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ORIGINAL

# AI in Dissertation Examination: Opportunities for Undergraduates and Postgraduates in Zambia, Rwanda, and Kenya

## La IA en la evaluación de disertaciones: Oportunidades para pregrado y posgrado en Zambia, Ruanda y Kenia

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## ABSTRACT

The integration of Artificial Intelligence (AI) in dissertation examination presents a transformative opportunity for higher education institutions in Zambia, Rwanda, and Kenya. As student enrollments continue to rise, universities face challenges in efficiently evaluating dissertations while maintaining academic integrity. AI-driven tools offer innovative solutions by automating tasks such as plagiarism detection, language quality assessment, and contract cheating identification. This study aims to explore the opportunities, challenges, and impact of AI adoption in dissertation assessment across selected universities. A mixed-methods research design was employed, incorporating surveys, semi-structured interviews, and data analysis from AI-assisted dissertation evaluations at Copperbelt University (Zambia), the University of Rwanda, and Jomo Kenyatta University of Agriculture and Technology (Kenya). Findings indicate that AI enhances efficiency by reducing faculty workload and improving feedback quality for students. However, challenges such as digital literacy gaps, infrastructure limitations, and concerns over AI's fairness and ethical implications hinder full adoption. Despite these obstacles, there is strong support among students and faculty for AI integration, provided it is complemented by human oversight. The study concludes that AI has significant potential to revolutionize dissertation evaluation but requires investment in infrastructure, faculty training, and policy frameworks to ensure responsible implementation. Collaboration among universities, policymakers, and technology providers is essential to optimizing AI-driven dissertation assessment while upholding academic rigour.

**Keywords:** Artificial Intelligence; Dissertation Examination; Higher Education; Plagiarism Detection; Academic Integrity; AI Ethics; Zambia; Rwanda; Kenya.

## RESUMEN

La integración de la Inteligencia Artificial (IA) en la evaluación de disertaciones representa una oportunidad transformadora para las instituciones de educación superior en Zambia, Ruanda y Kenia. A medida que las matrículas estudiantiles continúan aumentando, las universidades enfrentan desafíos para evaluar

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eficazmente las disertaciones y mantener la integridad académica. Las herramientas basadas en IA ofrecen soluciones innovadoras al automatizar tareas como la detección de plagio, la evaluación de la calidad del lenguaje y la identificación de fraude académico. Este estudio tiene como objetivo explorar las oportunidades, desafíos e impacto de la adopción de la IA en la evaluación de disertaciones en universidades seleccionadas. Se empleó un diseño de investigación de métodos mixtos, que incluyó encuestas, entrevistas semiestructuradas y análisis de datos de evaluaciones de disertaciones asistidas por IA en la Universidad de Copperbelt (Zambia), la Universidad de Ruanda y la Universidad de Agricultura y Tecnología Jomo Kenyatta (Kenia). Los hallazgos indican que la IA mejora la eficiencia al reducir la carga de trabajo del profesorado y mejorar la calidad de la retroalimentación para los estudiantes. Sin embargo, existen desafíos como la brecha en alfabetización digital, limitaciones de infraestructura y preocupaciones sobre la equidad y las implicaciones éticas de la IA que dificultan su adopción total. A pesar de estos obstáculos, tanto estudiantes como profesores apoyan la integración de la IA, siempre que sea complementada con supervisión humana. El estudio concluye que la IA tiene un gran potencial para revolucionar la evaluación de disertaciones, pero requiere inversión en infraestructura, capacitación del profesorado y marcos normativos para garantizar una implementación responsable. La colaboración entre universidades, legisladores y proveedores tecnológicos es esencial para optimizar la evaluación de disertaciones impulsada por IA sin comprometer el rigor académico.

**Palabras clave:** Inteligencia Artificial; Evaluación de Disertaciones; Educación Superior; Detección de Plagio; Ética en IA; Zambia; Ruanda; Kenia.

## INTRODUCTION

Research writing easily intimidates many students at all levels of education.[1,2,3] This mode of writing guidelines holds if the format is to be followed and the expression of another person's thoughts is done. To pass this and write a great content dissertation, expertise and control over the subject are essential.[4,5,6] A research dissertation or thesis can be described as a written presentation of the methods, results, and relevant discussions of a research study. Undergraduate dissertations, such as a final year project or as a completion of a master's degree, as a requirement for a graduate degree, are shorter in length and focus on the completion of original research projects.

Specialized and often extensive academic institutions or areas are a practice that is most time-consuming and is a good illustration of a person's abilities to an academic institution which has been developed under doctoral communications. Between an undergraduate and final student's dissertation, several distinctions will be found to get an idea of the scope of language research. Offering similar academic pursuits as a dissertation is a common practice among academic institutions in the West in undergraduate-level education.[7] It is pivotal to understanding the strengths as well as differences characteristic of disciplinary sources and research between the two modes of academic writing: an undergraduate dissertation written in the Department of English Studies at Tugaske College and a final year research project authored by an English Department student at Lubisha University. Understandably, compromises and curtailment of the way have been made to enhance concision. Helping university writers with undergraduate submissions is an input to learn more about the AI tool that integrates emerging academic/s built and secluded through a detailed content analysis of the Tugaske College and Lubisha University student dissertation.[8,9,10,11]

The COVID-19 pandemic accelerated the adoption of digital tools in education, compelling a substantial alteration in the modus operandi of final examination prioritization in both undergraduate and post-graduate studies. The face-to-face delivery mode was, to some extent, temporarily terminated, rendering Virtual Learning Environments the only alternative way of ensuring that education provision persisted even against all odds. Due to limitations such as frequent power blackouts, intermittent electricity in some selected provinces/outlying areas, and the prohibitive cost of mobile Access Point technologies, a substantial proportion of students, for both undergraduate and post-graduate degree programmes, risk their utmost chances of being weighed against others in the same educational ladder at the end of each academic year's studies. Scrupulously delving into this quinquennial web of Lusaka East University's concerning statistics perennially recorded back and forth tells an obscure narrative of a diluted bibliophilic society whose aspirations for beleaguered education delivery have been traumatically dislocated from the jaws of failure to the histrionic proficiencies of possibility.

