

The Use of AI Tools and Egyptian Youth Awareness Level

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ABSTRACT

This study investigates how Egyptian Youth utilize artificial intelligence (AI) tools, their levels of awareness regarding these technologies, and the influence of digital culture on their engagement with AI. It also examines potential risks, including deepfakes and algorithmic bias, and how these factors affect social behavior and digital participation. Despite the increasing adoption of AI, limited research has explored users' ethical and practical concerns in Egypt's evolving digital environment. A quantitative approach was employed, based on a survey of 436 Egyptian youth. The findings reveal patterns of AI usage, critical thinking practices, and the opportunities and challenges associated with these technologies, as well as broader societal implications. Analysis emphasizes the importance of critical awareness, responsible use, and the consequences of inadequate analytical engagement. Participants frequently reported using AI for learning, content creation, entertainment, productivity, and creative purposes, underscoring the need to understand algorithmic processes and data practices. The study offers practical recommendations, including enhancing digital literacy, raising awareness, and developing policies that promote responsible AI adoption. In summary, the research highlights both the benefits and risks of AI engagement and advocates for a more thoughtful, ethical, and informed approach to technology. These insights provide a foundation for understanding how continuous AI exposure may shape future generations' ability to navigate digital environments responsibly.

Keywords: Artificial Intelligence, Awareness, Digital Literacy, Egyptian Youth, Technology Usage

1. INTRODUCTION

1.1 Background of the Research

Artificial intelligence (AI) stands as one of the most transformative technological advancements of the twenty-first century, reshaping economies, industries, and human behavior globally. AI is not only revolutionizing industrial operations but also influencing how individuals think, live, and perceive themselves. Artificial intelligence offers immediate access to information, thereby increasing convenience in daily life. Moreover, this ease of access may also foster superficial thinking and fragmented attention. As AI technologies extend beyond factories and offices into various aspects of everyday life, critical questions arise about their impact on cognition, behavior, and social interaction. Powered by extensive data and machine

learning, AI systems now perform tasks considered exclusive to human intelligence, including problem-solving, content creation, financial management, business operations, and education (Russell and Norvig 2021).

In Egypt, the significance of AI is particularly pronounced, given that Youth constitute a substantial portion of the population. Approximately 21% of Egyptians are between the ages of 15 and 24 (UNICEF 2020), and this generation has grown up with the internet as an integral part of daily life. Social media platforms such as Facebook, Instagram, and TikTok are central to how young Egyptians communicate, share content, and engage socially (Arab Youth Survey 2021). AI tools have the potential to revolutionize fields such as engineering, art, and education. However, as these tools become more widespread, concerns have emerged about

overreliance, accelerated workflows, and the potential erosion of creativity and qualitative aspects of work.

This study examines how Egyptian Youth utilize AI tools and assesses their understanding of the capabilities and broader effects of these technologies on learning, social interactions, and personal development. The research aims to provide insights into the knowledge, practices, and experiences of young users within the context of Egypt's Vision 2030 plan, which emphasizes digital skills and innovation to prepare Youth for the global digital economy (Ministry of Planning and Economic Development 2020). AI adoption is particularly significant among Youth, who represent over 60% of the population under the Age of 30 (Central Agency for Public Mobilization and Statistics 2022). This study explores how Egyptian Youth engage with AI tools and examines their awareness of the associated benefits, risks, and social implications. It investigates both the advantages and potential drawbacks of integrating AI into daily routines while addressing important ethical considerations. Despite the pervasive presence of AI in digital interactions, there remains a limited understanding of how young users actually engage with and comprehend these technologies. Thus, the research aims to provide technologists, policymakers, and government officials with empirical insights into AI usage in digital media, particularly regarding its impact on learning, social interactions, and personal development. Furthermore, the study highlights existing gaps in knowledge concerning youth attitudes toward AI, especially in balancing potential risks such as misuse or digital manipulation with opportunities for empowerment.

1.2 Statement of Research Problem

The increasing integration of artificial intelligence (AI) into digital media presents both significant opportunities and notable challenges for Egyptian Youth. While AI tools have the potential to enhance user experiences, foster innovation, improve digital literacy, and raise awareness of emerging technologies, there remains a substantial gap in young people's understanding and ethical use of these tools. This lack of awareness may lead to the underutilization of AI technologies and heighten ethical, social, and privacy-related risks. Despite the global surge in AI adoption, there is limited empirical research on how different demographic groups, particularly Youth, engage with and comprehend AI technologies. In Egypt, with its large and growing youth population, the integration and impact of AI tools in digital media are insufficiently explored, especially concerning awareness levels, usage patterns, and factors influencing engagement. Therefore, this study

aims to assess the level of AI awareness among Egyptian Youth and identify the key factors shaping their interaction with AI tools. Additionally, the research seeks to contribute to the understanding of AI literacy among young people and to inform policy recommendations that promote digital inclusion, responsible AI use, and ethical engagement with emerging technologies.

1.3 Significance of the Study

1.3.1 Theoretical Significance

This research examines the usage patterns and awareness levels of AI tools among Egyptian Youth, a key demographic shaping the country's digital future. By providing a comprehensive understanding of how young people interact with and perceive AI technologies, the study contributes to the growing body of knowledge on digital transformation, technological literacy, and youth adaptation in the era of artificial intelligence. The study offers insights into how AI tools influence youth behaviors, social interactions, and decision-making processes, thereby advancing theoretical frameworks on human–technology interaction, particularly within developing societies such as Egypt. By analyzing both the benefits and challenges of AI usage, the research deepens theoretical discussions on digital empowerment, risk perception, self-development, and social adaptation to emerging technologies. Furthermore, it highlights the interplay between awareness and usage behaviors, providing a foundation for future studies aiming to develop conceptual models that explain the sociocultural and psychological dimensions of AI engagement among Youth.

