

The Influence of Plagiarism Policy Implementation on the Quality of Academic Writing Among Postgraduate Students at the University of Dar es Salaam

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Abstract

Plagiarism policies have become an important feature of quality assurance practices in higher education institutions around the world, with a focus on improving the quality of academic writing and other research products. The University of Dar es Salaam (UDSM) purchased Turnitin software in 2015 to detect plagiarism in academic writing, including postgraduate theses, dissertations, term papers and assignments. This article examines the implementation of the university's plagiarism policy using the case of postgraduate students' theses and dissertations in selected academic unit (SAU). A sample of 556 postgraduate theses and dissertations submitted to SAU for plagiarism testing between January 2016 and December 2021 was collected, tested using Turnitin, and analysed to establish the trend and extent of plagiarism following policy adoption. Moreover, the study aimed to identify the limitations of using Turnitin to detect academic cheating among postgraduate students. The findings indicated that although the adoption of Turnitin software has reduced the trend in plagiarism in theses and dissertation writing, its effectiveness is limited because it fails to detect plagiarism levels within individual chapters of theses or dissertations. It is recommended that the plagiarism policy be reviewed to take into account new strategies that focus on individual chapters as well as the tolerance level of 30%, which seems high. Policies that address plagiarism content in postgraduate curricula should also be considered.

Key words: plagiarism, plagiarism policy, theses, dissertations, Similarity Index, academic writing, literature review

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Résumé:

Les politiques de lutte contre le plagiat sont devenues une caractéristique importante des pratiques d'assurance qualité dans les établissements d'enseignement supérieur du monde entier, l'accent étant mis sur l'amélioration de la qualité des écrits universitaires et des autres produits de la recherche. L'Université de Dar es Salaam (UDSM) a acheté le logiciel Turnitin en 2015 pour détecter le plagiat dans les écrits académiques, y compris les thèses de troisième cycle, les dissertations, les mémoires et les devoirs. Cet article examine la mise en œuvre de la politique de l'université en matière de plagiat à l'aide du cas des thèses et mémoires des étudiants de troisième cycle dans les unités académiques sélectionnées (SAU). Un échantillon de 556 thèses et mémoires de troisième cycle soumis à l'UAS pour un test de plagiat entre janvier 2016 et décembre 2021 a été collecté, testé à l'aide de Turnitin et analysé pour établir la tendance et l'étendue du plagiat après l'adoption de la politique. En outre, l'étude visait à identifier les limites de l'utilisation de Turnitin dans la détection de la tricherie académique parmi les étudiants de troisième cycle. Les résultats indiquent que bien que l'adoption du logiciel Turnitin ait réduit la tendance au plagiat dans les thèses et les mémoires, son efficacité est limitée car il ne parvient pas à détecter les niveaux de plagiat dans les différents chapitres des thèses ou des mémoires. Il est recommandé de revoir la politique en matière de plagiat afin de prendre en compte les nouvelles stratégies axées sur les chapitres individuels ainsi que le niveau de tolérance de 30 %, qui semble élevé. Les politiques qui traitent du contenu du plagiat dans les programmes d'études de troisième cycle devraient également être envisagées.

Mots clés: plagiat, politique en matière de plagiat, thèses, mémoires, indice de similitude, rédaction universitaire, analyse documentaire.

Introduction

Plagiarism policies have become an important aspect of quality assurance (QA) and control practices in higher education institutions around the world (Ryan, 2015). The focus is on improving curriculum, pedagogy, and evaluation processes. State regulations require every institution to develop, adopt, and implement a QA policy which includes plagiarism detection and prevention in academic writing (UNESCO, 2015).

Quality assurance is understood as a systematic process whereby an institution conducts assessment and verification of inputs, outputs, and outcomes against standardised quality benchmarks (Ryan, 2015). The purpose is to enhance and maintain quality, ensure greater accountability, and facilitate harmonisation of standards across academic programmes, institutions, and systems. Quality assurance practices also include several other approaches, including institutional self-assessment, inspection, accreditation, and curriculum review, or academic audits conducted by external bodies, and independent peer reviews (UNESCO, 2018).

Plagiarism detection and prevention are important aspects of QA as they affect the quality of graduates and institutional academic integrity (Smith, 2013). Thus, higher education institutions need to develop, adopt, and implement QA policies that include plagiarism prevention and detection strategies to meet both national and international standards. Investment in technology and training has been a recent feature of QA policy strategies (UNESCO, 2018).

Plagiarism is a form of academic cheating that occurs when students submit academic work that is not their own that has been taken or directly copied from other sources without proper acknowledgement (Yacine and Radia, 2021). Universities reserve the right to protect the academic integrity of degree awards by all means, including the adoption of anti-plagiarism policies. As such, these policies are not set as a trap, but aim to protect the university's academic integrity and reputation.

Research indicates that students' awareness of plagiarism tends to reduce its incidence in their academic work. For example, Curtis and Tremayne (2019) found that plagiarism trends decreased in Australia following increased student awareness of this phenomenon. However, despite universities' formulation, adoption, and implementation of various policy strategies to reduce academic cheating, studies indicate that plagiarism remains a problem among students in many higher education institutions around the world (Farahian et al., 2020; Yacine and Radia, 2021; Clarke et al., 2022). Empirical evidence indicates that the University of Dar es Salaam (UDSM) suffers a similar problem (Mbilinyi and Msuya, 2018; Muga, 2019).

