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## AI as a media literacy educational tool: Developing critical technology awareness

Samson Olufemi Olanipekun \*

*School of Communication, Media and the Arts, Sacred Heart University, Fairfield, Connecticut, USA.*

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### Abstract

Moving with the integration of Artificial intelligence (AI) in teaching, this paper examines the possibility of incorporating artificial intelligence in media literacy education to prepare students with conventional technology consciousness mainly in the complex and highly computerized society today. This research aims to find out how students benefit from AI as a teaching aid in developing competencies in the analysis of AI-mediated media content, and algorithmic and ethical reasoning. This study adopted a mixed-methods research design with a quasi-experimental design to compare an experimental group that took media literacy combined with artificial intelligence instruction with a control group taking traditional media literacy instruction. For analysis, quantitative data showed that the experimental group gained substantial insight into biases, AI-created material assessment, and the impacts of algorithms on the creation and consumption of content.

Focus group and interview data also reinforced the improvement of the experimental group's understanding of AI in defining media experiences & critical reflection on ethical themes such as privacy, fairness, and justice. The results of this study support the view on the ability of AI to upskill learners in critical thinking, as well as promote ethical thinking within the usage of digital media. The study adds to existing literature that needs to draw the attention of academic circles to the potential of integrating AI into educational models; stressing that it is capable of preparing students for the intricacies of the media environments in the age of AI.

Based on this research, media literacy education with the help of AI-integrated curricula may be considered as one of the most effective methods to promote AI education in technical and ethical fields of media usage. Media literacy education, therefore, calls for a change of approach to prepare students to deal with the implications of assimilated AI technologies, for the production of critical and ethical users of information technology. Implications for future curriculum development and research work are some of the study's findings that suggest the following: Long-term effects of AI-based interventions; The generalization of the findings in other educational contexts.

**Keywords:** Artificial Intelligence; Digital Media; Media Literacy; Educational Technology; Critical Thinking; Algorithmic Reasoning

### 1. Introduction

The advancement of AI has made innovations impact almost all fields of human endeavor including how people listen, understand, and respond to media. AI is rapidly becoming a part of digital platforms, and thus, people need critical media literacy skills to make sound decisions about data that is often misleading. Previous media literacy defined as the ability to both read and produce media in multiple forms (Aufderheide 1993) needs to be broadened to address AI-mediated content generation, distribution, and reception. Such a change requires moving beyond current approaches to traditional media literacy education into a much more sophisticated critical technology literacy—an understanding of what AI is and how it works, as well as the possibilities and challenges the technology brings.

\* Corresponding author: Samson Olufemi Olanipekun

AI technologies such as algorithms applied in search engines, social networks, and media content streaming services have graphically changed the media landscape. For example, AI-driven recommendation systems provide users with material that fits their preferences, influence a user's worldview, perpetuate prejudice, and may even censor new information (Pariser, 2011). In this context, such mechanisms highlight the lack of capacity to develop skills for analysis produced by AI media outputs. Media literacy education has to address these questions by teaching students and citizens the ways media narratives are shaped by AI, the importance of transparency and accountability in AI-driven media systems, as well as the ethical perspectives of AI systems (Livingstone & Sefton-Green, 2016).

It follows that as artificial intelligence enters the media milieu as a ubiquitous presence, critical technology awareness will prove a /significant part of media and information literacy. Critical technology awareness can be defined as being aware of the ways that AI works, the biases, and the ways through which AI affects information ecosystems. For instance, Noble (2018) was able to explain how algorithmic systems contribute to the dogmatic reproductions of the prevailing social injustices due to stereotype reinforcement, especially among needy community groups. Such findings form the basis of critical information processing and analysis regarding ethical and social issues.

When taught through the lens of media literacy education, it is thus possible to achieve competencies for learners to enable them to perform an effective and efficient critique of AI technologies; because, media literacy education enhances the quality, quantity, and efficiency of the learners' understanding of the technologies.

