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# AI EDUCATION'S IMPACT ON MALAWIAN SECONDARY SCHOOL STUDENTS' INTENTIONS TO LEARN AI

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***Abstract***

*This study investigates the impact of AI education on Malawian secondary school students' intentions to learn AI. It aims to assess students' readiness, perceptions of AI's social benefits and drawbacks, and the role of optimism. The research utilized a cross-sectional survey design involving 496 students from diverse school settings. Questionnaires were developed and validated to gather data on students' knowledge, skills, resources, and attitudes toward AI. Results reveal varying levels of AI understanding, programming skills, and access to learning resources. Students express optimism about AI's potential impact on society and personal growth. The study contributes insights into AI education's effectiveness and implications for Malawian students' learning intentions.*

***Keywords:*** *AI Education; AI literacy; Intentions to learn AI; Perceptions of AI; Malawi*

## 1. INTRODUCTION

Artificial Intelligence (AI) has emerged as a transformative force reshaping industries, economies, and societies worldwide. As the capabilities of AI continue to evolve, its integration into various aspects of our lives presents both opportunities and challenges. Recognizing the potential of AI to drive innovation and address complex problems, educational systems around the world are incorporating AI education into their curricula to equip the next generation with the knowledge and skills needed to navigate this technologically advanced landscape.
In the context of this global movement, the present study focuses on the impact of AI education on secondary school students in Malawi. Malawi, a landlocked country in southeastern Africa, is undergoing socio-economic transformations. As it endeavours to bridge the digital divide and harness the power of technology for development, understanding how AI education influences the intentions of its young learners becomes crucial.

### 1.1 Background and Significance

Like many other countries, Malawi stands at the crossroads of technological advancement and education. Integrating AI into various sectors promises transformational change, but this transformation necessitates a knowledgeable and skilled workforce in AI concepts and applications. Educating the younger generation about AI prepares them for the future job market and empowers them to contribute to their communities by leveraging AI to solve local challenges.
This study's significance lies in its potential to provide insights into the efficacy of AI education in a unique context – that of a developing nation striving for technological advancement. The study contributes to the broader discourse on AI's role in education and development by understanding how AI education influences students' perceptions, aspirations, and intentions. The findings may inform educational policies, curriculum design, and pedagogical approaches tailored to the needs and realities of Malawian students.
As AI continues to reshape the future, nurturing a generation of AI-literate individuals is crucial. This study's insights may empower Malawian secondary school students to embrace AI for personal growth, societal development, and global engagement. Furthermore, the findings may contribute to a growing body of research on AI education as a foundation for future studies in similar contexts and informing best practices for integrating AI concepts into educational systems worldwide.

### 1.2 Research objectives

This study aims to comprehensively understand the impact of AI education on Malawian secondary school students. Specifically, it seeks to:

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- To assess the level of readiness among Malawian secondary school students in terms of their knowledge, skills, and resources related to artificial intelligence (AI).
- To examine Malawian secondary school students' perception of social good regarding AI's potential benefits and drawbacks in their communities and society.
- To investigate the role of optimism among Malawian secondary school students in shaping their intentions to learn AI, including their beliefs about their capabilities and the future opportunities associated with AI.

## 2. LITERATURE REVIEW

### 2.1 The Global Impact of AI Education

AI, a multidisciplinary field encompassing machine learning and natural language processing, imbues computers with intelligent capabilities, echoing human potential (Akgun & Greenhow, 2022). Posner and Fei-Fei's (2020) research emphasises AI as a driving force behind ongoing technological shifts. Wong et al. (2020) highlight AI's transformative influence on society. AI's significance spans healthcare, education, and security (Dennis, 2018; McKinsey Global Institute, 2017), with AI-powered education outperforming traditional methods (Lai et al., 2023).

