et al., (2017) carried out a comprehensive review of literature examining the antecedents and outcomes of ethical climates and moderators of the relationship between ethical climates and other variables. Their article points out the need for future research to incorporate a dynamic perspective to study ethical climates, examine the effects of ethical climates on work outcomes, extend the study of ethical climates to different levels of the organization, and examine the effects of culture on ethical climates. The current research was set to answer this call.

Sabiu (2016), argued that altering the wrong behavior of employees in a business firm using ethical climate may have a significant effect on organizational performance. Ethical climate has an influence on the extent to which an organization run into honest ethical issues. Mulki et al., (2006) posit that Ethical Climate influences the employees' decision-making and subsequent behavior in response to ethical predicaments. Employees who believed that success and ethical behavior were very consistent concepts also seemed to be more satisfied with their jobs. Ethical climate can be impacted on by an organization's ethical code of conduct, (Otaye‐Ebede et al., 2019). These codes of ethics embrace an official control that sets standards of employees' expectations concerning their conducts. Thus, organizational factors for instance rubrics, reinforcements and organization's influence can act as a connection and impact the employees' ethical behavior.

Kessler et al., (2020) carried out a study on 261 employees across the four occupational groups including hospitals, physicians' offices, rehabilitation centers, and nursing homes in Florida. Study results indicated that the Information Security Climate Index was related to better employee information security motivation and information security behaviors. The study further revealed

that information systems climate has the potential to positively impact employees' motivation and behavior, thereby ultimately reducing the number of data breaches. Dinc (2018) carried out a study with the aim of examining the relationship among the ethical climate, job satisfaction, and organizational commitment of employees in Bosnia and Herzegovina. Results based on a sample of 151 employees from three private banks proves that caring climate has a positive effect on overall job satisfaction. Sabiu et al., (2019), carried out a quantitative study from 181 educational agencies in Nigeria. This study was conducted to understand the mediation effect of ethical climate on the relationship between performance appraisal and organizational performance. The findings established that ethical climate is capable of mediating the relationship between performance appraisal and organizational performance.

Research has been done to discover the moderating role of EC for instance Nafei (2015) carried out a research using ethical climates as moderator on the relationship between job satisfaction and organizational commitment in Egyptian industrial companies. The outcome revealed that there is significant relationship between job satisfaction organizational commitment and ethical climate. Despite the fact that there is a significant research about ethical climate in Information Technology and other academic literature, little research has been conducted on its moderating potential on the influence of virtue ethics and cyber security ethical behavior. Such research is theoretically significant because it presents insights into the existing ethical climate in organizations. These studies also inform leaders on what should be done in order to inspire employees' cyber security ethical behavior. Fundamentally, this has implications for making and forecasting organizations to decrease the rate of employee misbehavior towards cyber security. Kuenzi et al., (2019) contends that the existence of strong ethical climate in an organization allows employees to continue observing ethical conduct among themselves. Kuenzi et al., (2019) further argue that when organizational ethical climate is strong, employees will experience a lesser amount of force to breach the organization's ethical principles.

Therefore, on the basis of literature this study hypothesizes that:

H1 Ethical climate moderates the influence of virtue ethics on employees' cyber security ethical behavior in the Ugandan central commercial banks.

H1a. The presence of ethical climate moderates the influence of prudence on cyber security ethical behavior.

H1b. The presence of strong ethical climate moderates the influence of courage on cyber security ethical behavior.

H1c. The presence of ethical climate moderates the influence of Temperance on cyber security ethical behavior.

H1d. The presence of ethical climate moderates the influence of Justice on cyber security ethical behavior.

Moderation effect of Ethical Climate between cardinal virtue constructs and employees' cyber security ethical behavior in the central Ugandan commercial banks.

1. Banks' Employees' Cyber Security Ethical Behavior: The Moderating Influence of Ethical Climate.

Rao (2019) posit that the progression of information technologies enables the bank clients to experience their bank undertakings 24*7 using, Automatic Teller Machines (ATMs), mobile technologies and other web-based approaches. However, the banking industry is more prone to cyber security attacks than any other industry, (Lu & Xu, 2018; Kazmi et al., 2017). Serianu (2017) explain that internal practices by the banking staff in conspiracy with Information Technology (IT) staff is the main cause of fraud in the banks. Xue et al., (2018) found out that employees' wrong behaviors remain the utmost threat to information security.