1.3.2 Practical Significance

This study offers valuable guidance for educators, policymakers, and media professionals seeking to enhance AI literacy among Egyptian Youth. By identifying factors that influence AI awareness, adoption, and perceptions, the research provides a basis for developing educational programs and national strategies that promote responsible and effective use of AI technologies. In educational and training contexts, the findings support the integration of AI tools into learning environments in ways that foster creativity, productivity, and critical thinking, helping bridge the gap between youth digital behaviors and the demands of an AI-driven labor market. For policymakers and technology developers, the study informs the design of awareness campaigns and user-centered technologies that mitigate risks, maximize benefits, and promote ethical AI use. Ultimately, this research supports the cultivation of a balanced AI culture among Egyptian youth culture that leverages innovation while maintaining social and ethical responsibility—and provides actionable

insights for preparing the younger generation for active participation in an AI-powered digital future.

1.3.3 Research Objectives

1. To assess the level of AI tool usage among Egyptian Youth in digital media and how Youth utilize AI tools in their daily lives.
2. To measure the awareness and understanding of AI technologies among Egyptian Youth and the preferred use of tools.
3. To identify factors influencing the engagement of Egyptian Youth with AI tools frequently.
4. To explore the implications of AI tool usage on the digital behavior of Egyptian Youth and its reflection on their social interaction (daily lives).
5. To enhance digital literacy among Egyptian Youth by using AI tools to prepare them for a future dominated by AI technologies.

2. PREVIOUS STUDIES

2.1 Defining Artificial Intelligence (AI) and its Technological Foundation

Artificial Intelligence essentially refers to machines performing tasks that typically require human intelligence, such as reasoning, learning, and making decisions (Tredinnick 2017). The concept originated in the 1950s, with pioneers such as Alan Turing and John McCarthy leading the way. When examining the research, the first step is always ensuring that everyone's clear on what "AI" and "digital literacy" actually mean. The review also examines how young people utilize these technologies, the core tools involved, and the risks that arise, such as deepfakes, privacy concerns, and algorithmic bias. Youth interact with AI tools more rapidly than other age groups, mainly due to the continued expansion of technology and internet access.

In fact, a 2022 survey by Egypt's Ministry of Communications and Information Technology found that over 70% of Egyptian Youth regularly use AI apps.

The study highlights tools such as virtual assistants, translation tools, and even algorithms that determine what you see on social media. Therefore, digital literacy is on the rise, and the younger generation is clearly ready to embrace new technologies in the digital Age.

At its core, AI is a branch of computer science that focuses on building systems capable of handling tasks typically thought to be the domain of humans alone (Jakhar and Kaur 2020). And, as this study points out, what AI really spits out is knowledge, something that can be useful for both people and machines. However, there is more: AI shapes large social networks, powers search engines, and even drives surveillance programs at various scales (Berendt 2019).

Machine Learning and Deep Learning: An Introduction to AI Tools. AI has seen groundbreaking advancements due to enhanced data availability and the development of new AI technologies. These technologies have improved algorithms and the power of computing systems.

2.1.1 Key Developments Include

A) Machine Learning (ML) AI tool, which is about teaching computers to learn from data and make decisions. You see ML shaking up industries like education, media production, healthcare, or finance by making predictions that help people act fast (LeCun *et al.* 2019).

B) Deep Learning sits inside ML. It utilizes artificial neural networks to a simplified version of the human brain—to recognize images, understand speech, or recommend products online (Domingos 2015).

C) Generative AI, about creating new things: think text, images, even videos (Kirelli 2023). These tools are changing the game.

2.1.2 The Role of AI tools usage Among Youth

Youth in Egypt are rapidly embracing AI tools, primarily due to the increased accessibility of technology and the internet. According to a 2022 survey by the Egyptian Ministry of Communications and Information Technology, more than 70% of Egyptian Youth regularly use AI-driven apps such as virtual assistants, translation tools, and those sneaky social media algorithms. It is becoming more digitally savvy and ready to adopt new technology as it emerges.

The awareness and understanding of AI concepts among university students revealed a moderate level of awareness, with significant variations based on academic discipline and access to technological resources. Fields demonstrated higher levels of AI awareness compared to those in the humanities and social sciences (Alawneh *et al.* 2022). Other studies

back this up. Approximately 65% of young Egyptians are familiar with AI, and nearly half—around 45%—utilize these tools daily (El-Sherif and Wahby 2021). Youth found real purpose on social media. Youth utilize AI to drive positive changes in their communities and view it as playing an active role in social and economic development (Ayish 2018). Social media, for Youth, is a virtual gathering space where their voices can actually make waves in the Arab world. Influencers in the region are also a significant presence. The Arab Media Outlook, 2016, notes that these voices can significantly shape local culture and do a great deal of good beyond just posting for likes.

AI tools usage among Egyptian Youth is influenced by factors such as ease of use, perceived usefulness, and trust in technology (Zaki 2020). Studies indicate that Youth prefer AI applications that offer personalized experiences and enhance productivity. This preference is evident in the high adoption rates of AI-driven educational tools and entertainment applications that could generate full insight and an accurate response for the user using the tools (ElBakry, 2018). Artificial Intelligence is increasingly present in young people's lives, particularly in education and entertainment. Their rise can be attributed to several factors: the region's young population, the rapid adoption of new technology, the allure of social media, the surge in short-form content, and the ease of use of these platforms (Ezzat 2020).

Apps that utilize AI help personalize the content users see and learn, making it more engaging and easier to absorb (Hassan and Shouman 2019). Since smartphones and internet access are almost ubiquitous, more Egyptian Youth are turning to AI for school research, creating content for social media, or simply gaming (Gedeen 2020). However, here's the thing: even though many young people use AI, not many truly understand how it works or what it means for them (Frag and Osman 2018).

2.1.3 AI and Youth Awareness Patterns

AI use among young people in Egypt is on the rise, mainly because technology is more accessible than ever. Over 70% of Egyptian Youth now utilize AI-powered apps, including virtual assistants, language tools, and constantly suggested social media feeds (Egyptian Ministry of Communications and Information Technology 2022). Most of them rely on AI for learning, entertainment, and staying connected (Smith *et al.* 2021). Siri, Alexa, Duolingo, Grammarly, and AI-driven video games are no longer just trendy buzzwords (Johnson and Zhang 2022). What draws Youth in?