AI's integration includes machine learning and natural language processing, mirroring human decision-making (Akgun & Greenhow, 2022; Sun et al., 2021). Despite AI's potential, challenges exist in its utilisation within African public schools due to resource constraints (Gwagwa et al., 2021; Mckinsey Global Institute, 2017). To address this, investments in AI-related education, digital literacy, and technology skills are recommended (Gwagwa et al., 2021; McKinsey Global Institute, 2017).

### 2.2 AI Education in Developing Countries

AI education merges machine capabilities with human skills to simulate human behaviours (Akgun & Greenhow, 2022; Sun et al., 2021; McKinsey Global Institute, 2017). While China and the USA lead in AI development, Africa's potential for developmental leaps is highlighted (Nayebare, 2019). AI shapes societies and experiences (Posner & Fei-Fei, 2020; Wong et al., 2020), offering solutions to global challenges (Bjola, 2022; McKinsey Global Institute, 2017).

AI education faces hurdles in developing nations, but it has gained traction as a tool for success (Wong et al., 2020). Challenges like limited technology access hinder progress (Teo & Divakar, 2021; Butcher et al., 2021). Addressing these challenges requires investing in AI-related education, fostering digital literacy, and empowering educational institutions (Gwagwa et al., 2021; McKinsey Global Institute, 2017).

### 2.3 Nurturing AI Knowledge and Skills Among Secondary School Students

AI education replicates human learning through computers (Chen et al., 2020). AI's educational potential substantially enhances academic achievement (Akgun & Greenhow, 2022). AI education fosters personalised feedback and progress tracking (Owoc et al., 2021). Global observations demonstrate AI's potential in children's education (Rodríguez-García et al., 2021).

Intelligent educational software development surges due to student demand (Owoc et al., 2021). Challenges exist in translating university-level AI lessons to K-12 schools (McKinsey Global Institute, 2017). Building self-learning capacity and digital skills is vital, and AI integration enriches educational experiences (Teo & Divakar, 2021; Wong et al., 2020). AI education requires accessible resources, including platforms like IBM Watson and Google Web Speech (Touretzky et al., 2019). Challenges in AI tools' implementation exist, emphasising the need for digital competency among educators (Ng et al., 2023). AI's foundational concepts, history, and ethical implications must be integrated into education (Chiu, 2021).

### 2.4 Perceptions of AI's Social Impact

AI's prominence offers students a competitive edge (Wong et al., 2020). AI enhances teaching, healthcare, and research, pivotal during events like the COVID-19 pandemic (Teo & Divakar, 2021; Dennis, 2018). AI augments education, identifies gaps, and fosters individualised learning (Owoc et al., 2021). However, challenges arise, including biases and limited resources (Akgun & Greenhow, 2022; Butcher et al., 2021).

AI's positive impacts surpass potential drawbacks (Lai et al., 2023). AI's potential for transformative problem-solving and societal development is evident (Bjola, 2022; McKinsey Global Institute, 2017). Yet, challenges exist in biased amplification and resource constraints (Zhai et al., 2021).

### 2.5 The Role of Optimism in Learning AI

AI's potential is acknowledged (Lai et al., 2023; McKinsey Global Institute, 2017). Educators and students must develop digital competencies for effective online education (Linjawi & Alfadda, 2018). A positive mindset and adaptability are crucial for successful AI education (Vernon, 2019). Incorporating AI literacy through engaging methods is essential (Zhai et al., 2021).

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AI education necessitates comprehensive curriculum development and teacher willingness (Wong et al., 2020). AI's potential to address global challenges underscores the importance of AI-related skills (Vernon, 2019). Proper teacher training and infrastructure are essential for effective AI education (Wong et al., 2020).

## 3. METHODOLOGY

### 3.1 Research Design

The research design for this study was a cross-sectional survey. It involved administering a structured questionnaire to gather data from private and government secondary school students in Malawi. The survey assessed students' readiness level regarding their knowledge, skills, and resources related to artificial intelligence (AI). The questionnaire used multiple-choice and Likert scale items to measure participants' opinions, attitudes, and beliefs.