The goal of this research is to understand the moderation effect of Ethical Climate on the influence of the ethical virtues and employees' cyber security ethical behavior in Ugandan commercial banks. This research submits that ethical climate is related to employee cyber security ethical behavior in Ugandan commercial banks by drawing on ethical climate theory.

Table 1: Theoretical types of ethical climate (Victor & Cullen, 1988 p. 668)

		Locus of analysis		
		individual	**local**	**cosmopolitan**
Ethical theory	**Egoism**	Self interest	Company's profits	efficiency
	benevolence	friendship	Team interest	Social responsibility
	Principal	Personal molarity	Company's rules and procedures	Law and professional codes

Mumcu and Döven (2016) posit that Egotism, helpfulness, and principlism are all undisputable guidelines that express ethical decisions. Egoism, which is the first and most important part of the structure, focuses on the behaviors that seek to maximize self-interest and selfishness. The other two added structures, which are benevolence and principlism, refer to how good the employees are. Benevolence achieves this through decisions and behaviors that bring the most goodness to as many people as possible. In principlism theory, rules, laws, codes, and procedures determine the decisions and behaviors that determine the goodness of people. Mayer et al., (2011) contend that Ethical climates provide indicators that assist employees to know what kinds of (un)ethical behaviors are (un)suitable in the work place. Li et al., (2014) contend that Ethical climate have been considered significant in influencing employees' security behaviors. Li et al (2022), contend that employees are an essential line of defense, so it is important to motivate them to enhance their cyber security compliance behavior.

Due to the critical role of ethical climate in improving employees' cyber security ethical behaviors, commercial banks have an obligation to building strong ethical climates to anchor ethical behavior. However, the aspect of ethical climate has received relatively scarce attention in cyber security ethics research. Thus, this study tested the moderation effect of Ethical Climate between cardinal virtue constructs and employees' cyber security ethical behavior in Ugandan commercial banks.

The research provides a theoretical basis for linking ethical virtues to employee cyber security ethical behavior through ethical climate.

Methodology

3.1 Research Approach

This study was conducted to understand the moderation effect of ethical climate on the influence of the cardinal virtue ethics and cyber security ethical behavior in the central Ugandan commercial banks. Thus, Ethical climate was tested using the ethical climate questionnaire adapted from Victor et al., (1988). The four cardinal virtues of Prudence, courage, Justice and Temperance adapted from (Aquinas (2005). Cyber security ethical behavioral intentions variables were adapted from the research done by Yoon and Kim (2013). Cyber security ethical behavior constructs were adapted from the study conducted by Gray (2015).

Cross-sectional data, or a cross section of a study population is a kind of data collected by observing many subjects at the same point in time or without regard to differences in time A cross sectional study design was chosen for this research because the objective in question mainly focuses on acquiring data from the key informants at only one point in time; mainly the banks' ethical climate and its moderation influence on employees' cyber security ethical behavior.

3.2 Participants

A sample of 240 employees from Centenary and ABSA banks' branches in Kampala capital city partook in the study. Out of the 240 respondents, 129 were male and 111 were female; with an age range of 20 – 65 years.

3.3 Instrumentation

The ethical climate questionnaire (ECQ) developed by Victor et al., (1988) was adapted and the nine theoretical ethical climate types, were tested. Respondents were asked to fill the survey by answering how it really is in the bank as they see it, rather than how they would wish it to be. The postulation is that participants should respond to the items unbiased in describing the bank's ethical climate to others external to the bank. The ethical climate questionnaire measures the ethical climates at individual and organizational levels of analysis. Cullen et al., (1993) tested the ECQ with 1,167 individuals through three studies. The outcomes at the individual level agreed that there is a strong support for the validity and reliability of the questionnaire.

The Ethical climate scales measured; Self-interest, organizational interest, efficiency, friendship, team interest, stakeholder orientation, personal molarity, company's rules and procedures, and public interest. The ethical climate scales, their items and their reliability were adapted from Victor et al., (1988). The ECQ consisted of 31 items/ indicator statements with a 5 item Likert scale used to measure agreement with each statement. The scale ranged from (1) mostly false, (2) somewhat false, (3) somewhat true, (4) mostly true, to (5) completely true.