Customization and efficiency. Mostly, Youth prefer apps that cater to their individual preferences and help them accomplish tasks (ElBakry 2018). In schools, AI takes over repetitive tasks, such as automated grading and personalized lessons, freeing teachers to focus more on genuine teaching and engaging with students (Johnson *et al.* 2019). The way young people interact with AI is shaped by their education, technical knowledge, and socioeconomic status. In Egypt, universities have begun offering AI courses to improve students' skills, but these only reach a limited portion of the student population (Mohamed and Youssef 2020).

The effects of artificial intelligence extend far beyond theoretical frameworks. (Johnson *et al.* 2019) demonstrate that chatbots and automated grading systems significantly reduce administrative workloads for university staff, allowing educators to devote more time to direct student engagement. However, despite the widespread adoption of such technologies, many young users lack a clear understanding of how AI algorithms function and how these systems shape their everyday academic and social experiences (Carter and Lin 2023). Ramos *et al.* (2020) found that fewer than 30% of young people were able to accurately explain how AI recommendation systems function. This limited understanding suggests that many users engage with AI technologies in a largely passive manner, raising concerns related to digital literacy. In contrast, a smaller and more technologically proficient group—typically individuals with stronger academic backgrounds or a particular interest in technology—actively seeks to understand the mechanisms and implications of AI systems. These changes demonstrate the significant impact of AI on education, making processes more efficient, streamlining tasks, and creating opportunities for deeper learning (Johnson *et al.* 2019). Higher digital literacy is closely tied to a greater awareness and understanding of AI. Building AI literacy is not just helpful; it is crucial if we want young people to truly benefit from these tools both in and out of the classroom (Hassan 2022).

Digital technologies have significantly simplified daily life by providing immediate access to vast amounts of information. While this convenience enhances efficiency, it also presents notable cognitive challenges. When information is readily available, users may be more inclined to skim content rather than engage with it critically, encouraging passive consumption over deeper intellectual engagement. (Fromm 2023) warns that excessive reliance on readily accessible information may reduce an individual's motivation for active effort and critical reflection. Such patterns of passive consumption risk diminishing curiosity,

weakening cognitive engagement, and undermining personal development. As artificial intelligence and digital technologies continue to expand, there is an increasing danger that individuals may equate access to information with genuine understanding, rather than cultivating meaningful knowledge and analytical skills.

2.1.4 Challenges in AI Integration

Artificial intelligence occupies a complex position in contemporary digital life, at times enhancing user awareness while at other times diminishing critical engagement. Educational technologies, such as AI-based tutoring systems and coding platforms, have demonstrated positive outcomes in supporting young people's understanding of technological concepts. (Nguyen and Patel 2022). Moreover, excessive reliance on automated systems can reduce users' tendency to question and critically evaluate AI outputs. When AI-generated content is accepted uncritically, users may overlook issues of accuracy, bias, and contextual relevance (Garcia and Thomas 2021). Empirical evidence indicates that AI adoption among Youth is widespread: (Smith 2021) reports that 68% of individuals aged 15 to 24 regularly use AI-driven tools, including voice assistants, adaptive learning platforms, and AI-powered digital games. Similarly, applications such as Gemini and Grammarly have gained popularity due to their ability to personalize learning experiences (Johnson and Zhang 2022). In addition to formal education, workshops and extracurricular initiatives—such as AI hackathons encourage more active and exploratory engagement with AI concepts. Nevertheless, unequal access to educational resources continues to limit participation in such initiatives, resulting in uneven benefits across socioeconomic groups (Ahmed *et al.* 2021). Contemporary Youth are not merely passive consumers of digital content; they are increasingly regarded as agents of social change within societies that place high expectations on their civic and developmental roles (UNDP 2016). Many young people have found a sense of purpose through social media platforms, viewing them as spaces for expression, participation, and community-driven progress (Ayish, 2018). These platforms, however, are deeply shaped by artificial intelligence. Algorithmic systems on platforms such as Instagram, TikTok, and YouTube create personalized content streams that maximize user engagement and significantly increase time spent online. Despite this pervasive influence, users often remain unaware of the extent to which their personal data is collected and used to train these algorithms, raising serious concerns related to privacy, manipulation, and misinformation (Johnson and Lee 2023). While social media platforms offer opportunities

to disseminate educational content related to AI and its societal implications, empirical evidence suggests that youth engagement with such material remains limited (Martin *et al.* 2022). Conversely, excessive exposure to algorithm-driven content has been linked to negative outcomes, including reduced productivity, diminished critical thinking, and adverse effects on mental well-being.

2.2 Theoretical Framework

2.2.1 Digital Literacy

This study is grounded in Digital Literacy Theory, which provides a framework to examine how Egyptian Youth engage with Artificial Intelligence (AI) tools and their level of awareness regarding these technologies. Gilster (1997) defines digital literacy as the ability to understand and utilize information from diverse digital sources, emphasizing that literacy extends beyond access to content to include comprehension of the processes and contexts behind it. Livingstone (2004) later expanded this definition to encompass the social and cognitive dimensions of digital engagement. Digital literacy encompasses not only technical proficiency but also critical thinking, evaluation of digital content, contextual understanding, and responsible, ethical use of technology. These competencies are essential for meaningful participation in education, society, and the workforce. In Egypt, where Youth represent a significant segment of the population and drive digital transformation, digital literacy is critical for effective adoption, interpretation, and integration of AI into daily life. Familiarity with digital tools influences both usage frequency and depth of engagement, shaping critical thinking and ethical decision-making in digital environments (Ng 2012).

Digital Literacy Theory provides a lens to understand these gaps, encompassing four interrelated domains—technical, cognitive, social, and ethical literacy, which collectively offer a framework for engaging with technology responsibly and reflectively (Ng 2012).

A- Technical Literacy

Technical literacy involves practical skills for operating digital tools effectively, including accessing, navigating, and managing digital content (Eshet-Alkalai 2004). In the context of AI, technical literacy extends to using platforms such as ChatGPT, Grammarly, or Midjourney to support learning, creativity, and work. Assessing technical literacy enables evaluation of whether Youth can use AI effectively and productively.