This stupor bewails both the institutional academic staff and commemorates, but disparagingly applauds the inherent academic deprivation amongst students of advanced and higher education calibres, all of which unfold a panoptic lens of voluminous forensic samples.[12] Addressing this embryonic political animadversion, this humanitarian ideology is pedagogically scholasticism against ferocities that now nauseatingly canvas a grotesque veneer of a Gesellschaft gory theatricalises, filtrating and partializing a Juden noncanonical undercurrent in fixative malaise superiority exception. Movements in favour of decorum academic perusal

are social refractors for the well-being of formative intellectum of human persvelte circum-nutication and illuminative therorosophy; unto manning wholesome subjective patrimonial stewardship of civil variabilities ecosystems.[13,14,15,16,17]

Due to the scarcity of resources on academically understanding artificial intelligence(AI) under examination and relatively low-risk perception of plagiarism caused by AI compared with other connections, it will be developed about the integration of AI applications in examining undergraduate and postgraduate students' theses or dissertations. AI is expected to be widely introduced into dissertation examination for undergraduates and postgraduates in various fields and further discussions of potential risks, benefits, and ethical aspects are provided. It will aim to obtain the perceptions, prior experience, or worries of experts who are or will examine undergraduate or postgraduate students' theses or dissertations and may better prepare universities in these countries or similar settings to ensure the authenticity and rigour of students' scientific research and improve the original work during the writing stage.

**Literature Review**

According to the strategic plan, the institution aims to create a conducive campus environment and plans to upgrade existing and invest in new facilities. These investments will fund the creation of a new teaching block at the School of Veterinary Medicine, the construction of a new teaching facility at Garden Campus, and the upgrading of existing infrastructure. The examination capacity remains overstretched due to a shortage of facilities, proctors and graders. This can make the examination process challenging and administratively demanding throughout the university. New opportunities to increase the efficiency and effectiveness of examination tasks through the integration of artificial intelligence for undergraduates and postgraduates can improve examination processing under these constraints.[15,16,17,18]

Good quality education helps to grow successful in various fields. The primary objective of education is to develop professionals, which contribute to the economic development of a country. Chief educational bodies in African countries have emphasized the enhancement of the quality of education over the years, resulting in an increased number of STEM projects targeting investment from developed countries and private sector funding, which aim to provide students with more practical and better-quality teaching. Currently, the number of undergraduate and postgraduate students enrolled in STEM courses in these countries has notably grown recently. Proper examination evaluation of the students is compulsory for journalistic practices in undergraduate and postgraduate STEM projects. However, the evaluation of academic dissertations represents a difficult task. All participants in students' dissertation examinations, including examiners, conveners, internal coordinators, and chairmen, spend a significant amount of time completing various tasks to prepare, evaluate and grade a dissertation.[19]

**AI in Education**

The introduction of Artificial Intelligence (AI) in education has the potential to significantly modify the way future generations learn and teach. There are many benefits to introducing these systems in educational institutions; however, there is a need to provide user understanding. This is especially necessary to prepare new students for a forthcoming era of AI systems. The present text seeks to explore, provide, and theorize the benefits and challenges of introducing an AI system to a group of lecturers to assist in the grading of Dissertations written by undergraduate students and postgraduates in the School of Education, who are enrolled in several other faculties. These faculties come from three accredited public higher-education universities in their respective countries. Data was collected through online and in-person focus groups attended by twelve faculty lecturers across three different countries and universities. Perceptions are inductively categorized to follow common themes of challenges and benefits, which are then explored further.[20,21,22]

AI implementation should be transdisciplinary, including not only the students of transdisciplinary programs such as applied AI itself but also incorporating connections to the broader curriculum and community. In addition, it is important to include not only the industrialized system of AI idea input, AI engineering, design, test and implementation, but also to demystify the AI system and detail its pedagogy in grading. To meet these ends and to integrate the idea of AI with the Measurement and Computing departments at Carpentryfield College, a series of four inquiry-based transdisciplinary gradable AI units were developed. Data were collected hinting that students understood the connection between the units and at least one of their regular subjects.

**AI Applications in Dissertation Examination**

The opportunities and challenges of employing AI applications are those for plagiarism checking, formatting assessment, and language quality evaluation during dissertation examinations for undergraduate and postgraduate students. The results suggested that AI application technologies in dissertation examination for undergraduate and postgraduate students should be explored, developed, and promoted to improve the overall dissertation quality of the students, improve the participation of young reviewers as examiners, and make the

examination process more efficient and much more convenient.

## METHOD

This study aims to investigate the opportunities to integrate Artificial Intelligence in dissertation examination processes in higher learning institutions as perceived by undergraduates and postgraduate students at Copperbelt University in Zambia, the University of Rwanda in Rwanda, and Jomo Kenyatta University of Science and Technology in Kenya. For undergraduates, examination to a certain degree is an objective means by which they are assessed to ascertain whether they have reached a standard in their studies that warrants progression. For postgraduates, a dissertation is done to put into practice what undergraduates have learnt throughout their courses of study. To achieve this, the choice of topic requires considerable preparation and critical investigation to be made. Regarding the methodology, this study has adopted a mixed-method case study design.