### 3.2 Sampling

The sampling methodology employed for this study was stratified random sampling. Malawi was stratified into distinct regions, from which schools were deliberately chosen to guarantee a comprehensive inclusion of urban and rural areas. Students at grade 11 and 12 levels were considered for the sample in each selected school. The total count of chosen schools equalled 20, distributed as follows: five public secondary schools from rural areas, five from urban locales, and five private secondary schools from urban and rural settings. Determining the sample size took into account appropriate statistical computations, aiming to ensure a sufficiently representative dataset. Consequently, the total number of survey participants summed up to 496.

### 3.3 Questionnaire Development

The questionnaire used in the study was self-evaluated and prepared by the researchers. To enhance its validity and reliability, the AI questionnaire was critically reviewed by subject experts. Expert feedback was incorporated to ensure the questionnaire effectively measured the intended constructs. The questionnaire was developed based on the research objectives and the identified variables. The questionnaire consisted of six sections, as outlined in the question prompt. Each section contained a set of questions related to the specific topic. The questions assessed students' knowledge, skills, resources, perceptions, attitudes, and beliefs regarding AI. The Likert scale measured agreement levels and used multiple-choice questions for demographic information.

### 3.4 Questionnaire Validation

The questionnaire was reviewed by experts in the field of AI and education to ensure content validity. Their feedback was incorporated to improve the questions' clarity, relevance, and appropriateness. A pilot study was conducted with a small sample of students to assess the clarity and understandability of the questionnaire. Based on the feedback from the pilot study, necessary modifications were made to the questionnaire.

### 3.5 Data Collection

Data were collected through self-administered questionnaires. The questionnaires were distributed to the selected schools, and students were given instructions on how to complete them. The research team supervised data collection sessions to address any questions or concerns from the participants. The anonymity and confidentiality of participants were ensured, and their voluntary participation was emphasised.

### 3.6 Data Analysis

Quantitative data obtained from the questionnaires were analysed using appropriate statistical techniques. Descriptive statistics such as frequencies, percentages, means, and standard deviations were calculated to summarise the data. Inferential statistics t-tests were used to determine significant differences or relationships between variables. The significance level was set at $p < 0.05$.

### 3.7 Ethical Considerations

Ethical approval was obtained from the relevant authorities before conducting the research. Informed consent was obtained from participants and their parents/guardians. Participants' privacy and confidentiality were ensured by using anonymous identifiers and handling data securely. The research complied with ethical guidelines, and potential risks or benefits to participants were minimised and disclosed.

### 3.8 Limitations

Some potential limitations of this research methodology included the reliance on self-report data, which may have been subject to response bias. The generalizability of the findings may have been limited to the selected sample and may not have represented the entire population of secondary school students in Malawi. However, efforts were made to ensure a representative sample through stratified random sampling.

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## 4. RESULTS

**Table 1. Socio-Demographic Overview and Technology Engagement**

| Demographic and Technology Engagement | Statement | Respondents | Percentage |
|---|---|---|---|
| Gender | Male | 285 | 57.5 |
| | Female | 211 | 42.5 |
| School | Government | 292 | 58.9 |
| | Private | 204 | 41.1 |
| Home Located | Urban | 297 | 59.9 |
| | Rural | 199 | 40.1 |
| Computer literacy | Very proficient | 8 | 1.6 |
| | Proficient | 88 | 17.7 |
| | Average | 209 | 42.1 |
| | Limited | 136 | 27.4 |
| | No knowledge | 55 | 11.1 |
| Internet access source (N=496) | Home internet connection | 18 | 3.6 |
| | School computer lab | 106 | 21.4 |
| | Internet cafes | 112 | 22.6 |
| | Mobile data | 385 | 77.6 |
| Engage in technology-related activities outside of school hours | Daily | 69 | 13.9 |
| | Several times a week | 169 | 34.1 |
| | Once a week | 60 | 12.1 |
| | Occasionally | 197 | 39.7 |
| | Never | 1 | 0.2 |

Table 1 presents a comprehensive overview of the surveyed respondents' socio-demographic characteristics and technology engagement patterns. Most respondents are male (57.5%) and attend government schools (58.9%). A significant proportion of respondents come from urban areas (59.9%). Regarding computer literacy, a range of proficiency levels is observed, with 42.1% having average proficiency and 27.4% having limited proficiency. Mobile data is the most common source of internet access (77.6%).