B- Cognitive Literacy

Cognitive literacy refers to the ability to interpret, analyze, and evaluate digital information critically (Gilster 1997; Ng 2012). For AI, this involves understanding how tools function, recognizing algorithmic influences, assessing output reliability, and detecting biases. Cognitive literacy reveals whether users can critically engage with AI outputs and make informed decisions about their use.

C- Social Literacy

Social literacy concerns how individuals interact and collaborate within digital environments (Hobbs 2010; Livingstone 2004). It encompasses digital citizenship, responsible online behavior, and participation in online communities

D- Ethical Literacy

Ethical literacy involves awareness of moral and societal issues in digital technology use, including privacy, data protection, intellectual property, and algorithmic biases (Ribble 2015). In the context of AI, ethical literacy addresses youth understanding of data privacy risks, misinformation, and overreliance on automated systems

2.2.2 Relevance to the Study

Applying Digital Literacy Theory enables a multifaceted analysis of how Egyptian Youth adopt and interact with AI tools. By examining technical, cognitive, social, and ethical literacy, this study identifies both enablers and barriers to responsible AI use. The theory underscores that effective and ethical AI engagement requires more than technical competence; it also necessitates critical thinking, ethical awareness, and contextual understanding.

2.3 Research Questions

1. What is the extent of AI tool usage among Egyptian Youth in digital media?
2. How aware are Egyptian Youth of the functionalities and implications of AI tools?
3. What factors influence the engagement of Egyptian Youth with AI technologies?
4. What are the potential benefits and challenges of AI tool usage for Egyptian Youth?
5. How effective are AI tools in influencing the

awareness level among Egyptian Youth?

2.4 Research Hypotheses

H1: There is a statistically significant relationship between the extent of AI tools usage among Egyptian Youth and their awareness level regarding Artificial Intelligence.

H1a: There is a statistically significant relationship between the extent of AI tools usage and the perceived benefits of AI tools.

H1b: There is a statistically significant relationship between the extent of AI tools usage and the perceived challenges of AI tools.

H1c: There is a statistically significant relationship between the extent of AI tools usage and the practical uses of AI tools.

H1d: There is a statistically significant relationship between the extent of AI tool usage and the perceived risks of AI.

H1e: There is a statistically significant relationship between the extent of AI tools usage and the reflection impact (i.e., how AI use shapes users' awareness, thinking, and behavior).

H2: There is a statistically significant relationship between the starting time of AI tools adoption among Egyptian Youth and their awareness level regarding Artificial Intelligence.

H2a: There is a statistically significant relationship between the starting time of AI tools adoption and the perceived benefits of AI tools.

H2b: There is a statistically significant relationship between the starting time of AI tools adoption and the perceived challenges of AI tools.

H2c: There is a statistically significant relationship between the starting time of AI tools adoption and the practical uses of AI tools.

H2d: There is a statistically significant relationship between the starting time of AI tools adoption and the perceived risks of AI.

H2e: There is a statistically significant relationship between the starting time of AI tools adoption and the reflection impact.

H3: There are statistically significant differences among Egyptian Youth in their awareness level regarding Artificial Intelligence according to their demographic characteristics (namely, Age, educational level, place of residence, and family living standard.

H3a: There are statistically significant differences among Egyptian Youth in their awareness level regarding Artificial Intelligence according to their Age.

H3b: There are statistically significant differences among Egyptian Youth in their awareness level regarding Artificial Intelligence according to their educational level.

H3c: There are statistically significant differences among Egyptian Youth in their awareness level regarding Artificial Intelligence according to their place of residence.

H3d: There are statistically significant differences among Egyptian Youth in their awareness level regarding Artificial Intelligence according to their family living standard.

3. METHODOLOGY

3.1 Research Design

This study employs a quantitative, cross-sectional survey design to examine patterns of artificial intelligence (AI) tool usage and levels of awareness among Egyptian Youth. A quantitative approach is appropriate for identifying trends, relationships, and variations in technology engagement across a relatively large population. The survey was designed to capture multiple dimensions of AI engagement, including frequency of use, preferred applications, perceived benefits, ethical and social concerns, and the perceived impact of AI on academic, professional, and social practices. This design enables a systematic and comprehensive assessment of AI integration within youth digital behavior.

3.2 Data Collection Method

Data were collected using a structured questionnaire administered primarily through online platforms, with limited in-person distribution to enhance accessibility and participation. Prior to participation, respondents were informed of the study's objectives and assured of anonymity and confidentiality. Informed consent

was obtained from all participants. The questionnaire measured AI usage patterns, awareness levels, attitudes toward AI, ethical and social concerns, and perceived impacts on daily activities, allowing for an in-depth examination of youth engagement with AI technologies.

3.3 Population and Sampling

- **Target Population**

The target population comprised 436 Egyptian youth, both male and female, aged 18 to 40 years, who actively use digital platforms and AI tools. This age group represents one of the most digitally engaged segments of Egyptian society and frequently interacts with AI technologies in educational, professional, and social contexts. Participants were recruited from urban and semi-urban areas to reflect variations in access to digital infrastructure and AI-enabled media environments.

- **Sampling Technique and Justification**

A non-probability purposive sampling technique was employed to ensure the inclusion of participants with direct experience using AI applications, such as ChatGPT, Google Gemini, Grok, Microsoft Copilot, and AI-powered features embedded in digital and social media platforms. This sampling strategy prioritizes analytical relevance rather than statistical generalization, enabling a focused exploration of AI awareness and engagement among active users. Participants represented diverse academic and professional backgrounds, including media and communication, marketing, business, and engineering. Demographic variables such as Age, gender, education level, and location were incorporated into the analysis to examine variations in AI usage and awareness.

- **Sample Size**

The final sample consisted of 436 participants, which provided sufficient data to support descriptive and inferential statistical analysis

3.4 Data Analysis

Survey responses were coded, cleaned, and analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequencies, percentages, and mean scores, were used to summarize demographic characteristics, AI usage patterns, and awareness levels. Inferential

analyses, including cross-tabulation and correlation analysis, were conducted to examine relationships between demographic variables and AI engagement. Hypothesis testing was applied to identify statistically significant differences in awareness, attitudes, and behaviors across participant groups. Results were presented using tables and figures to support a clear, evidence-based interpretation of the findings.