3.4 Data Collection

After obtaining the research permit, the survey was disseminated using an email to potential participants with an invitation to participate through an Internet link which was provided for participation for ten weeks. The email that was sent to the prospective respondents included a link to the Google form containing the questionnaire and also an attachment of a Microsoft word

version of the questionnaire. The two options were provided to enable the respondents to have a choice between filling the survey online or offline bearing in mind that internet connectivity is still a challenge in Uganda, including the banking sector. Over this time the survey was available and the banks 'employees being surveyed circulated the survey link to their colleagues. The study participants continued to volunteer to invite and recommend more of their colleagues they considered eligible to take part in the survey. The researcher kept on checking the response numbers during the survey course. When 240 responses were received the results were reviewed for completeness and the main survey was closed.

3.5 Data Processing and Analysis.

The data was analyzed and the hypothesis tested to examine the moderating effects of ethical climate on cardinal virtues and cyber security ethical behavior using Mod graphs.

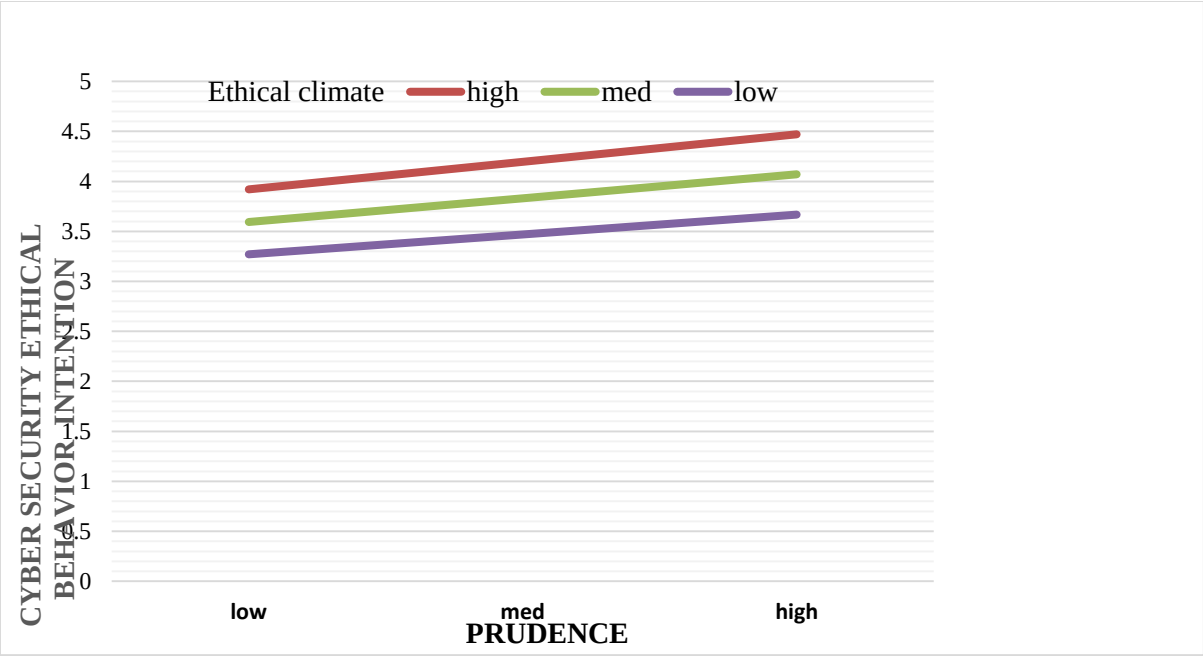


Figure 1: Moderation effect of ethical climate on prudence and cyber security ethical behavior intention.