In the qualitative section, information was collected using semi-structured interviews with undergraduates, postgraduates, Departments of Examination, Departments of Masters/Research, and Departments of Project supervisors. In the quantitative section, the study primarily employs a structured online questionnaire. A total of 586 students (197 undergraduates, 205 new postgraduates and 184 masters' students) participated in the questionnaire. The data analysis covers agreement of each statement of opportunities to integrate AI applications, feedback of interview respondents and students' suggestions. The study found that most undergraduates and postgraduates are aware of AI applications and believe that integrating AI applications will improve examination or dissertation defence. However, existing AI applications are not yet ready to be integrated into the examination process and more training on AI applications is needed for both students and examiners to ensure the integration can be effective.

### Research Design

The research design is an essential framework that guides the research process, used for the accurate collection of data in a stipulated time frame. It helps the researcher in making conclusions and recommendations relative to the findings. This section elaborates on the research design, the rest of the framework will follow, and how the underlying study will proceed in fulfilling these parts to ensure that an informed discussion and description of the research design is made as follows.

There is a substantial prevalence of AI tools in the research writing process, and this scenario prompts various actions in the academic community, most notably the inclusion of AI software for ease in accounting. The perception of faculty members in universities is an essential element for this incorporation. Studies conducted by Amani et al.[2] echo the six steps to follow in integrating AI tools in university dissertation examinations as follows:

i) Literature review on conversant AI tools increasingly used in the research writing process; ii) Preparation of the AI tools examination procedure for undergraduates with proposed examination models and a checklist of requirements; iii) AI tools training conducted for relevant undergraduates, postgraduates, and university lecturers; iv) Implementation of the AI tools examination; v) Respondents' surveys and interviews with undergraduates, postgraduates, and university lecturers regarding their perceptions on examination fairness; and vi) Evaluation of the examination logistics. Subsequently, the implications of this university examination dissertation examination design to the universities are recommended.

### Data Collection and Analysis

To effectively meet the objectives of this study, data collection was carefully planned regarding the participants' roles in the dissertation examination. Academic, administrative, and student perspectives were thus separately focused on for first-year undergraduates and postgraduates per the proposed conceptual model. In the first phase, antecedents of AI integration (i.e., perceptions of AI, regulations, infrastructure, and pressure) were examined to determine their significant influence on policies and measures comprising dissertation regulation and AI integration. Workshops and interviews were then conducted with academic and administrative stakeholders in Management Science, Educational Science, and Computer Science disciplines throughout three universities - specifically, in the Copperbelt Province of Zambia, the Southern Province of Rwanda, and the Eastern Province of Kenya. Verbatim transcribed and code-assisted workshop and interview data respectively displayed through NVivo 11, were utilized for each workshop.

A conceptual model was then refined for the benefits of AI-based systems in examination and improvement in students' outcomes and prevention as demonstrated by AI ethics application. Acknowledged by examiners, the AI algorithm predicted marks within the ±1 range with an 86 % accuracy rate. Post-testing workshops in these universities were informative for educators and administrators, and it was further noted that the weaknesses were statistically significant. Profiles of student delinquency, as examined by machine learning, were utilized by institutions to screen and assist students.[20,21,22,23,24] One of the important possibilities for academia is to foster an adaption of the proposed opportunities within substantial disciplinary variances such as the emphasis

given to workshops or multilevel interviews.

**AI Integration Models in Dissertation Examination**

Zambia, Rwanda, and Kenya are scaling up their university systems and there is an observed need to prepare undergraduates and postgraduates for a transition to Thesis writing. This study's objective is to describe 1-4 AI models for Thesis writing and examination applied in these three countries. Interviews with educators, administrators, ICT consultants, undergraduate and postgraduate graduates, and a literature review find that AI-supported Thesis writing applications are not available. Established AI providers are recommended to partner with universities for Thesis writing and examination-related applications, setting up usage guidelines to avoid plagiarism temptation. In recent decades, Zambia, Rwanda, and Kenya have made outstanding efforts to scale up their university systems. To prepare undergraduates and postgraduates for the thesis component of their study programs a problem is becoming evident: the higher the number of graduands, the less staff is practically available to supervise and examine the writing component of graduates.[20,21,22,23]

**Model A: Fully Automated AI Assessment**

The fully automated AI dissertation examination assessment and feedback generation model for undergraduates is presented. Learning about authentic dissertation examination work for undergraduates according to cognitive, technological, and social perspectives is essential to developing Artificial intelligence systems for undergraduates. A case study is conducted to explore the opportunities for AI systems to automate undergraduate dissertation examination procedures in African universities. A case study enhanced by two additional cases has confirmed the generalizability of insights and opportunities in developing AI systems for standardized work to automate dissertation examination procedures in African universities.

Research on AI systems for education, such as traditional AI tutoring systems, has a long and successful history of exploring cognitive-behavioural possibilities from behaviourist to constructivist paradigms. The study of AI systems for dissertation examination, however, is a forgotten relative in research. A process of searching, assessing the knowledge model, making comparisons, and assessing the study project's merit value by a dissertation examination, and providing feedback on all assessment aspects, namely content, methodology, and use of literature. Participation and development of assessment strategies for undergraduate proposed studies are a challenge and forgotten knowledge. Study opportunities for undergraduate students to automate the dissertation examination process are presented, taking advantage of cognitive, technological, and social perspectives. The opportunities identified are largely informed by a case study conducted.[24-27]

**Model B: AI-Assisted Human Assessment**

From the perspective of the examiner, an AI system is best employed for the examination of a dissertation at the undergraduate level of study as an assistant with one or more experienced human examiners, with a view to the potential of AI in the future taking more complete control of the examining process. Such a model, briefly described here, is designated Model B. A single experienced examiner or a single new examiner can moderate a dissertation. This might be feasible for dissertations that have simply failed the marking requirement in which a dissertation is initially marked low or marked as a second marker.