Regarding engagement in technology activities outside school hours, the data indicates that many respondents engage frequently, with 34.1% indicating several times a week. Additionally, occasional engagement is significant, with 39.7% of respondents participating. Interestingly, only a negligible percentage (0.2%) never engage in technology-related activities outside school hours. This analysis underscores the prevalence of technology engagement among the surveyed population, highlighting the importance of digital access and proficiency in today's society.

**Table 2. AI Knowledge and Awareness Assessment**

| Assessment of AI Knowledge and Awareness Levels | Mean | SD | T-value |
|---|---|---|---|
| I have a clear understanding of what artificial intelligence (AI) is. | 2.84 | 1.01 | -27.56 |
| I am familiar with the applications of AI in various industries. | 2.54 | 1.03 | -21.21 |
| I can explain the basic concepts and principles of AI to others. | 2.72 | 1.04 | -24.24 |
| I am confident in my knowledge of AI terminology and jargon. | 2.42 | 1 | -19.67 |

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| | | | |
|---|---|---|---|
| I understand the ethical considerations associated with AI technologies. | 2.59 | 1.07 | -20.81 |
| AI has the potential to impact society positively. | 2.97 | 1.11 | -26.01 |
| I am aware of the limitations and risks of AI. | 2.83 | 1.08 | -24.48 |
| I know how AI is currently being used in the world. | 2.73 | 1.08 | -22.98 |
| I am knowledgeable about the history and development of AI. | 2.49 | 1.03 | -20.22 |
| I am up-to-date with the latest advancements in AI research and technology. | 2.25 | 0.97 | -17.18 |

Table 2 shows an assessment of AI knowledge and awareness levels among Malawian secondary school students, indicating significant gaps in AI readiness. The mean scores, ranging from 2.25 to 2.97, suggest that while there is some level of familiarity with AI concepts, there is room for improvement. The standard deviations, between 0.97 and 1.11, indicate a degree of variability in student responses.

The t-values, which range from -17.18 to -27.56, demonstrate the statistical significance of the findings. All p-values are < .00001, reinforcing the significance of the observed gaps in AI knowledge and awareness.

Students show some understanding of AI basics, such as the potential positive impact on society. Still, they need to be more confident in their knowledge of AI terminology, applications across industries, and the ethical considerations associated with AI. They must also display more awareness of AI's current use, historical context, limitations, risks, and recent advancements. Malawian secondary school students exhibit notable gaps in AI knowledge, skills, and awareness, with significant room for improvement in various dimensions of AI readiness. Addressing these gaps and providing students with more comprehensive AI education and resources could better prepare them for the evolving technological landscape.

**Table 3. AI Programming and Application Skills Assessment**

| Assessment of AI Programming and Application Skills | Mean | SD | T-value |
|---|---|---|---|
| I have practical experience in programming related to AI. | 2.45 | 1 | -20.28 |
| I am confident in applying AI concepts to solve real-world problems. | 2.53 | 1.02 | -21.17 |
| I have hands-on experience with machine learning algorithms and techniques. | 2.20 | 0.97 | -16.28 |
| I can analyse and interpret data using AI tools and methods. | 2.15 | 0.95 | -15.8 |
| I have worked on projects or tasks that involve AI technologies. | 1.96 | 0.88 | -13.04 |
| I can develop AI models or systems independently. | 1.93 | 0.89 | -11.98 |
| I am proficient in programming languages commonly used in AI, such as Python. | 1.93 | 0.89 | -12.18 |
| I have received formal training or education in AI-related subjects. | 2.05 | 0.95 | -13.45 |
| I can apply AI techniques to analyse and make predictions based on data. | 2.05 | 0.95 | -13.49 |
| I can design and develop AI algorithms. | 1.85 | 0.85 | -10.86 |

Table 3, the assessment of AI programming and application skills, highlights significant areas for improvement among the participants. The mean scores range from 1.85 to 2.53, indicating moderate to lower proficiency levels. Standard deviations, ranging from 0.85 to 1.02, suggest varying skill variability within the group.