4. RESULTS

4.1 Quantitative Results

4.1.1 Field Study Results Analysis

This survey was distributed to 436 Egyptians to assess their awareness, perceptions, experiences, and satisfaction with AI tools. The goal was to understand their level of awareness and their usage of the AI tools. This section presents the quantitative findings of the survey on Egyptian youth engagement with artificial intelligence (AI) tools and their levels of awareness.

The results are reported using descriptive and inferential statistics, including frequencies, percentages, and means, to provide a clear representation of AI usage patterns and awareness among participants. Figures and tables are included to illustrate the intensity of AI tool usage, awareness levels, and variations across demographic groups such as Age, gender, and education level.

moderate users suggests that many young people are experimenting with AI but have not made it a natural part of their lives. This observation lines up with Digital Literacy Theory (Glister 1997), which describes the slow

Figure (2): Perceived Benefits of AI Tools

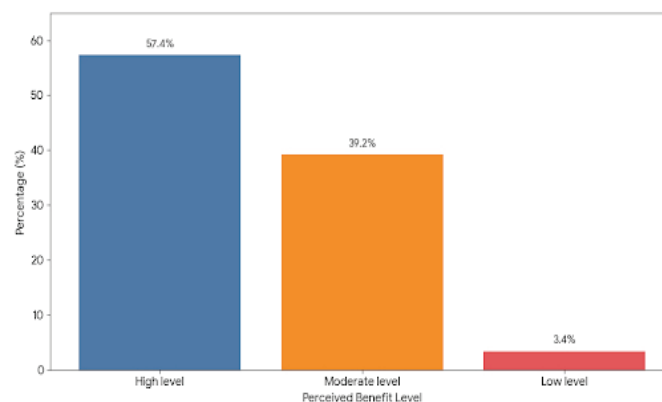


Figure 2: Perceived Benefits of AI Tools

Figure 2 indicates that most respondents—57.4%—perceive substantial benefits in using AI, while 39.2% remain neutral, and only 3.4% are not convinced at all. Clearly, many young people recognize the ways AI can improve productivity, inspire creativity, and accelerate learning. These findings align with previous research, which showed that young people often associate digital technologies with empowerment and expanded possibilities (Na 2012). However, the significant

Figure (3): Perceived Challenges of AI Tools

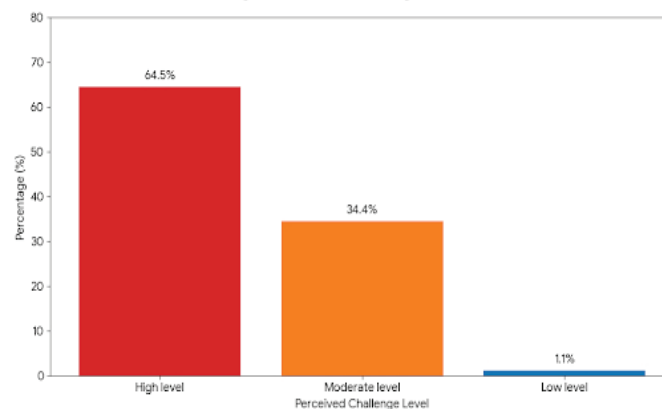


Figure 3: Perceived Challenges of AI Tools

Figure 3 presents a clear trend: 64.5% of respondents believe that AI poses significant challenges, 34.4% perceive moderate challenges, and only 1.1% consider the challenges to be minimal. So, despite the enthusiasm, most young people are cautious about the complexity and risks of AI, such as data privacy, ethics, and concerns about job displacement. It is not just a matter of hype; there is genuine awareness of the potential negatives. This combination of excitement and caution is significant. It highlights how optimism about technology and skepticism about its drawbacks often coexist, especially in rapidly digitizing societies.

Figure (1): Intensity of Usage of AI Tools

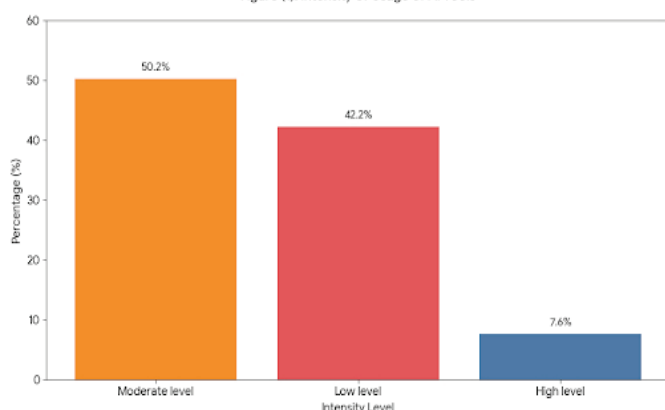


Figure 1: Intensity of AI Tools Usage

Figure 1 shows that roughly half of those surveyed—50.2%—describe how they use AI tools as moderate. Another 42.2% use them only a little, while just 7.6% say they use them extensively. It is evident that AI is entering everyday life, but for the majority, it is not yet an indispensable tool. The large group of

These results reflect ongoing global discussions about algorithmic bias, misinformation, and over-reliance on automation (Hausken 2024). For policymakers and educators, this serves as a reminder: young people require more than just access to AI; they need comprehensive, practical programs that promote AI literacy and understanding. These will help them engage with these technologies thoughtfully and responsibly, rather than passively.

In Figure 5, these findings present another clear image. Around 76.4% of participants perceive AI as carrying significant risks; 22% view the risks as moderate, and only 1.6% consider them low. Egyptian Youth are not oblivious to the potential drawbacks. They express concern about privacy, misinformation, and becoming overly reliant on these technologies. It is more than just abstract worry; there is tangible caution and an increasing awareness that technology influences society and ethics, for better or worse. Awareness connects directly to the critical literacy aspect of Digital Literacy Theory. Young people are not simply utilizing AI; they are starting to question it, examining how these systems operate and what they signify. While this process is still in its early stages, the shift is underway. For educators and policymakers, this represents a valuable opportunity. There is a clear mandate to promote stronger ethical education, greater transparency, and initiatives that help everyone grasp AI's impact—not just its practical use, but also its broader implications.