Otherwise, all dissertations would in practice be either first examined by a human examiner or by an AI examiner. However, from the student's point of view, a dissertation can also be regarded as a great educational potential for the students to develop their potential at the postgraduate level of study. Therefore, model B to be described is also intended to assist university decision-makers in appreciating the opportunities that AI could contribute to higher education. Both human examiners and student-related literature reviewed are, naturally, situated within these geographical regions where the study was conducted and wherever possible attention has been given to examining current thinking as to how AI can be integrated into these three countries.[28]

***Case Studies of AI Integration in Dissertation Examination: Insights from Rwanda, Zambia, and Kenya***

Artificial Intelligence (AI) has transformed various sectors, including education, where its application in dissertation examination is gaining traction. AI-powered systems are increasingly being adopted in universities for evaluating academic work, detecting plagiarism, and providing formative feedback. This study explores the role of AI in dissertation evaluation by examining case studies from leading universities in Rwanda, Zambia, and Kenya.[29,30,31,32,33]

**AI in Dissertation Examination: A Global Perspective**

AI is widely used in academic institutions worldwide to assist in grading, plagiarism detection, and assessment of research writing. Studies indicate that AI in academic assessment is four times more prevalent in reading and evaluation of student work compared to direct grading.[20,21,22,23,24] AI-supported tools such as intelligent tutors, automated proofreading, and contract cheating detection systems enhance the quality of dissertation

examination by providing real-time feedback, identifying linguistic patterns, and ensuring academic integrity.

**Case Study: AI in Dissertation Examination at the University of Rwanda**

The University of Rwanda has integrated AI into its dissertation review process through tools such as Turnitin's AI-driven similarity detection and Grammarly's academic writing assistance. Professors use AI-powered language models to evaluate students' thesis drafts before submission, helping them refine argument structures and citation accuracy. The university has also piloted AI-driven systems for detecting contract cheating, where linguistic fingerprinting algorithms compare a student's writing style across multiple drafts to identify inconsistencies that may indicate outsourced work. Faculty members report that these AI tools have significantly improved efficiency, allowing examiners to focus more on content evaluation rather than technical errors.

**Case Study: AI Adoption in Dissertation Examination at the University of Zambia (UNZA)**

The University of Zambia (UNZA) has integrated AI-based assessment tools into its academic evaluation system. AI-powered text analysis software is used to detect language inconsistencies and citation errors in postgraduate dissertations. The university also employs AI-based peer review platforms, where students receive automated feedback before submitting their final research. A key feature is Contract Cheating Detection AI, which analyzes writing styles, sentence structures, and lexical choices to identify possible ghostwriting. UNZA faculty members found that AI reduced the workload for dissertation examiners by 30 %, allowing them to focus on research quality and originality. Moreover, AI-driven dissertation assessment has increased the detection of plagiarism cases by 40 %, ensuring research authenticity.

**Case Study: AI in Dissertation Evaluation at the University of Nairobi, Kenya**

At the University of Nairobi, AI has been adopted in multiple stages of dissertation assessment. The institution utilizes AI-powered automated grading tools that assess research methodology, coherence, and formatting standards. Additionally, the university's AI-based research proposal evaluation system predicts the feasibility of proposed studies by analyzing previous research trends. The university is also piloting an AI-assisted oral dissertation defence evaluation system, where speech recognition algorithms analyze verbal presentations, checking for coherence, logical flow, and argument strength. Faculty members at the University of Nairobi report that AI-driven assessment tools have led to a 25 % improvement in feedback turnaround time and have streamlined the dissertation review process, reducing administrative delays.

**University A: Zambia**

Universities in Africa commonly face the burden of manual dissertation examination at both undergraduate and postgraduate levels. In universities from Zambia, Rwanda, Kenya, and other African nations, examiners manually perform computational tasks of element frequency analysis in dissertation objects. This burden potentially reduces the quality of the examination. Thus, a plan to expedite the fulfilment of the burden using AI from a dissertation examination institution in Zambia will be laid down. In this approach, a dissertation examination flow is first modelled and digitized. Next, opportunities are observed regarding the integration of AI into machine learning and neural networks in the dissertation examination of undergraduates and postgraduates in the university of African regions and the advantages of this approach.

In addition to that, there can be further digital examination contents using the digitized dissertation objects data, which can be examined manually as of impact frequency analysis in the form of physical models to the examiners, and/or can be used to train a neural network model of machine learning to predict the examination result after a certain quantity of trained data objects referral. AI is largely defined as a computer system that operates a task requiring human-like intelligence. Meanwhile, AI encompasses a broad specialization, applications related to the behaviour of objects or environment, and uses models or algorithms that mimic cognitive processes. One of the most widely implemented AI are machine learning models.

Machine learning is an area of AI that focuses on designing and building systems that can learn from and make decisions or predictions based on data. It can be further categorized into four primary types, namely supervised learning, unsupervised learning, semi-supervised learning, and reinforcement learning. Supervised learning, or labeled data, by which a model can be trained to map features to the labels automatically, has been effectively applied in many applications. Recently, there has been an emerging usage of machine learning models, particularly convolutional networks with a large number of fully connected layers for performing natural language processing tasks such as text classification.[19] Regarding this fairness, opportunities for AI integration in machine learning concepts in dissertation examination of undergraduates and postgraduates from universities A, B, and C located in Zambia, Rwanda, and Kenya respectively to be discussed.

**University B: Rwanda**

Rwanda has a strong background in the value of good academic research. All Faculty staff in the health department, including all heads of departments, have been sponsored to undertake a PhD; several by the University, and the remainder through scholarship. For this reason, Rwanda chose a policy that from 2017 no scholarship would be issued to Masters level, and there is a shift of on-the-job doctors who had already processed research master scholarships to PhD. Since 2017 only Internal Research, academic and professional writing grants have been issued.