Higher education in Tanzania expanded rapidly following the implementation of the Education and Training Policy in 1995 (Ministry of Education and Culture, 1995) and the National Higher Education

Policy in 1999 (Ministry of Science, Technology and Higher Education, 1999). These policies liberalised the higher education subsector, resulting in an increase in the number of higher education institutions and students' enrolled (Mkude et al., 2003). The UDSM was tasked to expand its postgraduate programmes to produce graduates to work in newly-established higher education institutions and other sectors. This was also aimed at enabling the UDSM to compete in the higher education market (UDSM, 2016). The *University Vision 2061* states that:

UDSM will in the coming years and decades prioritize the focus on postgraduate training. This will see a major transformation to a renowned graduate university with befitting programmes and learning environment. Therefore, appropriate capacity will be built with heavy emphasis on the number of programmes and on the relevance, quality of training and competitiveness of training programmes and delivery. Recruitment of staff will be open – considering from the country, region and internationally. Sustainable arrangements will be made to promote availability of students' scholarships and to improve the training and research as well as living facilities for postgraduate training (UDSM, 2012, p. 3).

The expansion and prioritisation of postgraduate training meant that more programmes were introduced. Since research is a major component of most postgraduate programmes and training, there was a need to improve the teaching and learning environment, including facilities, funding, and staffing.

Before the year 2000, the *University Teaching and Learning Improvement Programme* (UTLIP) was introduced to improve teaching and learning at the UDSM (Mbwette, 2001; UDSM, 1995, 1986). From 2000 to 2007, the university conducted a review to prepare, adopt, and implement its *Quality Assurance Policy* (UDSM, 2007). The policy was implemented across its academic units through curriculum reviews, academic audits, and plagiarism policy formulation, among other strategies (UDSM, 2007). It was an important step given increasing student enrolment and Internet use amidst declining human and material resources (UDSM, 2012).

Before the adoption of the UDSM plagiarism policy in 2015 and the subsequent purchase of Turnitin software, there were no specific

strategies to detect and prevent plagiarism among academic staff, supervisors, and students in assignments, theses, or dissertations. The policy raised students' awareness by informing them that if they were found to be guilty of academic dishonesty they would be considered for "an examination irregularity and shall be discontinued forthwith from studies" (UDSM, 2013, p. 10). It was also stated that if such practices were "discovered after the candidate has been awarded a degree, the University shall have the power to withdraw the award" (p. 10).

In 2016, the policy document, *Guidelines and Regulations for Plagiarism and Deployment for Postgraduate Students for Teaching or Technical Assistants* (UDSM, 2016) was produced to define, and set strategies for plagiarism prevention, detection, the tolerance level, disciplinary measures, and appeals for both staff and students. It stated that "Turnitin software will be the main tool for detecting plagiarism" (UDSM, 2016, p. ii).

Turnitin is an "internet-based originality checking service that was launched in 1997 to check files against its database in addition to the content of other websites to secure academic integrity" (Balbay and Kilis, 2019, p. 26). It is commercially available at <https://www.turnitin.com>. An institution pays to access the website and use Turnitin to test academic papers. Turnitin generates a Similarity Index (SI) which expresses the percentage of words in a text that matches other sources in the Internet databases (Bruton and Childers, 2016).

Following Turnitin's purchase, academic staff throughout the university received training to ensure that all academic units operate on the same understanding of plagiarism and encourage its use in testing students' academic work. As noted in the policy document:

The University of Dar es Salaam has installed the Turnitin Software ... to detect plagiarism and will provide training in the use of this or other plagiarism detection software and the interpretation of the automatically generated originality report. Once an assignment is submitted by a student, it will be uploaded to the software by the supervisor. The software generates the originality report showing the parts of the assignment that may have been plagiarized, together with a list of probable plagiarized sources used by the student... There is no clear threshold percentage for defining the safe cut-off point of plagiarism. But as a guide, a returned percentage of below

15 from the Turnitin originality report may indicate that plagiarism has not occurred. A returned percentage of 30 and above could be considered plagiarism has occurred (UDSM, 2016, p. 2).

The policy statement sets a tolerance level of 30%. This means that an assignment, dissertation, or thesis with an SI of more than 30% indicates that plagiarism has occurred. Those with an SI below 30% will be accepted for the award of a degree.

The implementation of the UDSM plagiarism policy also involved making it part of the university's strategic planning and management (see the *Five-Year Rolling Strategic Action Plan 2020/2021–2024/2025* (UDSM, 2020). University management considers the production of quality academic output as one of the core values of the University “in line with international quality standards and academic integrity” (UDSM, 2020, p. 5).

Problem Statement

Plagiarism is a prevalent practice in academic writing, with a significant impact on the integrity of postgraduate research and the quality of academic programmes. Its prevalence not only undermines the credibility of assignments, theses, or dissertations, but also raises concern about the effectiveness of existing institutional QA policies that aim to enhance the quality of programmes. While many higher education institutions have adopted plagiarism policies, their influence on the quality of postgraduate students' academic writing remains unclear. Our study examined the influence of the implementation of the UDSM plagiarism policy on the quality of academic writing, focusing on postgraduate students' theses and dissertations.

Purpose and Objectives of the Study

The purpose of this study was to examine the influence of the implementation of the UDSM plagiarism policy on the quality of postgraduate students' academic writing with a specific focus on theses and dissertations. Its objectives were to:

1. Examine the influence of Turnitin as a plagiarism policy implementation tool on the quality and originality of postgraduate students' theses and dissertations;

2. Identify the limitations of using Turnitin software to detect plagiarism in postgraduate students' theses and dissertations.

Research Questions

The study aimed to answer the following two research questions:

1. How has the adoption of Turnitin as a plagiarism policy implementation tool influenced the quality and originality of postgraduate students' theses and dissertations?
2. What are the limitations of using Turnitin software to detect plagiarism in postgraduate students' theses and dissertations?

Significance of the Study

This study's findings contribute to the body of knowledge on higher education quality in the following ways: First, they contribute to the ongoing debate on the effectiveness of institutional QA policy strategies aimed at improving the quality of academic writing among postgraduate students. Second, the findings inform higher education policy-making by raising the question on the effectiveness of plagiarism policy strategies. Third, they inform higher education postgraduate programme managers, course instructors, and students on the causes, impact, and strategies to reduce plagiarism in academic writing, including theses and dissertations. Fourth, the findings inform the postgraduate supervision process by raising supervisors and students' awareness of the influence of Turnitin in plagiarism testing in theses and dissertations. Lastly, they provide feedback to university management on the effectiveness of Turnitin in improving the quality of postgraduate theses and dissertations.