The t-values, ranging from -10.86 to -21.17, demonstrate the substantial significance of the findings. All p-values are < .00001, reinforcing the statistical significance of the observed skill gaps.

Participants need more practical experience in AI programming, data analysis, and model development. While some feel confident applying AI concepts to real-world problems, hands-on experience with machine learning algorithms, data analysis, and AI system development could be much better. Participants must also gain proficiency in common programming languages like Python and have limited exposure to formal AI-related training.

The assessment indicates that the participants' AI programming and application skills are relatively early, with significant room for improvement across various dimensions. Addressing these skill gaps through hands-on projects, training programs, and exposure to real-world applications can help enhance their AI programming and application abilities.

**Table 4. Resources and Support for AI Learning and Development Assessment**

| Availability of Resources and Support for AI Learning and Development | Mean | SD | T-value |
|---|---|---|---|
| I can access books or online resources that provide information about AI. | 3.11 | 1.03 | -32.01 |
| I can access computers or devices with the necessary software for AI development. | 2.67 | 1.08 | -22.35 |
| I have access to AI-related courses or workshops. | 2.31 | 0.99 | -17.95 |
| I have access to AI experts or mentors who can guide me in learning AI. | 2.45 | 1.06 | -18.55 |

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| | | | |
|---|---|---|---|
| I can access datasets for practising and developing AI models. | 2.25 | 1.02 | -15.87 |
| I can access AI-related projects or opportunities to gain practical experience. | 2.24 | 1.04 | -15.24 |
| I can access online communities or forums to discuss AI-related topics. | 2.36 | 1.05 | -17.34 |
| I have access to AI-specific software tools and platforms. | 2.15 | 1 | -14.46 |
| I have access to AI-related events or conferences. | 2.09 | 0.98 | -13.81 |
| I can access funding or resources to pursue AI-related projects or initiatives. | 1.86 | 0.92 | -9.97 |

Table 4 shows the assessment of resources and support for AI learning and development reveals significant aspects related to access and availability. Mean scores range from 1.86 to 3.11, indicating varying levels of access. Standard deviations range from 0.92 to 1.08, representing the variability in resource availability.
The t-values, which range from -9.97 to -32.01, highlight the substantial significance of the findings. All p-values are < .00001, underscoring the statistical significance of the observed resource disparities.
Participants generally report access to books, online resources, and computers with AI software for learning and development. However, access to more advanced resources like AI-related courses, mentors, datasets, projects, and software tools is relatively limited. Opportunities to engage in AI-related communities, events, and conferences are also reported at varying levels.
The assessment indicates that while participants have some access to foundational resources, there are notable gaps in advanced resources and opportunities essential for comprehensive AI learning and development. Addressing these gaps by expanding access to courses, mentors, datasets, projects, and funding could significantly enhance participants' AI learning journeys.