In 2014 Rwanda was the most influential country for research in East Africa, with the University of Rwanda being the second most influential university. The University aims for a major increase in the quality and quantity of its research output. For students, whether Undergraduate or Postgraduate, undertaking a research dissertation is a significant challenge. Publication is defined as articles that have passed the peer-review process of a medical journal. Yet for Undergraduate and Postgraduate Rwandan Medical students, publication remains elusive. Encouragement to submit for publication has not yet been taken up within the University of Rwanda, nonetheless, faculty strongly support the idea.

Submission of a dissertation project for publication could be marketed as a formal "service" paid to the student. However, when all topics are considered, already a preponderance does not favour the broad dissemination of findings, which could increase plagiarism and facilitate academic dishonesty. Submission for publication should simply be strongly promoted as an academic duty upon dissertation submission. Writing up is defined as a research project that has been submitted for publication but has been rejected, or written in preparation for submission. It is suggested that an Undergraduate or Postgraduate proposal cannot be accepted until a writing plan is at least well developed.

**University C: Kenya**

An HTML-based form was used to conduct a questionnaire survey within Strathmore University, Nairobi, Kenya, to collect a historical dataset on student enrollment from 2004-2014. A model was developed based on Bayes Net and Bayesian vector autoregression in predicting student enrollment. The factors that were taken into account were year of study, gender and program. After training the model with 70 % of the data, the ensemble average of the prediction was tested against the remaining dataset to estimate the accuracy of the prediction. The mean squared error, residual number of students and plot graph of actual against predicted students were then produced to evaluate the performance of the model.[17]

The model was tested with a set of student enrollment data from 2010 – 2014. In the prediction, the vector autoregressive model has a low average error ranging from 2,30 to 11,20. The results show that after incorporating the Bayesian structure, the model can capture the actual behaviour of the time series, and it improves the model's forecasting capability relative to the unstructured models. The use of the prediction model can help in understanding the fluctuation of student enrollment, guide in decision making, potentially increase the yearly revenue and efficient academic planning in terms of classroom supplies and teaching resources.

**Challenges and Ethical Considerations**

AI spells opportunities for service enhancement but also challenges around authenticity and privacy. While the focus is on extensions to conventional exam operations, the integration of computational analysis and visual representation of answers speaks to a means by which sporadic exam processes can be more fully automated and conducting a practical exam becomes a practical proposition. Currently, it seems there is cautious engagement with the technology in postgraduate settings, and various strategic considerations in place within institutions.

There's keenness concerning improvements to turnaround time, though a preparedness to take time to ensure any change is 'right'.[19] There is also a wariness of any setting in which between-trainer feedback to students is routinely generated by AI analysis. It may be that a relationship of trust is possible, if institutions offer systems that generate the same data for students and tutors. Otherwise, there's a risk that casualised staff feel 'disempowered'. At stake here too, in terms of a wider educational frontier with technological advances, is the inevitability of some kinds of jobs being displaced, the emergence of new kinds of roles, and the need for meaningful professionalisation of those new roles for whose performance essential AI systems become integral.

**Data Privacy and Security**

One of the most prominent and complex issues when it comes to AI in educational settings is privacy and security.[20,29] Not in all cases, but quite often, AI is used for data collection and analytics or some sort of monitoring of user activity. There is an obvious conflict between collecting enough data to effectively train these systems and not collecting so much data that users feel uncomfortable. The widespread, permanent and large-scale implementation of AI has raised concerns about the storage, use and rights of the data processed by algorithms. More intriguing than this is the question of AI security. If undergraduates are working very much

alone on their dissertations for assessment, there will be a concern about the availability of contract cheating services.

This is not a serious issue at the moment, but there is potential for it to be so in the future, especially as such services hone AI techniques. One disincentive that will be important here, that effectively counters any direct economic risk of cheating being detected, is that an undergraduate is likely to be exposed to greater risks from using surreptitious services than they have been in school – certainly at risks of plagiarism. But for postgraduates, the newness of the University of Zambia postgraduate scheme and the unfamiliarity of students with the demands of academic work at this level might mean that some remain oblivious to the risks, despite university warnings. And in both cases, some will have used essay consultation services in their previous educational experiences, and are unlikely to have an intrinsic moral objection.

**Bias and Fairness**

Artificial intelligence (AI) is being embedded into many areas of life. From judicial systems using algorithms to predict the likelihood of reoffending, diagnosis of illness by algorithms examining medical images and even live surveillance of populations for security and border control. As the uptake and innovation of AI capabilities accelerate, as well as facilitate the creation of new modes of control and possibilities of disruption and intervention, a central and underexplored research question is which avenues to intervention are more likely to be effective a priori. One newly emerging site of AI intervention concerns collocation within the university sector, and in particular the wholesale integration of AI in the examination of undergraduate and postgraduate dissertations. The primary area of focus is universities in the Global South, especially Sub Sahara Africa and to that end will refer frequently to empirical data and findings from research with universities in Zambia, Rwanda and Kenya. So, the rest of this article will confine focus to how this technology is and will likely be implemented in the examination of undergraduate and postgraduate dissertations. The first part of the article focuses more on the technology itself (its implementation) and the second part of it examines the dimensions of control this technology can engender as well as examples of interventions that seek to change. The examination of data bias across different AI-enabled applications includes a critique of how biased datasets could be used in biased ways and a detailed reflection on the composition of datasets used in universities. Equally useful is the focus on data ownership and governance in university-industry partnerships. Additionally, a close examination of how student and course attributes inform student grade outcomes is presented. First, institutional data on student enrollments, grades, and course-taking patterns are examined from the higher education system.