Literature Review

Conceptualising Plagiarism and its Causes

There are varied conceptualisations of plagiarism in the literature, with scholars referring to it as “academic dishonesty”, “academic cheating”, “academic misconduct”, or “academic fraud” (Selemani et al., 2018). These concepts all refer to the same phenomenon. Plagiarism is conceptualised as a form of academic cheating and an offence that involves presenting another person's words, ideas, data,

design, or artwork without acknowledging the author (Coughlin, 2015). It is a serious matter as it tends to devalue degree programmes, to the detriment of both students, and the university (Farhian et al., 2020).

There are different views on the causes of plagiarism. Pecorari (2008) considers it as a “linguistic phenomenon” rather than a violation of rules or ethical principles as conceptualised by Clarke et al. (2022), because the act is incomplete until the plagiariser “writes or speaks about the work or idea, identifying it as his or her own” (p. 1). Thus, for Pecorari, plagiarism is a matter of language use. The literature identifies three forms of textual plagiarism. The first is *prototypical plagiarism* which refers to the use of words and/or ideas from another source without appropriate attribution in order to deceive (Howard, 1995; Pecorari, 2008). The second is *patch-writing*, which refers to copying from a source text and then deleting some words, altering the grammatical structure, or replacing a word with a synonym. Coughlin (2019) identifies the third type, namely, using other authors’ unique ideas, data, or evidence without referring to the source. Students who commit plagiarism fail to acknowledge, paraphrase, summarise, and use quotation marks.

Students’ decision to plagiarise is influenced by, among other things, peers’ approval or disapproval, and observation of their good or bad behaviour, which if not controlled, attracts other students to do the same (Coughlin, 2015). Recent studies such as Farha et al. (2021), Mbilinyi and Msuya (2018), Selemani et al. (2018), Riasati and Rahimi (2013), Zafarghandi et al. (2012); Anney and Mosha (2015), and Ose et al. (2016) identify pressure to score high grades; students’ laziness; tight deadlines and a lack of good academic writing skills as causes of plagiarism. Other causes include a lack of knowledge among students of what constitutes plagiarism; easily accessible resources; the high cost of studying; family pressure; a heavy academic workload; poor design of assignments by lecturers; and the inability to select, review and properly acknowledge sources (Riasati and Rahimi, 2013; Clarke et al., 2022).

According to Anney and Mosha (2015), low levels of English competence among second-language speakers is among the factors that cause plagiarism, while Zimba and Gasparyan (2021) add a lack of creative thinking. Increased student enrolment could also be a factor as staff do not have the time to check for plagiarism in students’ work (Zimba and Gasparyan, 2021).

Understanding Plagiarism Using the Social Learning Theory

Students’ plagiarism behaviour can be explained by Bandura’s (1963) Social Learning Theory which states that any behaviour can be learned, unlearned, and regulated through the interaction of various factors operating in the student’s mind, the environment, and the surrounding society. Bandura notes that cognitive factors such as reciprocal determinism/causation, modelling, self-efficacy, and self-regulation can influence plagiarism.

Reciprocal determinism posits that the world and a person’s mind and behaviour influence each other. Thus, postgraduate students’ thinking may determine their propensity to plagiarise. Modelling refers to the fact that postgraduate students learn to plagiarise by observing or imitating other students or lecturers (Bandura, 1963). The concept of self-efficacy infers that students plagiarise due to poor academic writing skills. Self-regulation involves students self-monitoring their behaviour and its effects on academic writing standards and environmental circumstances. In other words, it is about students’ ability to understand and manage their behaviour and reactions to events around them. Environmental and social factors include reinforcement and punishment. Reinforcement is “a form of incentive motivation operating through outcome expectation rather than automatic strengtheners of responses” (Bandura, 1963, p. 36). In the case of postgraduate programmes, reinforcers may include limited time for assignments, proposal and thesis writing, or pressure to complete one’s studies in the scheduled time (Ormrod, 2012). The UDSM plagiarism policy discussed above includes punishment as a disciplinary measure.

Overview of Plagiarism Policies and Their Implementation in Higher Education

The concept of plagiarism gained prominence in the US in 1884 when the American Historical Association adopted and defined it as the use of someone’s else concepts, theories, rhetorical strategies, and interpretations as well as word-for-word copying (Fishman, 2015).

Plagiarism policy formulation, adoption, and implementation gained traction in higher education institutions during the 1990s. Since the year 2000, such policies have been adopted by all the members of

the European Union (EU) (Glendinning, 2013). A joint project, *Impact of Policies for Plagiarism in Higher Education Across Europe* was implemented to identify strategies to combat plagiarism in higher education institutions across the EU. It captured case studies with good practice, evaluated new interventions to prevent or detect plagiarism, and developed strategies to discourage it (Glendinning, 2013).

The Tanzania Commission for Universities (TCU) requires all higher education institutions to develop, adopt, implement, and evaluate institutional QA policies (TCU, 2014, 2019). Its policy document states that “Every University shall establish an institutional policy and guidelines focused on upholding and preserving the culture and attitude of academic integrity with respect to both staff and students and in all academic functions and social settings in the University” (TCU, 2019, p. 144). It adds that “Every University shall require candidates for dissertation/thesis examination to submit electronic copies as well as hard copies of the dissertations, theses and any other material submitted for examination or assessment to authenticate their originality” (TCU, 2019, p. 145).

An important step in plagiarism policy implementation involves setting an accepted SI level. This varies from one higher education institution or publisher to another. Thus, some higher education institutions and journals accept SI tolerance levels of between 5% and 15% (Miller, 2020). The UDSM has set an acceptance level of 30% (UDSM, 2016). Other universities like Harvard have plagiarism policies but they do not specify the accepted SI level. Instead, they emphasise that staff and students should avoid plagiarism (Harvard College, n.d.). Similarly, the University of Oxford’s plagiarism policy defines Turnitin and sets out how to use it, the support and training provided, and appropriate sanctions when plagiarism is detected in a student’s work (<https://help.it.ox.ac.uk/turnitin>).