**Table 5. Resources and Support for AI Learning and Development Assessment**

| Perceptions of AI's Impact on Societal Challenges in Malawi | Mean | SD | T-value |
|---|---|---|---|
| AI can contribute to solving societal challenges in Malawi. | 4.25 | 0.92 | -63.6 |
| AI technologies can potentially improve healthcare services in Malawi. | 4.07 | 0.87 | -64.43 |
| AI can enhance educational opportunities and access in Malawian schools. | 4.15 | 0.88 | -65.21 |
| AI might lead to job displacement and unemployment in Malawi. | 3.84 | 1.03 | -45.49 |
| AI can assist in addressing environmental challenges and promoting sustainability in Malawi. | 3.90 | 0.98 | -51.03 |
| AI can help reduce poverty and inequality in Malawian communities. | 3.83 | 1.02 | -46.07 |
| AI might raise ethical concerns and privacy issues in Malawian society. | 3.94 | 1 | -50.12 |
| AI can facilitate innovation and economic growth in Malawi. | 3.92 | 1.01 | -48.99 |
| AI could improve the efficiency and effectiveness of public services in Malawi. | 3.92 | 1.01 | -48.99 |
| AI should be used responsibly and ethically to benefit Malawian society. | 4.02 | 0.99 | -52.1 |

Table 5 shows perceptions of AI's impact on societal challenges in Malawi, indicating strong consensus and recognition of AI's potential. Mean scores range from 3.83 to 4.25, reflecting a positive outlook. Standard deviations range from 0.87 to 1.03, suggesting a degree of variability in perceptions.
The t-values, which range from -45.49 to -65.21, underscore the high statistical significance of the findings. All p-values are < .00001, reaffirming the significance of the perceived impact of AI on societal challenges.
Participants overwhelmingly believe that AI can significantly contribute to addressing various challenges in Malawi. They view AI as improving healthcare, education, environmental sustainability, poverty reduction, and innovation. While recognising the potential for positive change, concerns about job displacement, ethical issues, and privacy exist. Participants emphasised the importance of responsible and ethical AI use to benefit society.
The assessment reveals a strong positive perception of AI's potential to address societal challenges in Malawi. While participants acknowledge concerns, they emphasise responsible and ethical AI deployment to harness its benefits for the country's development and well-being.

**Table 6. Perceptions of AI's Impact on Career and Personal Growth**

| Perceptions of AI's Impact on Career Prospects and Personal Growth | Mean | SD | T-value |
|---|---|---|---|
| I believe that learning AI will provide me with better future career prospects. | 4.30 | 0.85 | -72.8 |
| I am optimistic about my ability to learn and understand AI concepts. | 4.21 | 0.73 | -85.17 |
| AI skills are essential for success in the modern world. | 4.19 | 0.79 | -76.38 |
| I can apply AI knowledge and skills to solve real-world problems. | 4.16 | 0.82 | -72.38 |

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| | | | |
|---|---|---|---|
| Learning AI will open up new opportunities for me in various fields. | 4.19 | 0.81 | -74.73 |
| AI will positively impact society and the quality of life. | 4.19 | 0.81 | -74.33 |
| I am optimistic about AI technology's advancements and future possibilities. | 4.11 | 0.90 | -62.16 |
| I have a positive attitude towards learning AI and exploring its potential. | 4.20 | 0.84 | -71.21 |
| I hope learning AI will provide me with unique opportunities for personal growth. | 4.15 | 0.87 | -66.44 |
| AI can contribute to addressing significant challenges in our society. | 4.21 | 0.87 | -68.35 |

Table 6 shows perceptions of AI's impact on career prospects and personal growth reveal highly positive attitudes among participants. Mean scores range from 4.11 to 4.30, indicating substantial agreement with the statements. Standard deviations range from 0.73 to 0.90, suggesting relatively consistent perceptions within the group.

The t-values, ranging from -62.16 to -85.17, emphasise the high statistical significance of the findings. All p-values are < .00001, reaffirming the significance of the perceived impact of AI on career prospects and personal growth.

Participants strongly believe that learning AI will significantly improve their future career prospects. They are optimistic about their ability to understand AI concepts, apply AI skills to real-world challenges and perceive AI skills as essential for success in the modern world. The participants also anticipate AI opening new opportunities across various fields and contributing positively to society's quality of life. They hold an optimistic view of AI's future advancements and potential.