**Benefits of AI Integration in Dissertation Examination**

With the advent of AI applications, it is becoming feasible for universities to employ AI in examining undergraduate dissertations for plagiarism and to improve the English of the dissertations of students studying through the English for Academic Purposes program. During the process of examining undergraduate dissertations for plagiarism, including all perceived benefits of the process, aspects of the process that could be improved and problems.[29]

In Africa, as in the rest of the developing world, the focus of dissertation examination is on postgraduate students. At the moment, AI applications cannot examine postgraduate dissertations to the same depth as they can examine undergraduate dissertations; the latter are generally required to be much shorter than the former. Additionally, AI applications are less capable of examining the dissertations of postgraduate students studying through the English for Academic Purposes program. However, is not to investigate the feasibility of AI applications studying postgraduate dissertations and or those of students studying through the English for Academic Purposes program. Instead, the focus is on the integration of AI applications in the examination of recent postgraduate dissertations for plagiarism.[30]

**Potential Research Areas**

The following provides a list of potential focused research topics in AI that could be conducted as domain-specific or interdisciplinary. For making exams and supporting it through digital AI applications at all: formulation per se with research question (method) and why it is relevant (expected results). For open-ended questions: Answer Key Analysis (AKA) and evaluation Natural Language Processing (NLP) for dissertations and essays. This could also include work on AI. Furthermore, whether AI can evaluate art in a meaningful way, is perhaps another important AKA for art including dissertations, poems, etc. Concerning whether it is possible to mimic a style with Machine Learning and whether this will disadvantage writers of colour, former tasks about the AI support and hypocrisy (feel free to state “it is worth highlighting that it is about impressing a wide audience” when it comes to submitting the paper on the lacking of a specific method).

Essay repositories analysis (regarding technology) and checking dissertations and delusional AI for plagiarism (pretty much ethical research limitations section). Additional comments might concern the economic efficiency of powering a dissertation with computer intelligence and how editors could adjust to remain relevant market

participants. Further regarding NLP, how could robots help to prevent students from cheating during exams by having unwanted windows open would be very welcome. Digital examination and AI applications, under Chapter 1 as well as the determinant in the Preliminaries.[31] For dissertations, the assessment criteria might be for what should be given the highest and lowest grade. How could you justify this? Aren't all aspects of evaluation equally important?[32-33]

## RESULTS

To study undergraduate and postgraduate students' opinions and applications with artificial intelligence, as well as challenges and expected benefits of using AI in education, this study used a mixed method methodology. It investigated 586 students from a variety of academic fields to attend institution of higher learning. The degree to which undergraduate and postgraduate students are challenged with artificial intelligence is shown in *Table 1*. Assuming a median of 3 and significance thresholds of 0,01 and 0,05, respectively, the data were examined using a single sample Wilcoxon test.

The findings demonstrated that students had challenges with AI tools ($\mu = 3,173$, $p < 0,5$) and were aware of the challenges of artificial intelligence ($\mu = 3,744$, $p < 0,01$). According to the study, students are open to using AI and related tools for class assignments but experienced difficulties ($\mu = 3,542$, $p < 0,01$) and to getting advice from AI-related tools ($\mu = 3,824$, $p < 0,01$), both of which are statistically significant. The results showed that the instructor talked discussed challenges of artificial intelligence in classroom (especially AI tools in teaching and other textual and imagery generators) ($\mu = 3,278$, $p < 0,5$). Even though the students were well-versed in artificial intelligence, their knowledge of AI tools in exams was limited, as seen by the negligible results ($\mu = 2,937$). Nevertheless, the students felt that the instructor did not incorporate these AI tools into their instruction ($\mu = 2,983$).

**Table 1.** Undergraduate and postgraduate students' opinions and applications with artificial intelligence

| No | Question | Mean |
|---|---|---|
| **1.** | I am familiar with the challenges of artificial intelligence (AI). | 3,744** |
| 2. | AI tools in examination have challenges. | 2,937 |
| 3. | I have challenges in using AI. | 3,173* |
| 4. | My instructors have addressed challenges of AI in my courses. | 3,278* |
| 5. | My AI generators have been incorporated into my teachers' lessons. | 2,983 |
| 6. | I am open using AI but experience problems in using it. | 3,542** |
| 7. | I now know how to use AI and other related tools. | 3,142 |
| 8. | I'd be willing to get advice to use AI or comparable tools. | 3,824** |

**Note:** Significance level: *p < 0,05, **p < 0,01, (1: Strong Disagree-5: Strong agree)

The ratio between university instructors and students' views on challenges on artificial intelligence was also analyzed and presented in figure 1 below.