In India, the University Grants Commission categorises plagiarism into three levels. Level One is when SI is between 10% and 40%, in which case the student is not awarded any marks or credits and is advised to revise and resubmit the manuscript within six months. Level Two falls between 40 and 60%, when students receive no marks or credits but may revise and resubmit after a year but not exceeding 18 months. Level Three is above 60%. In this case, no marks or credits are awarded and the student’s course registration is cancelled (Nundy et al., 2022).

Many publishers of books and journals have also adopted plagiarism policies. For example, Taylor and Francis’ website provides explanations to authors on the meaning and types of plagiarism, detection strategies, and how to avoid it (<https://authorservices.taylorandfrancis.com>). It states that “Any allegations of plagiarism or self-plagiarism/text-recycling made to a journal will be investigated by the editor of the journal and Taylor and Francis, following COPE [Committee on Publication Ethics] guidelines”.

The implementation of plagiarism policies varies from one university to another, but generally includes setting policy objectives, providing training to raise awareness and promote avoidance, and adopting plagiarism detection software.

Experience from other universities such as those in Botswana shows that plagiarism can be eliminated or reduced by empowering students with knowledge of its effects on education quality (Batane, 2010; Bethany, 2016). This can be achieved by introducing plagiarism-related content as part of undergraduate and postgraduate curricula. Smith (2013) advocates for student-centred approaches to plagiarism management based on the assumption that implementing plagiarism policies through teaching enhances the quality of inexperienced and novice writers. However, recent studies (Farha et al., 2021; Mbilinyi and Msuya, 2018; Selemani et al., 2018; Anney and Moshia, 2015) point to high levels of plagiarism among postgraduate students despite their awareness and understanding of this phenomenon. This can be attributed to personal attitudes, poor language proficiency, and poor academic writing skills (Habali and Fong, 2016).

Plagiarism policy implementation includes the adoption of plagiarism detection tools such as Ithenticate; JPlag; the Glatt Plagiarism Screening Program (GPSP); plagiarism checker; Plagiarism scanner; plagScan; PlagTracker; Exatus Like; Grammarly; and DupliCheck (Khaled and Al-Tamimi, 2021; Zimba and Gasparyan, 2021; Nafsa, 2021; Jiffriya et al., 2021). Khaled and Al-Tamimi (2021) list the various methods used by scholars to detect plagiarism including the latent semantic analysis (LSA) method; semantic-based method; syntax-based method; structure-based method; citation-based method; and classification and cluster-based method, amongst others. Other plagiarism detection software includes Check.org©; checkforplagiarism.net©; Copyleaks; Copyscape;

copytext©; Duplichecker©; Turnitin®; Unicheck; Whitesmoke©; and Wordpress Plugin©. However, few studies have been conducted on their effectiveness in higher education settings.

Studies conducted at the UDSM by Mbilinyi and Msuya (2018) and Muga (2019) point to the existence of plagiarism in students' work and thus, the need for policies and strategies to detect and control it. While the university developed and implemented its plagiarism policy in 2016, its impact on the quality of academic writing has not yet been investigated. Our study aimed to fill this gap by focusing on postgraduate students' theses and dissertations.

The Impact of Plagiarism Policies on Academic Integrity and Research Skills

There are mixed findings on how the implementation of plagiarism policies fosters academic integrity among postgraduate students. Fiona et al. (2014) show that plagiarism policy enhances students' overall knowledge and skills in writing scholarly work and that language confidence and language background helped to improve such skills. The majority of studies highlight the need to educate students about the meaning and impact of plagiarism rather than focusing on punitive measures (Zimba and Gasparian, 2021; Hafsa, 2021). However, Anney and Mosha (2015) found that despite students' awareness of plagiarism and its effects, they still committed it.

Turnitin has been used for almost two decades by many universities across the world to detect and control plagiarism in academic writing, including essay assignments, theses, dissertations, and term papers (Nketsiah, et al., 2023). Studies show that it is effective in detecting plagiarism in academic writing because it shows the percentage of texts taken from other databases published in books, book chapters, Internet blogs, journal articles, conference papers, and related articles (Balbay and Kilis, 2019; Bruton and Childers, 2016; Gallant et al., 2019; Nketsiah et al., 2023). Miller (2020) noted that "the similarity score is a heterogeneous construct. For example, a score of 20% could mean that 20% of the manuscript matches a single source, or 20 different sources each with 1% similarity" (p. 31). Other studies indicated that plagiarism testing software fails to distinguish self-plagiarism and the location of similar text within a manuscript, such as the use of similar phrases to

describe a particular laboratory technique or statistical methodology (Carter and Blanford, 2016).

Policy on the use of computer software to detect and prevent plagiarism has improved the reputation of researchers, editorial boards, journals, and academic fields of study (Miller, 2020). Thus, many international journals and book publishers conduct plagiarism testing using different computer software to generate SIs. The outcome could lead to manuscript revision or outright rejection.

According to Sibomana et al. (2018), some higher education institutions' plagiarism policies fail because they focus less on prevention and more on detection and sanctions. They thus have limited effect in addressing the primary reasons for plagiarism in academic writing. The authors recommended policies that strengthen reading and academic writing skills, institutionalising and disseminating anti-plagiarism policies, and the adoption of software technology.