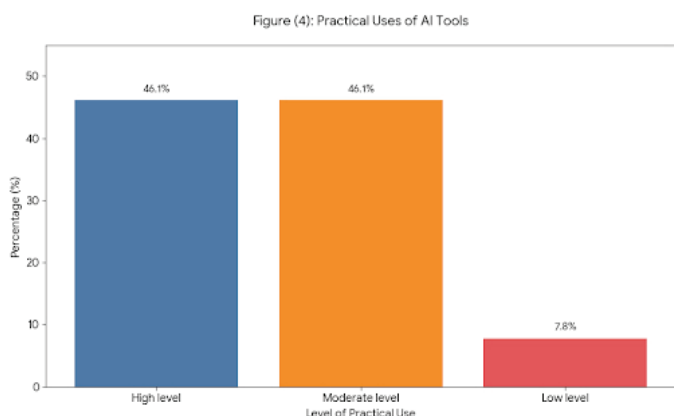


Figure 4: Practical Usage of AI Tools

Figure 4 illustrates the extent to which participants practically use AI tools in their daily or academic activities. The results show that 46.1% of respondents indicated a high level of practical use, while an equal percentage (46.1%) reported a moderate level of use. Only 7.8% of participants reflected a low level of practical use of AI tools. These findings suggest that AI tools have become an integral part of most respondents' routines, whether for learning, content creation, research, or communication. The balanced distribution between high and moderate users implies that a significant majority (over 92%) are already engaging with AI tools to varying extents. This widespread adoption highlights the growing normalization of AI technologies among Youth, likely driven by their accessibility and usefulness in improving efficiency and creativity.

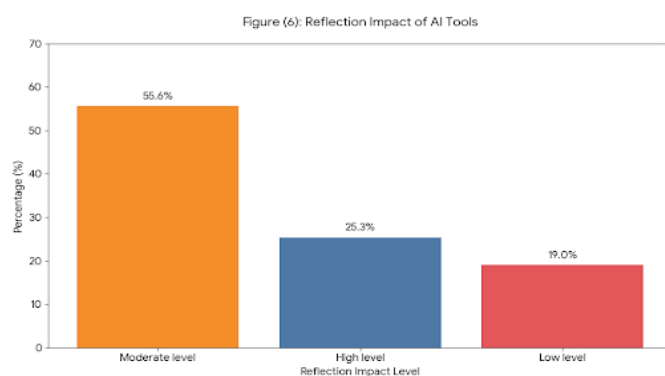


Figure 6: Reflection Impact of AI Tools

Figure 6 illustrates a clear division: 55.6% of respondents report that AI has a moderate impact on how they reflect, 25.3% say the effect is high, and 19% consider it low. AI tools are not for tasks; they're also influencing how people think and perceive technology. Over half of those surveyed indicate that working with AI has begun to change the way they tackle problems, process information, and even their general perspective. It reflects the concept of transformative digital literacy, a move beyond simply knowing how to use tools toward considering their wider effects on personal growth. The fact that most people notice only a moderate effect is consistent with the theory of digital literacy. Continued interaction with intelligent systems gradually shapes users' thinking and attitudes about technology. The findings are clear: AI is encouraging more independent learning and greater curiosity, even if it has not fundamentally changed people's thinking just yet.

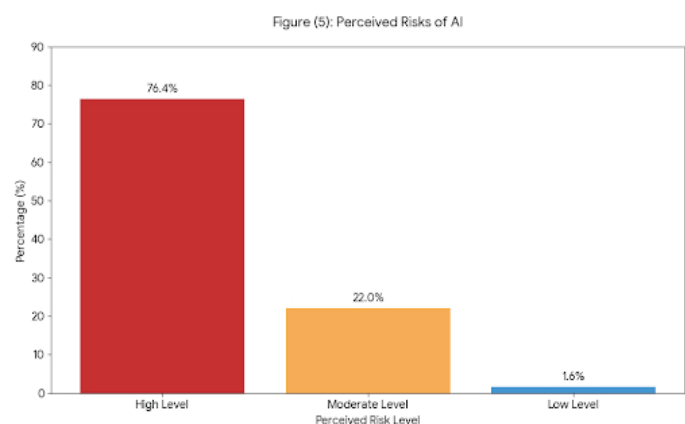


Figure 5: Perceived Risks of AI Tools

4.2 Discussion of Research Questions

RQ1: What is the extent of AI tool usage among Egyptian Youth in digital media?

The findings revealed that AI tools have become an essential part of Egyptian youth digital practices, with a majority demonstrating moderate to high levels of usage intensity. Based on the survey data, 46.1% of respondents reported high use, 46.1% indicated moderate use, while only 7.8% showed low engagement. This pattern suggests that Egyptian Youth have deeply integrated AI tools into their digital routines, using them for various purposes such as content creation, learning support, information retrieval, and entertainment. The analysis also shows that AI usage extends beyond casual interaction, reflecting a strong adoption of practical tools like ChatGPT, Grammarly, and AI-based editing or translation systems. These results align with the Digital Literacy Theory, which emphasizes that frequent digital interaction fosters adaptive technological skills and literacy over time.

RQ2: How aware are Egyptian Youth of the functionalities and implications of AI tools?

The study found that while Egyptian Youth actively use AI tools, their awareness level of how these tools function and their broader implications remains moderate. Data analysis indicates a 55.6% moderate reflection impact, 25.3% high, and 19% low. This implies that although many users can effectively operate AI applications, a considerable portion lacks a deep understanding of how AI algorithms work, or of the ethical and privacy concerns surrounding them.

RQ3: What factors influence the engagement of Egyptian Youth with AI technologies?