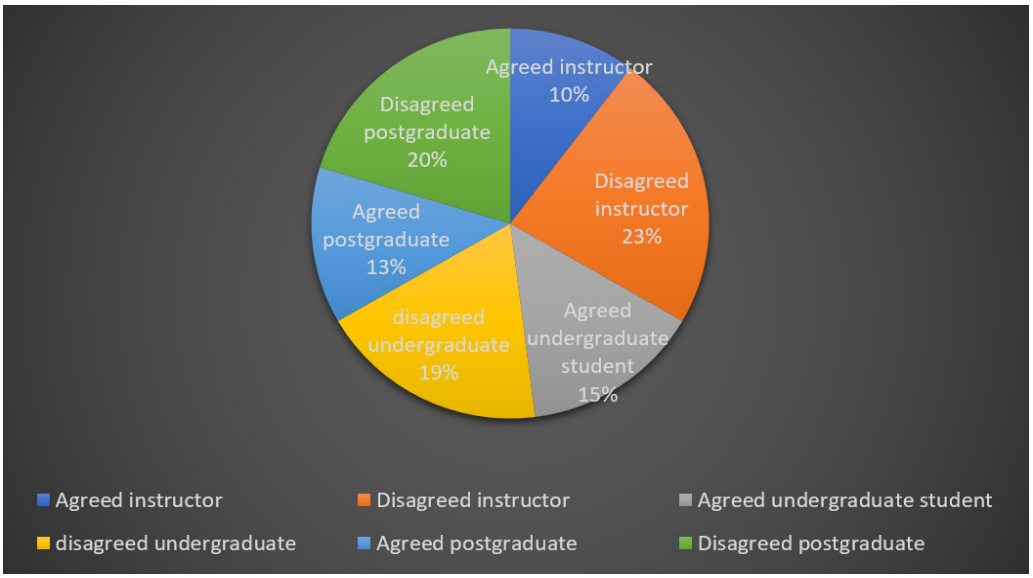


**Figure 1.** Views on AI challenges

Undergraduate and postgraduate students' perceptions on artificial intelligence and its benefits are presented in table 2. According to research, artificial intelligence is widely used (μ = 3,538, p < 0,01) and students typically believe it is beneficial in education (μ = 3,751, p < 0,01). The use of AI in education has good and substantial justifications (μ = 3,657, p < 0,01). Higher education course assignments were frequently (μ = 3,241, p < 0,01) and unavoidably (μ = 3,357, p < 0,01) completed using AI text-generation techniques. Students may not be at risk from artificial intelligence (in the form of text and image generation) (μ = 2,669, p < 0,01), thus precautions should be taken to keep them from utilizing it (μ = 2,539, p < 0,01). Artificial intelligence was flexible for the students to use in their coursework (μ = 3,503, p < 0,01).

Item 9 showed a negative attitude (μ = 2,738, p < 0,01) toward the belief that artificial intelligence is not misused, while Item 14 showed a neutral attitude (μ = 3,0057, p < 0,01) toward the belief that using AI text generation tools to finish course assignments is against university academic integrity policies. Furthermore, students believed that teachers could integrate AI in the classroom in a consistent way (μ = 3,4165, p < 0,01). Furthermore, the significance of the analysis results reflects the low level of students' concerns regarding instructors' misuse of AI (μ = 2,5249, p < 0,01). Furthermore, students continued to view teachers' use of AI to develop lesson plans favourably (μ = 3,1501, p < 0,01). Students, however, had no opinion on the possibility of artificial intelligence taking the place of their teachers in grading assessments and course assignments (μ = 2,7238, p < 0,01).

The university instructors' and students' views on the benefits of artificial intelligence were also analyzed and presented in figure 2 below.

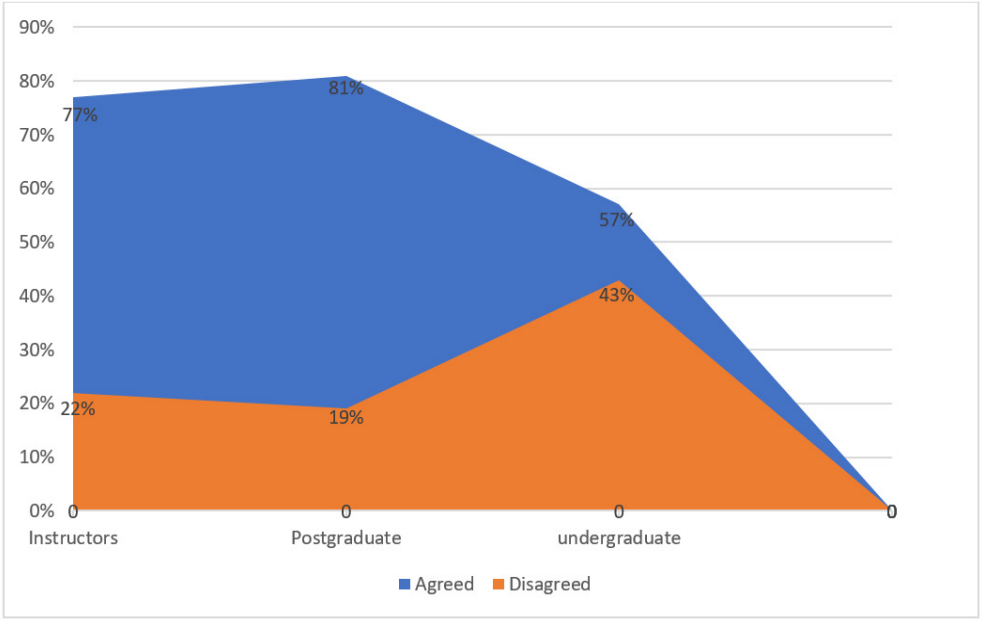


**Figure 2.** Views of university instructors and students on the level benefits of artificial intelligence

**Table 2.** Undergraduate and postgraduate students' perceptions on artificial

| No | Question | Mean |
|---|---|---|
| 1. | Artificial intelligence is widely used | 3,54 |
| 2. | Students believe AI is beneficial in education | 3,75 |
| 3. | AI in education has good and substantial justifications | 3,66 |
| 4. | Higher education course assignments were frequently | 3,24 |
| 5. | AI is unavoidably | 3,36 |
| 6. | Students may not be at risk from artificial intelligence | 2,67 |
| 7. | precautions should be taken to be taken when using AI | 2,54 |
| 8. | Artificial intelligence is flexible enough to use | 3,50 |
| 9. | Teachers' use of AI to develop lesson plans favourably | 3,15 |
| 10. | Instructors not misusing AI in teaching | 2,52 |
| 11. | Belief that artificial intelligence not misused | 2,74 |
| 12. | AI text generation tools to finish course assignments faster | 3,01 |

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Education-related courses, translation, coding, idea generation, and homework assistance are the first factors that support students' learning. The respondents' most frequent justification for utilizing AI was individual learning, as seen in *Figure 3*. ChatGPT and other AI tools enable tailored learning experiences. Artificial intelligence (AI) provides considerable advantages in giving information, expertise, and solutions fast. Additionally, it can greatly increase convenience and efficiency, which makes students more likely to utilize AI technology. Another intriguing factor that emerged among the majority of respondents who utilized AI to look for work and get ready for the workforce is career assistance, which benefits students' chances of finding employment in the future. Another advantage of employing AI, according to the respondents, was language practice. According to the respondents, employing AI gave them an alternative to learning a new language in class or online. Students gave the least justification for using AI for research, mental health, and other purposes.