A number of scholars highlight the need to educate students in order to reduce plagiarism (Breen and Maassen, 2005; Perkins et al., 2020; Dawson and Sutherland-Smith, 2018). This could involve the use of computer simulations and games to actively engage students to learn what, why, and how to avoid plagiarism (Bradley, 2015). Foltýnek and Glendinning (2015) found that training in scholarly writing was uncommon, particularly in countries like Portugal, Spain, and France. In Austria, Greece, the UK, and Finland as well as eastern countries such as Estonia, Slovenia, and Slovakia, training was conducted on plagiarism. Zimba and Gasparian's (2021) research indicated that Polish students lacked training on plagiarism, while Western and Eastern European Bachelor's and Master's students demonstrated low levels of awareness of plagiarism.

The literature also notes that some higher education students do not attach much value to using plagiarism check tools, while supervisors' heavy workloads due to the increased number of students they supervise leave no time to conduct checks (Zimba and Gasparian, 2021; Nafsa, 2021; Jiffriya et al., 2021; Anney and Mosha, 2015).

Theoretical Framework

The study employed the interpretive policy analysis (IPA) approach which is based on the philosophy of hermeneutics and focuses on human

expressive actions, values, beliefs, and feelings as a set of meanings (Wagenaar, 2015; Yanow, 2015). All these variables are embodied in and transmitted through artifacts of human creation such as language, dress, patterns of action and interaction, written texts, and sculptures (Yanow, 2015). The focus of IPA is the language used in policy communications and “other human artifacts that convey policy and organisational meanings, such as people’s acts and whatever objects they might use in those acts” (p. 110).

Policy analysis that relies on interpretation focuses on the existing links between language, cognition and action. As individuals, people act in relation to objects, events, situations or experiences. As such, the student theses and dissertations that were the focus of this study are artifacts created by students interacting with their supervisors, other students, and texts.

Interpretive policy analysis “entails identifying the various individual and/or collective actors relevant to the issue under study and their varying interpretations of policy materials and/or events” (van Bommel et al., 2015, p. 72). The need for interpretation in policy analysis arises because policies have multiple, competing, and sometimes contradictory meanings for the policy actors. Interpretation is a value-laden process because people bring to the process their inter-subjective knowledge, beliefs, perceptions, preconceptions, and desires that may influence the meanings constructed. In this regard, Yanow (2015) argues that policy analysts cannot separate themselves from the policy issues being analysed. They cannot avoid the values and the meanings of the policy and they bring their values, beliefs, and feelings into the interpretation process, which is the major means by which subjective knowledge is acquired. Subjective knowledge is interpretative because it reflects an analyst’s background in terms of education, experience, and training. For Yanow, what is interpreted in the analysis is the human artifacts and actions which include policy documents and legislation.

In analysing the UDSM plagiarism policy, the values, beliefs, ideologies, power, knowledge, and desires of policy implementers and students who are the targeted beneficiaries of the policy were considered. Interpretive policy analysis helped to achieve the study’s objectives by enabling the researchers to interpret the meanings arising out of the theses and dissertations produced by postgraduate students. The process

of interpretation involved active engagement with the policy texts and contexts to uncover the variety of hidden and complex meanings.

Methodology

This study was conducted at the UDSM. One academic unit, blindly referred to as SAU was selected as a case study due to the following reasons. First, it enrolled a large number of postgraduate students compared to other academic units offering postgraduate programmes at the UDSM (UDSM, 2021, 2022). Second, most postgraduate students in this unit were expected to demonstrate sound knowledge of academic writing because of their academic and professional background and competence in essay writing. Third, it was selected because its academic staff were experienced in research and academic writing.

A mixed method research approach was employed based on document analysis. The documents were mainly Master’s and PhD theses and dissertations submitted to SAU for plagiarism testing between January 2016 and December 2021. During the five-year period, a total of 556 postgraduate theses and dissertations were tested using Turnitin software. The researchers sampled 556 plagiarism reports and analysed for the trend and patterns of plagiarism among postgraduate students (see Table 1). The trend and patterns were analysed by calculating the average SI for all the theses and dissertations tested between 2016 and 2021. Thus, the sampling was purposive because the theses and dissertations’ testing was compulsory for all students before they were submitted for examination and final graduation.

Moreover, 200 of the 556 theses and dissertations were randomly selected to examine the extent of plagiarism in each chapter. According to the UDSM format, a PhD thesis has six chapters, and a Master’s dissertation five. The only difference between the two is that a PhD thesis separates the discussion from the study’s findings, while a Master’s dissertation combines the two in one chapter. To maintain uniformity, five chapters were taken from the theses and dissertations, with each separately tested for SI using the Turnitin software (see Figure 1). Again, the trends and patterns in plagiarism were analysed by calculating the average SI for the 200 theses and dissertations.

In addition, 20 plagiarism reports were selected for qualitative

content analysis (Wang and Lee, 2016). These reports highlighted all words (usually more than four words from one source were considered plagiarism), sentences, and paragraphs that were copied directly from other published literature (journal articles, blogs, books, book chapters, conference papers, theses, dissertations, web pages, and government documents) that were available online at the time of plagiarism testing. Content analysis of the Turnitin reports provided insights into the students' weaknesses and strengths in thesis and dissertation writing, as well as the limitations of using software to control plagiarism in students' work.

Ethical issues were considered through three strategies. First, clearance was obtained from university management to access the sampled theses and dissertations. Second, the academic unit's identity within the UDSM was not disclosed. Third, the students' names were not used in reporting the study's findings.

Findings

The findings are presented based on the research objectives.

Turnitin Software's Influence in Reducing Plagiarism

The study's first objective was to examine the influence of the adoption of Turnitin as a policy tool to detect and control plagiarism in postgraduate students' theses and dissertations. The findings are presented in Table 1. The average SI of the 556 postgraduate theses and dissertations tested for plagiarism between 2016 and 2021 was obtained by adding together the SI for all the theses and dissertations, divided by the total number tested each year.

The results indicate that the adoption of Turnitin helped to keep the SI below the set level of 30%. As shown in Table 1, there is a consistent decline in the average SI from 25.5% in 2016 to 16.7% in 2020. However, between 2020 and 2021, it increased by 4.4%. Overall, the findings suggest that the adoption of Turnitin had a positive influence in reducing plagiarism in postgraduate students' theses and dissertations at SAU.