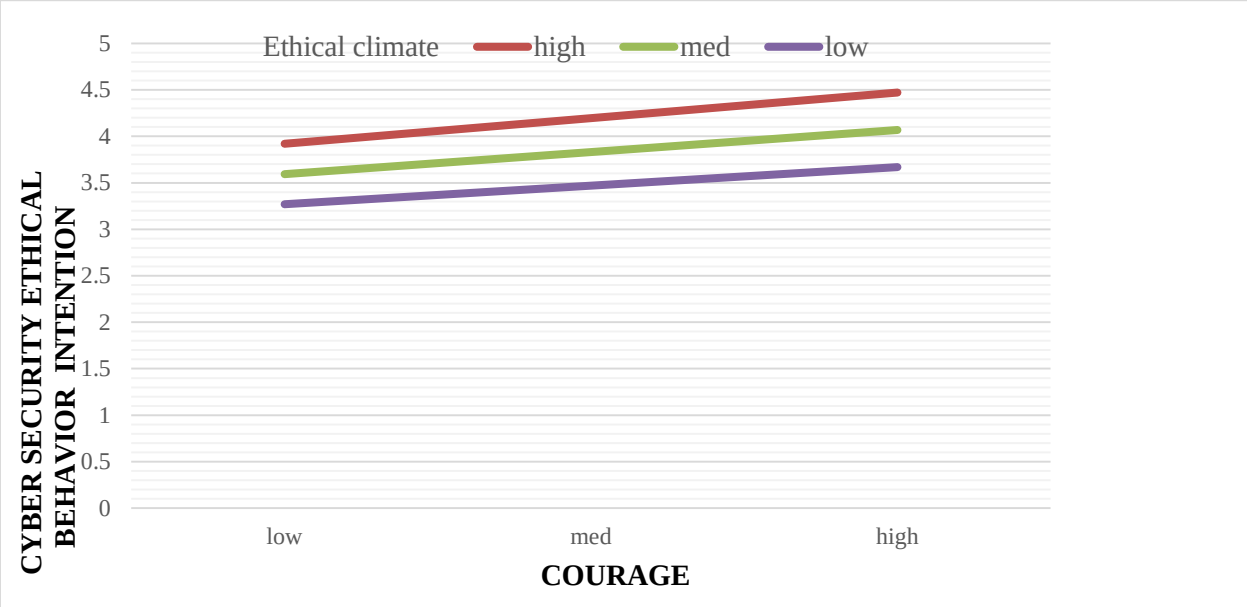


Figure 2: Moderation effect of ethical climate on courage and cyber security ethical behavior intention.

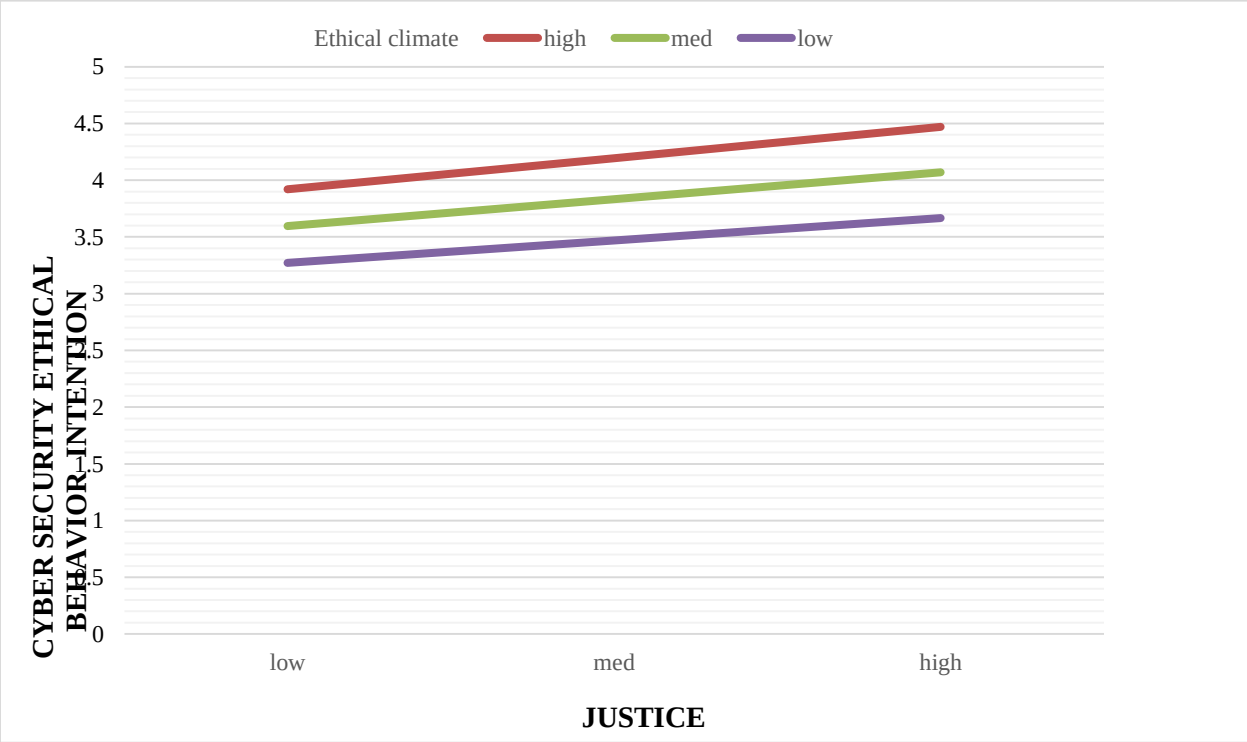


Figure 3: Moderation effect of ethical climate on justice and cyber security ethical behavior intention.