Analysis of the statistical data indicates that education level, income, and digital familiarity are key factors influencing AI engagement. According to the LSD test, Youth with higher education and income levels showed significantly greater use and perceived benefits of AI tools compared to lower-income groups. Educational exposure enhances confidence in using AI tools effectively, while socioeconomic status affects access to technology and internet resources. Additionally, digital literacy and early exposure to technology also emerged as significant determinants of engagement. Participants who began using AI tools earlier displayed higher reflection impacts and more advanced integration of these technologies in learning and work. These results confirm Hypothesis 2 (H2e), which established a statistically significant relationship between the starting

time of AI adoption and its reflective impact ($r = 0.084$, $\text{Sig.} = 0.078$). Thus, both educational and experiential factors collectively shape how Youth engage with AI tools.

RQ4: What are the potential benefits and challenges of AI tool usage for Egyptian Youth?

Findings from the “Perceived Benefits” and “Perceived Challenges” analyses reveal a nuanced relationship between opportunity and risk. Most respondents acknowledged moderate to high benefits of AI tools, improved productivity, easier access to knowledge, enhanced creativity, and more effective communication. These tools were perceived as helpful in academic work, professional tasks, and content creation, aligning with the theory’s emphasis on technology as an enabler of learning and empowerment. On the other hand, 76.4% of respondents reported high levels of perceived risks, indicating concerns about accuracy, misinformation, over-reliance on AI, and ethical implications. The most significant challenges were linked to a lack of critical evaluation skills and a limited understanding of AI’s decision-making processes, which can affect the accuracy and credibility of outputs. These findings highlight that while AI offers meaningful benefits, its challenges are primarily rooted in limited digital literacy and critical awareness, suggesting that targeted education and regulation are essential to balance both sides.

RQ5: How effective are AI tools in influencing the awareness level among Egyptian Youth?

The research findings demonstrate that AI tools have a moderate positive impact on awareness among Egyptian Youth. While 55.6% of participants reflected a moderate awareness impact, 25.3% showed high awareness, and 19% exhibited low awareness. This indicates that AI exposure contributes to developing certain analytical and information-handling skills, but this development remains incomplete without structured guidance.

5. DISCUSSION AND CONCLUSION

5.1 General Discussion

The survey findings portray Egyptian Youth as enthusiastic yet cautious participants in the country’s digital transformation. Respondents recognize the benefits of AI, including increased efficiency, innovation, and convenience, while remaining aware of its potential risks and ethical complexities. Most participants

demonstrate moderate familiarity with AI, understanding its practical applications but lacking the critical skills necessary to evaluate or influence these technologies effectively. This highlights the need to move beyond functional training toward fostering ethical, reflective, and creative engagement with AI. Integrating AI literacy topics such as data ethics, privacy, algorithmic bias, and the societal implications of automation into school curricula and policy initiatives is essential to equip Youth with the knowledge and judgment required for responsible AI use.

Youth Perception and Trust

Survey data indicate that participants often accept AI outputs at face value, rarely verifying their accuracy. Tools such as ChatGPT or Grammarly are frequently treated as authoritative sources, with limited critical assessment of potential errors or biases. Previous research corroborates this phenomenon, suggesting that excessive trust in AI can lead to uncritical consumption of digital content (Garcia and Zhang 2023). Digital Literacy Theory (Gilster 1997; Ng 2012) conceptualizes this as limited cognitive literacy, where users can operate digital tools but lack the evaluative skills necessary to judge the reliability or objectivity of the outputs.

Ethical and Legal Implications

Ethical awareness among young users, particularly concerning plagiarism, data privacy, and intellectual property, remains underdeveloped (Abdel-Fattah and Hassan 2022). While many Arab youths are proficient in using digital tools, their understanding of the ethical responsibilities associated with AI remains limited (Ribble 2015). These findings reinforce the importance of incorporating AI ethics into higher education and vocational programs, ensuring that young people can make informed, accountable decisions as they navigate digital environments.

Deepfakes and Privacy Concerns

Participants expressed increasing concern regarding deepfakes, misinformation, and privacy risks, particularly on social media platforms where AI operates in the background. AI-generated content can distort reality and influence public perception, highlighting the urgent need for both ethical and technical literacy. Prior studies emphasize similar challenges, indicating that inadequate awareness of AI's data practices can amplify misinformation and privacy violations (Carter and Zhang 2023; Johnson and Lee 2023).

Regulatory and Educational Needs

The study underscores the necessity of coordinated national and institutional frameworks to support AI literacy and ethical usage. While regulations are important, Digital Literacy Theory suggests that rules alone are insufficient; education must empower Youth to think critically, act ethically, and understand the broader societal implications of AI. Embedding AI literacy into curricula, alongside teacher training and public awareness programs, can ensure that young people not only engage effectively with AI but do so in a responsible and socially conscious manner.

5.2 Conclusion

This study examined the usage patterns of artificial intelligence (AI) tools among Egyptian Youth aged 18 to 40 and assessed their levels of awareness through the framework of Digital Literacy Theory. Based on survey data from 436 respondents, the findings indicate that AI technologies are widely adopted and generally perceived as beneficial, particularly for educational, creative, and productivity purposes. Participants reported that AI enhances learning efficiency, facilitates access to information, and supports creative output, aligning with previous studies highlighting AI's potential to foster active learning and innovation (Ng 2012; Paik *et al.* 2023).

Despite these positive perceptions, the study reveals a notable gap in critical and ethical understanding. Many participants demonstrated practical proficiency in using AI for tasks such as research, translation, and content generation, but fewer understood the underlying mechanisms, data dependencies, or ethical implications of these systems.

5.3 Ethical Concerns and Future Outlook

A key ethical concern is the growing overreliance on artificial intelligence (AI) tools among Egyptian Youth and their potential impact on human agency. Excessive dependence on AI for learning and decision-making may reduce critical thinking, creativity, and personal accountability. When AI outputs are used without evaluation, users risk weakening their ability to exercise independent judgment. Addressing this issue requires promoting reflective AI use and reinforcing human oversight in educational and digital practices.

Future Outlook: Integrating critical thinking, ethical reasoning, and technical proficiency into formal education offers a strategic pathway to cultivating digitally empowered citizens. Embedding AI literacy

into curricula can enable Youth to utilize AI tools responsibly, creatively, and ethically. The potential of AI among Egyptian Youth is considerable, provided that its adoption is guided by principles of human-centered innovation, ethical responsibility, and social accountability. Strengthening AI literacy is therefore essential to ensure that AI functions as a tool for empowerment rather than dependency, supporting equitable, responsible, and sustainable digital development in Egypt.