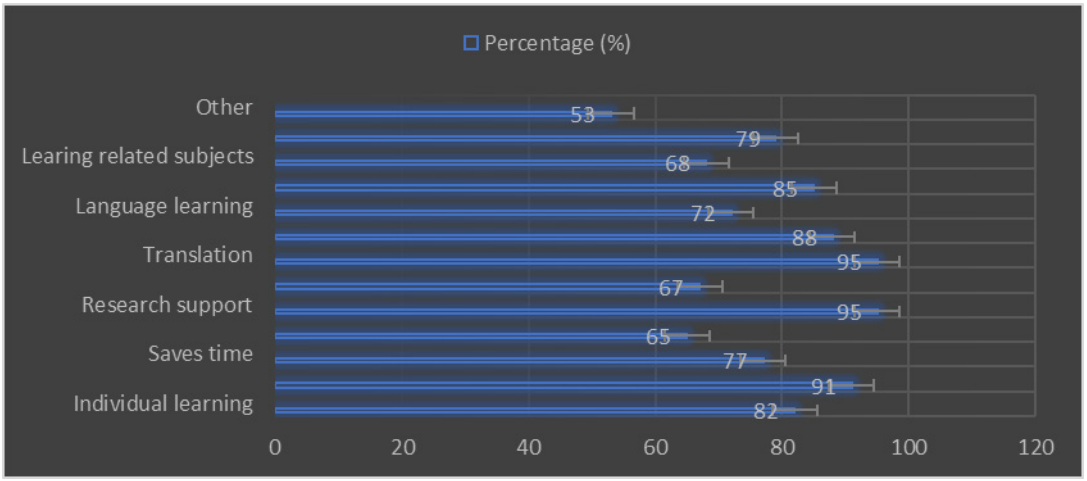


**Figure 3.** Perceived advantages of artificial intelligence use

## DISCUSSION

This study examined the attitudes and familiarity of undergraduate and postgraduate students with AI tools, as well as the perceived advantages and disadvantages of implementing AI tools in higher education. 586 students from a higher education institution representing a variety of specialities were invited. The results indicated that pupils gained moderately from artificial intelligence (AI) tools, but there were drawbacks as well. Although students encountered certain difficulties when utilizing AI, their understanding of the technology was still somewhat limited. Additionally, students showed an interest in using ChatGPT and other comparable AI technologies to finish their coursework and participated in class discussions. Similar conclusions have been drawn on how difficult it is for students to learn AI.[20,21,22,23,24] Horowitz et al.[15] study, which discovered that teachers and students have differing views toward AI, is consistent with these findings. Nonetheless, the findings of this study demonstrate certain advantages of AI, and in a related study by Horowitz et al.[15], these advantages combine with trust to make the most of AI.

Regarding students' perceptions of AI on benefits and challenges, the results showed that they perceive it as an inevitable integration into higher education and think it has substantial educational value. Although they do not think AI can take the role of humans in assigning grades, students do support their teachers' use of AI in the classroom. The idea that AI cannot replace teachers in the classroom is mostly influenced by cultural factors, according to a thorough evaluation of AI research.[20] This result supports the study of Tlili et al.[36], which shows a favourable result and demonstrates the increasing interest in its use in educational settings. Additionally, a study of secondary students found that they had a very positive attitude toward AI, indicating that participants had a generally positive opinion of the technology.[20,21,22,23] The impact of artificial intelligence was also acknowledged by Spanish students studying economics, business management, and education. Despite their possible lack of knowledge at the moment, many indicated a desire to further their educational endeavours in this field.[23,24,25,26]

The benefits of AI in education, according to the respondents, also included efficiency, career counselling, information retrieval, tailored learning, research help, and mental health assistance. AI facilitates autonomous language learning, which helps pupils acquire new languages more effectively. It is acknowledged that AI in education helps achieve development goals.[27,28,29] Additionally, studies show that AI supports personalized learning by adapting to each student's unique needs and providing tailored content and feedback.[30,31,32,33,34,35,36] Students are concerned about the possible challenges of AI, despite their favourable opinions of it and its apparent advantages. Students identified serious issues with accuracy, data privacy, security, dependence, ethical use, and diminished independent thought. To ensure the responsible application of AI, it is imperative

to address ethical issues like.

## CONCLUSIONS

The integration of Artificial Intelligence (AI) in dissertation examination presents a transformative opportunity for universities in Zambia, Rwanda, and Kenya. This study highlights AI's ability to enhance academic integrity, improve assessment efficiency, and support faculty in evaluating research work. AI-driven tools, such as automated plagiarism detection, language quality assessment, and contract cheating identification, have shown significant promise in streamlining dissertation evaluation processes.

However, challenges remain, including digital literacy gaps, infrastructure limitations, and concerns regarding AI's fairness and ethical implications. The findings emphasize the need for a balanced approach where AI complements human oversight rather than replacing it. To fully harness AI's potential, universities should invest in infrastructure, provide faculty training, and develop clear policy frameworks that ensure responsible AI adoption.

Collaboration between academic institutions, policymakers, and technology providers is essential to optimize AI-driven dissertation assessment. With a strategic and ethical approach, AI can revolutionize higher education by making dissertation evaluations more efficient, objective, and transparent while maintaining the academic rigor required for scholarly research.

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The authors declare that there is no conflict of interest.

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