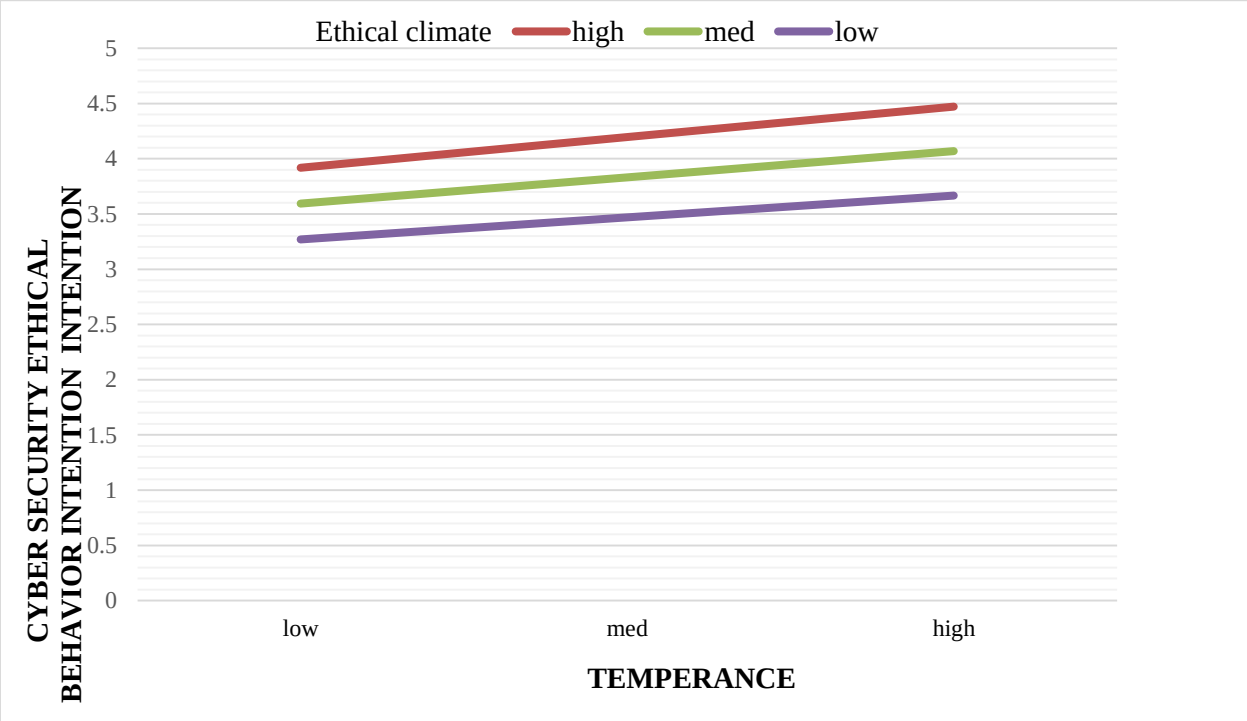


Figure 4: Moderation effect of ethical climate on temperance and cyber security ethical behavior intention.

3.5. Moderation Test Results

According to the Mod graphs above, lines of the Mod graph for Prudence, courage, Justice, and temperance by ethical climate are parallel meaning that there is no moderation effect of ethical climate on the influence of the four cardinal virtues, on employees' cyber security ethical behavior intention. The mod graph lines show that the slope for the regression lines for cyber security ethical behavior intention on cardinal virtues is lower at higher levels of ethical climate than at lower levels of ethical climate. All the lines of the mod graphs are parallel meaning that the slope and the influence of cardinal virtues on cyber security ethical behavior intention is the same at all levels of the ethical climate. Inferring that ethical climate does not moderate the influence of cardinal virtues and cyber security ethical behavior intention.