Table 1: Average Similarity Indices for Theses and Dissertations Submitted to SAU Between 2016 and 2021

Year	Number of Theses and Dissertations Tested	Average Similarity Index (%)	Difference From the Tolerance Level (30%)
2016	67	25.4	4.6
2017	82	21.3	8.3
2018	132	18.2	11.8
2019	120	16.9	13.1
2020	61	16.7	13.3
2021	94	21.1	18.9
	Total = 556	Average = 19.9	

Source: Authors' construction based on theses and dissertations' plagiarism reports.

The Extent of Plagiarism Within the Theses and Dissertations

Turnitin's influence in detecting plagiarism in theses or dissertations' chapters was also examined. A sample of 200 postgraduate theses and dissertations was selected from the original sample of 556. According to the UDSM format, a thesis or dissertation has five chapters. Figure 1 points to six major findings. First, postgraduate students at SAU plagiarised at a tolerable level as the average SI for all the theses and dissertations was 19.9%. This implies that, on average, postgraduate students' theses and dissertations met the university requirements.

Second, the findings revealed SI variations across the chapters of theses and dissertations. The average SI for the *Introduction Chapter* was 23.5% which is about 6.5% below the university's set tolerance level of 30%. This implies that students plagiarised about 23.5% of content from other sources to develop their introductory chapter and that they thus confront challenges in using such sources.

Third, the average SI for the *Literature Review Chapter* was 52.1%, which was higher than the university's set tolerance level of 30%. Therefore, there was a higher level of plagiarism in this chapter than in the other chapters. This implies that postgraduate students at SAU plagiarised more than half the content that made up the *Literature Review Chapter*. As discussed later, one of the reasons is that some students had little knowledge of the literature review process. Consequently, they failed to paraphrase the reviewed literature and copied and pasted material, or failed to properly acknowledge the sources.

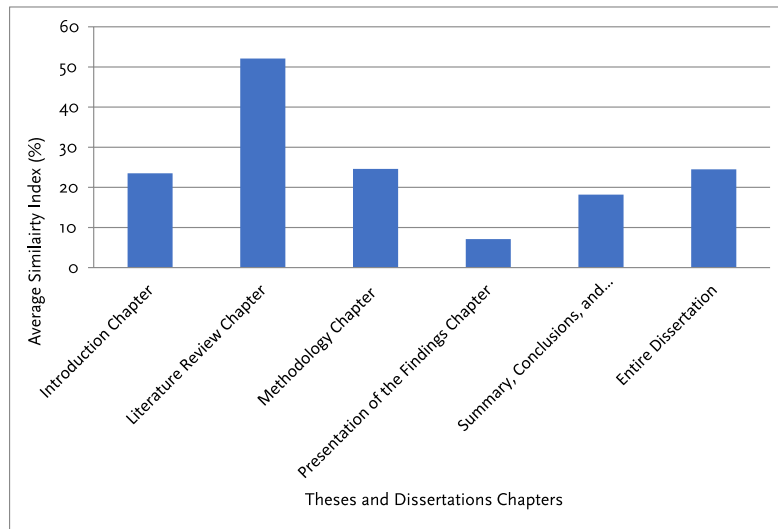


Figure 1: Similarity Index for the chapters and the theses and dissertations

Figure 2 presents a sample of a paragraph that was copied without paraphrasing and acknowledging the sources.

Fourth, the average SI for the *Research Methodology Chapter* was 24.6%. This is below the UDSM tolerance level of 30%. Postgraduate students at SAU thus plagiarised 24.6% of the content that made up the *Research Methodology Chapter* of their theses and dissertations.

Fifth, the average SI for the *Presentation of the Findings Chapter* was 7.1%, a lower level of plagiarism than other chapters. This means that postgraduate students at SAU plagiarised only 7.1% of the content that made up the *Presentation of the Findings Chapter* of their theses and dissertations. A possible explanation is that this chapter comprised of empirical findings that a student could hardly copy from already published works, and that the level of plagiarism was due to the empirical literature used to discuss the findings.

Career development process has become a complex science with the advent of information technology, the emergence of post industrial revolution and job competition has made career choices more varied (Mcgregor, 2010). In the United States of America for instance, it was a common practice in the old days to find feudalism converting it into a family affair where the son of a blacksmith was destined to become a blacksmith and a feudal was born a leader. Industrialization and post industrialization has made it possible for a common person to be richer as long as he or she has due skills and knowledge (Wattles, 2009). According to Osborne (2008) in South Africa, a major turning point in adolescents' lives involves the career choice that they make while in senior school. Frequently, it is viewed by family and community as a mere start to workplace readiness; however, this decision plays a major role in establishing a youth in career path that opens as well as closes opportunities. Since some adolescents with special needs like those with severe mental retardation may not even complete secondary school education because of their unique characteristics, the guidance counsellor should endeavour to assist these adolescents in their career development as early as possible. Therefore, whether college-bound or

Figure 2: Extract of a paragraph from a dissertation tested for plagiarism

Sixth, the average SI for the *Summary, Conclusions, and Recommendations Chapter* of the postgraduate students' theses and dissertations was 18.2%. This means that postgraduate students in the SAU plagiarised 18.2% of the content that made up the *Summary, Conclusions, and Recommendations Chapter* of their theses and dissertations. It indicates that the chapter used less content from published sources since it is primarily a winding up of the study.

Limitations of Using Turnitin Software in Detecting Plagiarism

The study's second objective was to identify the limitations of using Turnitin software and other specific forms of academic cheating practiced by postgraduate students. The findings revealed five forms of academic cheating, including failure to detect misreported references; failure to use quotation marks properly; failure to adhere to the recommended referencing style; recycling titles of previous works; and copying entire sentences and paragraphs from previous published literature.