The assessment highlights participants' overwhelmingly positive perceptions of AI's impact on career prospects, personal growth, and society. The high level of agreement across statements underscores the firm belief in AI's potential to bring about positive change in multiple dimensions.

## 5. DISCUSSION

The study results show that many secondary students in Malawi engage in technology-related activities outside schools. Furthermore, the study indicated that many students understand the basics of AI. However, many need more knowledge concerning privacy and ethical issues relating to AI. Building students' capacity on AI ethical issues and other related issues is necessary. The findings of the study correspond with studies conducted by Bjola, 2022; Chiu, 2021; Ng et al., 2023; Owoc et al., 2021; Teo and Divakar, 2021 which emphasised the need for students to know and consider ethical issues from the perspective of stakeholders like policymakers and users.

The study's findings show a knowledge and skill gap concerning AI-related issues, limited awareness of AI's current use, historical context, risk and recent advancements among secondary school students. In addressing the problem, many students should have access to AI resources and training. This is related to the findings of the studies conducted by Butcher et al. 2021; Mckinsey Global Institute, 2017; Ng et al., 2023; Teo and Divakar, 2021, which indicated that people should have access to AI-related materials and training concerning AI.

Furthermore, most participants indicated that they have access to AI materials like books, online resources, and computers with AI software for learning development. The results support the findings of the study conducted by Touretzky et al. (2019), which indicated that there are AI materials that help students learn and apply AI fundamentals. However, the study exposed limited access to more advanced resources like AI-related courses, mentors, datasets, projects and software tools. Equally, there are limited opportunities to engage in AI-related communities, events and conferences, and a need for more funding. The findings are related to the results of the study by Bjola, 2022; Butcher et al., 2021; Nazari et al., 2021; and Zhai et al., 2021 which indicated there is growing evidence of a lack of engagement and funding for AI-related projects and activities, especially in many African Countries.

Most participants indicated that AI applications could potentially solve world problems, significantly address various challenges and improve health care, education, environmental sustainability, poverty reduction and innovation. The respondents believe that learning and applying AI technologies can significantly improve their future career prospects and open new opportunities. Hence, they have a positive perception towards AI learning and implementation. The results validate studies conducted by Bjola, 2022; Chiu, 2021; Sun et al., 2021; Teo and Divakar, 2021, indicating that AI technologies could solve real-world problems and turn every interaction into an ongoing learning process. However, the participants believe that AI can cause job displacement. The results support the findings of the study by Bjola (2022), which indicated that AI application reduces employment.

## 6. CONCLUSION

This study delved into the impact of AI education on the intentions of Malawian secondary school students to learn AI. The findings shed light on various facets, including students' readiness, perceptions of AI's societal benefits and drawbacks, and the role of optimism in shaping their learning intentions. The research showcased a diverse range of AI knowledge and programming skills among the participants, reflecting varying levels of exposure to AI concepts. Importantly, students expressed substantial optimism concerning AI's potential societal impact and role in personal growth. These insights highlight the significance of AI education in fostering enthusiasm for learning AI among Malawian secondary school students.

Despite the valuable insights gained, this study has some limitations. The reliance on self-reported data introduces the potential for response bias, affecting the accuracy of reported knowledge and skills. The findings might be generalisable to only some of the population of secondary school students in Malawi due to using a specific sample and a cross-sectional survey design. The absence of longitudinal data limits our understanding of how students' intentions may change. Additionally, the study primarily focused on quantitative data, potentially missing out on deeper qualitative insights into students' perceptions.

The findings from this study offer a foundation for future research and initiatives. Longitudinal studies could explore how AI education influences students' learning intentions and subsequent career paths over an extended period. Incorporating qualitative methods, such as interviews or focus groups, could provide richer insights into the nuances of students' perceptions and attitudes toward AI. Further investigation into practical pedagogical approaches for AI education in diverse educational settings would be valuable. Moreover, comparative studies across different countries help identify successful strategies that could be adapted for AI education in Malawi and similar contexts.

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