4. Discussion of Findings

H1: The presence of strong ethical climate moderates the influence of cardinal virtues on employees' cyber security ethical behavior intention.

This hypothesis was not supported by data, all the 4 cardinal virtues of Prudence, courage, justice and temperance were not moderated by ethical climate. This implies that a virtuous employee should come with a strong character and personality, caring, good listener, should have positive values, a team player, and constantly guiding and mentoring others on the team. An ethical employee should be ready to endure when dealing with office politics and be ready to swim with the current in the technological implementation of cyber security.

An evaluation of the moderating effects discloses that ethical climate construct did not significantly moderate the effects of virtue constructs on cyber security ethical behavior intention. Its effect on courage, Temperance, and Justice was insignificant. This finding is not consistent with the current literature. Xue et al., (2021) found that information security climate positively moderates the effect of affective commitment on employees' Information Security policy (ISP) violation intention. In this research strong ethical climate gave rise to a positive influence on cyber security ethical behavior. As Xue et al., (2021) contend that employees who observe a high level of information security climate tend to respect the rules and norms governing organizational security requirements.

The study's findings reveal that not only can employees' positive ethical behavior improve cyber security but also the existence of high ethical working climate can improve cyber security. This finding is consistent with some previous research. For instance, in a systematic literature review carried out by Ali et al., (2021), it was maintained that workplace-related factors also affect security behavior. VanSandt et al., (2006) established that there is relationship between ethical climate and moral awareness and behavior. Shafer (2013a) found that ethical climate has a significant positive influence on reduced intentions to commit unethical acts. Thus, the moderation hypothesis Ethical Climate on the link between cardinal virtues and ethical behavior intention emphasized the value of ethical climate in improving cyber security.

5. Conclusion

There is little experiential support for the fundamental mechanism connecting Ethical climate to employee cyber security ethical behavior. To address this gap in literature this research examines ethical climate as a moderator**.** This research tests the moderation effect of ethical climate through an empirical analysis of the ethical climate questionnaire on cardinal virtues and employees cyber security ethical behavior in Ugandan commercial banks. The strong ethical climate is linked to employees' cyber security ethical behavior. To the best of our knowledge, this outcome has not been clearly established in earlier published research.

This research provides a significant understanding to the policy makers, academics and practitioners into the substantial positive influence of ethical climate on cyber security ethical behavior intention and the indirect effect of ethical climate on the connection between Virtue ethics and employees' cyber security ethical behavior intention in Ugandan commercial banks. Strong ethical climate signifies an encouraging means to profoundly amend behavior. Study results show that an ethical climate has a direct influence to desired employee cyber security ethical behaviors. This means that ethical climate can be useful in improving ethical behavior surrounding cyber security.

The results are a guiding principle to the Government of Uganda through the Ministry of ICT in generating appropriate national policies related to cyber security ethics as a policy aimed at improving cyber security in the Ugandan commercial banks. Ethical behavior starts with employees and the ethical climate theory proves to be a suitable basis to explore cyber security ethical behaviors and compliance. Therefore, policy makers should develop strong ethical climate based custom-made cyber security solutions and training programs, with the goal of encouraging better cyber security behaviors, compliance and ethical decision making.

6. Recommendations

This research recommends that, there should be a behavior guideline to workers provided by the banks to form a connection between their duties and ethical values. It is thus necessary to develop managerial countermeasures to discipline and guide employees in their cyber security behaviors. Commercial banks need to form and maintain good behavior and keep ethical standing in the cyberspace. The study recommends that the banks need to establish strong ethical climate to allow employees to continue observing ethical conduct towards cyber security. When the ethical climate is strong, employees experience a lesser amount of force to breach the banks' cyber security ethical principles.

Cyber security threats due to employees' negligence in data handling and unethical behaviors account for most commercial banks' data breaches. It is thus vital to comprehend what banks can do to reduce such threats. Therefore, this research further recommends that a focus on ethical climate might be an operational means of promoting cyber security data safety. The commercial banks need to improve ethical climates by putting an emphasis on cyber security through ethical behavior awareness and training that inspires employees to identify threats, take them seriously, identify their colleagues' unethical behaviors, and be safer in their handling of cyber sensitive data. Such struggles might start by evaluating employee sentiments of ethical climate to get a point of reference.

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