Failure to Detect Misreported References and Incorrect Information

Table 2 shows that some students misreported references for the literature they consulted. Such errors were not detected by Turnitin software or the

students’ supervisors. As the table shows, some students replaced the authors’ names with others or misspelled words in the titles or authors’ names. The incorrect year of publication, and improper use of upper and lowercase, and punctuation marks such as full stops, commas, colons, and semicolons in writing the references were also detected. For example, in the first row of Table 2, the student reported the author of the book as “Atan, T. B.” and the year of publication as “2005”, while the correct author was “Baradon, T.” and the correct year was “2010”. Similarly, in the third row, the student reported only one author of the book and omitted the co-author. See also the spelling mistakes for New Delhi and “Prentice Hall”, and the missing country of publication which was “India” as required by American Psychological Association (APA) referencing and citation rules, sixth edition.

Similarly, in the last row, the student reported the author of the book as “Masawe, M. F.” while the correct authors were “Flee, M. and Pramling, N.” and the correct year of publication was “2015” and not “1995” as reported by the student. By studying Table 2, it can be noted that students committed several similar forms of cheating in their theses and dissertations.

Further findings on misreporting of references using different names from those of actual authors, and failure to adhere to the recommended referencing style are presented in Table 2.

Table 2: Reference List Developed from Students’ Submitted Dissertations

Reported Plagiarised/Cheated References	Actual References
Atan, T. B. (2005). Relational Trauma in Infancy: Psychoanalytic, Attachment and Neuropsychological Contributions to Parent-Infant Psychotherapy. Routledge.	Baradon, T. (2010). <i>Relational trauma in infancy: Psychoanalytic, attachment and neuropsychological contributions to parent-infant psychotherapy</i> . London, England: Routledge.
Berger, H. (1991). Parent Involvement: Yesterday and today. <i>The Elementary school</i> , 91 (3), 209 – 219.	Berger, H. (1991). Parents’ involvement: Yesterday and today. <i>The Elementary School Journal</i> , 91(3), 209 – 219.
Best, W. J. (2002). Research methodology in Education. Newe Delhi: Prentce.	Best, W. J. & Kahn, J. V. (2002). <i>Research in education</i> (7 th ed.). New Delhi, India: Prentice Hall.
Bradley, J. (1993). Methodological issues and practices in practices in qualitative in research. <i>Quarterly</i> .	Bradley, J. (1993). Methodological issues and practices in qualitative research. <i>The Library Quarterly</i> , 63(4), 431-449.
Campion, M. A. (1994). Structured interviewing: A note on incremental validity and alternative equations types. <i>Journal of applied psychology</i> , 79, 998-1002.	Campion, M. A, Campion, J. E, & Hudson, J. P., Jr. (1994). Structured interviewing: A note on incremental validity and alternative equations types. <i>Journal of Applied Psychology</i> , 79(6), 998-1002.
Brwon, T. W. (2003). School Violence and Primary Prevention. Springer-Verlag New York.	Brwon, T. W. (2003). <i>School violence and primary prevention</i> . New York, NY: Springer-Verlag.
Caruth, G. H. (2011). Parental Involvement in Childhood Education: Building Effective School-Family Partnerships. New York: Springer-Verlag New York.	Caruth, G. H. (2011). <i>Parental involvement in childhood education: Building effective school-family partnerships</i> . New York, NY: Springer-Verlag.
Masawe, M. F. (1995). A Cultural-Historical Study of Chidren Learning Science: Foregrounding Affective Imagination in Play-based Settings. Springer Netherlands.	Fleer, M., & Pramling, N. (2015). A cultural-historical study of chidren learning Science: Foregrounding affective imagination in play-based settings. Dordrecht, The Netherlands, Springer Science & Business Media.

Source: References in sampled students’ theses and dissertations.

Failure to Show Students’ Limitations in Adhering to the Recommended Referencing Style

SAU adopted the APA referencing style for all theses and dissertations. However, Table 2 presents a sample of references that violated the APA referencing rules (6th edition) by, for example, not italicising book titles and journal names, improper use of punctuation marks, and failure to indicate the place of publication.

Failure to Detect Cheating During Plagiarism Testing

Experience shows that since plagiarism testing is done by academic staff who are human beings, thorough checking of plagiarism reports is required because there is a high possibility of cheating by unethical staff. Cheating in plagiarism testing is possible because in uploading a thesis or dissertation on Turnitin, one can avoid submitting the entire file by eliminating areas that are more prone to plagiarism. If not checked properly, the report generated by Turnitin does not explicitly show the missing pages which could have produced a higher plagiarism score if included. This means that the testing process itself needs to be ethical; simply submitting a plagiarism report which only shows the percentage of plagiarised material may not be effective. Thus, what matters is who tests the thesis or dissertation although the policy requires the supervisor to do so. Not all supervisors knew how to test for plagiarism. Moreover, the growth of technology has resulted in more plagiarism software being used to test plagiarism by students for submission and degree awards.

Discussion of the Findings

The study's findings showed that the application of Turnitin software as a tool to implement the UDSM's plagiarism policy has resulted in less plagiarism in postgraduate students' theses and dissertations at SAU. This can be explained by the following factors. First, plagiarism testing was made compulsory for all stages of theses and dissertations' production and presentation for Master's and PhD degree awards from 2016. As time went by, plagiarism testing was done in four submission stages: (1) during proposal submission for departmental level presentation, (2) during proposal submission for approval for data collection, (3) during thesis or dissertation submission for internal and external examination, and (4) during thesis or dissertation submission for graduation. Thus, a copy of the SI report became part of the list of documents required for submission at all these stages.

Second, the thesis or dissertation supervision process was also involved as supervisors were required to enforce plagiarism policy implementation by testing and signing the SI report. Third, since the tolerance level was set at 30%, no thesis or dissertation with more than this level was accepted at any stage of presentation and graduation. This

is the reason why the average SI for all theses and dissertations accepted stood at 25.4% and declined from that point. Fourth, since postgraduate students and supervisors were able to learn from the plagiarism testing process, they learned to reduce SI that went above the tolerance level by using other academic writing strategies like paraphrasing, proper quoting, and correct citation of sources (Chen et al., 2016; Badenhorst, 2019; Shahsavari et al., 2020).