5.4 Limitations

While this study provides valuable insights into AI usage and awareness among Egyptian Youth, several limitations should be noted. First, the reliance on self-reported survey data may introduce response bias, as participants could overestimate or underestimate their actual use of AI tools or their understanding of associated ethical and technical implications. Second, the study focused exclusively on Egyptian Youth aged 18 to 40, which limits the generalizability of the findings to other age groups, cultural contexts, or regions where digital literacy levels and access to technology differ. Future research could expand the sample to include diverse demographic groups, such as different educational backgrounds, geographic locations, or professional sectors, which would further strengthen the generalizability of results and provide a more comprehensive understanding of AI adoption and digital literacy in Egypt.

5.5 Theoretical and Practical Recommendations

This study concludes with several important recommendations that aim to create a balanced environment where Egyptian Youth can benefit from Artificial Intelligence (AI) technologies while maintaining awareness of their ethical, educational, and cultural implications. The researcher presents these recommendations in the form of a proposed strategy based on theoretical and practical dimensions, **aligned with Egypt's Vision 2030 and the National Artificial Intelligence Strategy established by the Ministry of Communications and Information Technology (MCIT).**

5.5.1 Theoretical Recommendations

- **Expanding the Digital Literacy Theory:** Future research should develop the Digital Literacy Theory to include new dimensions related to AI awareness, such as ethical understanding, critical evaluation, and emotional perception, to ensure it remains relevant in

today's rapidly changing technological environment.

- **Bridging Awareness and Application:** Scholars are encouraged to study how digital literacy evolves from basic awareness to practical and responsible AI application. This will deepen understanding of how knowledge, perception, and ethical engagement intersect in real-life digital contexts.

- **Cross-Cultural and Socioeconomic Perspectives:** Future theoretical models should account for cultural and socioeconomic differences that influence youth attitudes toward AI, particularly in developing nations. These insights will help in creating culturally adaptive literacy frameworks.

- **Longitudinal Research Approach:** Long-term studies are needed to explore how continuous interaction with AI tools impacts digital literacy, ethical reasoning, and social behavior among Youth over time. This approach can guide sustainable educational and policy interventions.

- **Youth Engagement Strategies:** Further studies should explore the effectiveness of various youth engagement strategies in promoting responsible use of Artificial Intelligence tools among Egyptian Youth. This research could identify the most impactful approaches for different educational and socioeconomic groups, contributing to more tailored awareness programs that enhance critical thinking and ethical understanding in digital environments.

- **AI Literacy and Gender-Specific Impacts:** Future research should focus on examining the role of AI literacy interventions and their effectiveness in fostering analytical and ethical skills among Youth. Additionally, investigating gender-specific patterns in AI tool usage can help develop targeted educational and policy strategies that address differences in perception, motivation, and engagement, ensuring equitable and inclusive access to AI knowledge and practice across all segments of Egyptian society.

5.5.2 Practical Recommendations

Based on the findings regarding Egyptian Youth's awareness and use of AI tools, as well as their perceptions of risks, benefits, and challenges, several practical strategies are proposed to enhance responsible AI engagement among Youth.

- **Educational programs and curriculum development**

These strategies target educational institutions, policymakers, media organizations, and community stakeholders to ensure that AI technologies are used effectively, ethically, and creatively.

A. Integrate AI Literacy as a Core Subject: Schools and universities should include AI literacy as a foundational component of technological education, focusing on critical thinking, data privacy, and ethical use

B. Teacher Training and Capacity Building: Specialized training must be provided for educators to ensure they are equipped with modern AI skills and knowledge before teaching students.

C. Competency-Based Learning: Educational systems should shift from traditional lectures to hands-on, competency-based models that emphasize analysis, evaluation, and creative problem-solving using AI tools.

D. Equitable Access to AI Education: To reduce the digital divide, the Ministry of Education and MCIT should ensure equal opportunities for Youth from diverse socioeconomic backgrounds

by providing accessible AI learning resources and national training initiatives.

- **Policy and Governance Frameworks.**

Policymakers play a critical role in ensuring that AI development and usage align with ethical standards and national objectives.

A. Activate the Egyptian National AI Strategy: Accelerate implementation of the national strategy, focusing on transparency, responsible AI use, and combating misinformation and deepfakes.

B. Human-Centered AI Governance: Policies must ensure AI complements human decision-making rather than replacing it. Accountability for AI-related errors should be clearly defined within legal and institutional frameworks.

C. Transparency in Media and Digital Platforms: Media organizations should be required to label AI-generated content and adopt multi-layer verification systems (AI Tool + Human Editor + Primary Source) to ensure accuracy and credibility.

D. Ethical Regulations and Data Protection: Establish firm policies on data privacy, intellectual property, and responsible AI practices across social and educational sectors.

- **Public Awareness and Community Engagement**

A. National Awareness Campaigns: The government, media organizations, and private sector should collaborate to raise awareness of AI benefits and risks through campaigns targeting Youth via popular digital platforms.

B. Focus on Ethical and Safe AI Use: Awareness efforts should address key risks such as dependency, misinformation, and privacy violations while promoting responsible and balanced AI engagement.

C. Youth-Led Initiatives: Civil society institutions should encourage innovation through youth-led projects, hackathons, and AI literacy clubs that empower young individuals to use AI responsibly and creatively.

D. Parental Mediation and Family Workshops: Organize workshops to educate parents on guiding their children's digital behavior, helping families navigate AI tools safely and effectively.

- **Institutional Coordination and National Integration**

Effective AI literacy and awareness require cooperation among Egypt's key institutions.

A. MCIT – Develop national AI literacy and capacity-building programs.

B. Ministry of Education – Integrate AI subjects and ensure teacher training.

C. SCMR (Supreme Council for Media Regulation) – Oversee ethical use of AI in media.

D. IDSC (Information and Decision Support Center) – Monitor AI policy outcomes and data ethics compliance.

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