This finding is supported by Farahian et al.'s (2020) study in Australia that showed that students' awareness of plagiarism reduced the plagiarism rate. It can also be explained by Bandura's (1963) Social Learning Theory that posits that students' behaviour can be learned, unlearned, and regulated through the interaction of several factors operating in their minds, the environment, and the surrounding society.

The UDSM's SI level of 30% seems to be twice as high as those adopted by other universities and most journals which set a level between 15% and 20%. This suggests that the university should review its policy on the tolerance level.

The UDSM plagiarism policy is limited in terms of empowering students and academic staff to eliminate plagiarism because it focuses on curricular products rather than the curricular processes that would reduce plagiarism. This is contrary to Smith's (2013) recommendation that plagiarism policies should promote teaching to enhance the quality of novice researchers. The UDSM plagiarism policy statements emphasise the imposition of penalties at the end of the programme or course rather than imparting knowledge and skills to combat plagiarism as part of the curricular processes of teaching and learning. Such approaches are limited in reducing plagiarism because they come into effect at the last moment when students are not in a position to learn new skills. However, there is also reluctance among some students to acquire academic writing skills.

Only a few courses in SAU postgraduate programmes teach the effects of plagiarism. For example, the course on Quality Assurance and Quality Control includes a section on "Academic fraud, accreditation and quality assurance in higher education". Such initiatives need to be extended to all programmes.

The study found that Literature Review chapters recorded the highest average SI, while the Presentation of Findings chapters had

the lowest average SI. Chen et al. (2016), Menter and Hulme (2012), Badenhorst (2019), Shahsavari et al. (2020), and Denney and Tewksbury (2013) noted that novice researchers confront challenges in conducting literature reviews. These include linguistic challenges (Cheng et al. 2016) which relate to students' ability to use language and its major elements. English is the language of instruction in Tanzania's education system from secondary to higher education level. Thus, postgraduate students submit their theses, dissertations, and all other academic work in English. This could have contributed to plagiarism in theses and dissertations since English is a foreign language.

A literature review requires students to develop their arguments from the reviewed literature using different vocabularies, constructing sentence patterns, connecting sentences, and linking and transiting to another section of the chapter. Habali and Fong (2016) attributed the challenges students confront to individual differences and cultural backgrounds.

To overcome these challenges, the principles of a literature review need to be taught, discussed, understood, and conducted step-by-step so that postgraduate students are able to approach it systematically and avoid plagiarism. Courses in research methods should follow these steps which involve more in-depth coverage and practice, with adequate time allocated to the process.

Postgraduate courses in research methods capture the literature review through a specific objective which states that the course aims to develop the "ability to search for appropriate literature and make sense of its practical educational value or implications and use". "Reviewing the literature, conceptual/theoretical framework" was included as a minor section of the course content. This means that no more than three hours are spent on it during the course. Given the nature of postgraduate programmes, students need to be taught, learn, and practice literature reviews more than they are currently doing (Habali and Fong, 2016). As discussed above, Cheng et al., (2016); Badenhorst (2019); Shahsavari, Kourepaz, and Bulut (2020); Denney and Tewksbury (2013); Kucan (2011); Wee and Banister (2016); and Elander (2015) suggest strategies to produce a sound literature review for theses and dissertations that may develop students' writing skills.

The findings on the limitations of using Turnitin software and other specific forms of academic cheating practiced by postgraduate students suggest that some students misreported references and failed to adhere to the recommended referencing style. Furthermore, plagiarism was evident in their failure to acknowledge the consulted sources, copying entire paragraphs from previous published literature; and failure to use quotation marks properly. These findings suggest that reliance on Turnitin is inadequate to produce plagiarism-free theses and dissertations. Therefore, despite the adoption of anti-plagiarism software, significant academic cheating is committed within the set tolerance level, despite the role played by awareness of plagiarism policy in reducing plagiarism as found in this study as well as previous studies such as Farha et al. (2021) and Curtis and Tremayne (2019).

Conclusions and Recommendations

The following conclusions can be drawn from the findings: First, the study showed that the adoption of Turnitin as one of the strategies to implement its plagiarism policy has enabled the UDSM to reduce plagiarism in theses and dissertations writing among postgraduate students. This was evident in the declining trend in average SI since policy adoption in 2016. However, the effectiveness of the Turnitin software as a policy measure to reduce plagiarism remains limited as it only tests the overall SI of the whole thesis or dissertation. Second, Turnitin fails to test plagiarism in individual thesis or dissertation chapters, such as the literature review chapter. Thus, plagiarism was high in the literature review chapters, indicating that many postgraduate students have limited knowledge and skills in writing a literature review. Third, some cases of academic dishonesty cannot be detected by Turnitin software, including misreporting references. This implies that the use of Turnitin and other software is not a panacea for eliminating plagiarism among postgraduate students to improve the quality of programmes as well as teaching and learning. The role of thesis and dissertation supervisors remains paramount in detecting plagiarism and other forms of academic dishonesty.

It is recommended that the UDSM plagiarism policy should go beyond plagiarism testing to include training of staff and students on the

meaning, effects, and how to avoid plagiarism in postgraduate curricula. The current postgraduate courses on research methods at SAU should be reviewed to introduce course content that emphasises issues related to plagiarism and practical aspects of conducting a literature review to enhance students' academic writing skills. The literature review process should be covered in detail. Moreover, the tolerance level of 30% for the whole thesis or dissertation should be reviewed because it does not set a level for each thesis or dissertation chapter. As a result, much plagiarised content is hidden in specific chapters as observed in the Literature Review chapter.

Conflict of Interest: The authors confirm that there is no conflict of interest related to this article.

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