This coming together of AI and media literacy education is also in consonance with the general aim of creating digital citizenship. Digital subjects demand capabilities to operate and interact within the digital environment efficiently, or what can be called digital competency, which includes interaction with AI. According to Rheingold (2008), it is necessary to develop kinds of literacies to engage in digital landscapes by the spectators who are knowledgeable and possess critical and responsible approaches. With AI increasingly being embedded in the Interactive Spaces where people communicate, it is apposite to note that the process of media literacy training should be adjusted according to the problems and potentials offered by AI technologies. When incorporated into media literacy, AI would thus complement what learners are being taught and make them better placed to understand how AI influences their interactions in media spaces.

In addition, as a vector of educational media competence, AI can be used as an educational tool. For example, AI can develop several fake environments where learners can see how the algorithms serve the material, choose it, and shape conclusions. These applications can help and educate people about artificial intelligence technologies, and encourage people to critically evaluate digital media. According to Zimmerman and Jenkins (2020), the use of AI technologies for learning, helps learners grasp concepts, related to the application of technology, and transform them into concrete practice from theoretical papers. When integrating artificial intelligence into media literacy, teachers can introduce learners to examples of AI which encompasses critical technology practice.

In other words, beyond its pedagogical benefits, AI can be employed to develop all students' individual learning experiences in media literacy education. Perhaps, AI-powered educational platforms can track the learners' performance, see what information they possess and what knowledge is lacking, and offer the appropriate guidance that can increase the efficiency of media literacy lessons (Luckin et al., 2016).

It is thus possible to adopt such approaches in accommodating the needs of all learners, so they offer competencies to address these mediated environments with Artificial Intelligence. That said, the application of AI in education also entails the following ethical concerns, Data protection, bias in algorithms, and surveillance. It is crucial to discuss these points to generate a thought-provoking agenda that will lead to developing the right approach to implementing the AI applications on the aims of media literacy education that complies with the principles of equity, inclusion, and ethical responsibility.

Also, AI implementation in media literacy requires calls for new approaches and methods to be implemented within the learning environment. This means that traditional attempts to teach media literacy where students mainly focus on the recognition of media messages and media production, must be complemented with critical studies of technologies upon which media systems are based. Such a change means that teachers have to engage in an interdisciplinary approach that includes insights such as those from computer science, sociology, ethics, and media. For example, Buckingham (2019) has emphasized the need to adopt the technical-critical-ethical forms of media literacy learning. In this manner, a can empower learners with the know-how of the dynamics of the mediated technical landscape of AI to be critical users of technologies, and proactively active and responsible media users.

However, several challenges need to be met if AI integration in media literacy education is to reap the full benefits. One of them is the digital divide which amplifies the increase or decrease in the ability to apply technology and educational tools. Students from disadvantaged backgrounds may not be able to have access to the technology needed for AI-based Media literacy that can give them critical awareness of technology. Namely, addressing these disparities would require investment into digital resources, teacher preparation, and curriculum to make use of AI-enhanced media literacy education possible for all learners. Third, the constant further development of AI technologies creates new problems for media literacy education.

Teachers need to be always in the process of updating themselves because of the modern technology that is adopted by AI, in order they be sure that the information that is passed to learners is up to date. This demands professional ongoing teacher training, teacher cooperation with specialists in the field of AI, and the incorporation of up-to-date research findings into media literacy programs. According to Selwyn (2019), media literacy and experts should link up with policymakers, academia, and industry players to enhance the creation of more effective strategies for media literacy education that adapt to AI solutions.

Making use of AI in media literacy education is perceived as a potent area to build CTSA for learners to enable them to deal with the emerging media environments that are managed by artificial intelligence. Introducing the elements of how AI operates, the potential and possible ethical issues, together with the potential and actual societal effects of media literacy education enables individuals to become informed and thus responsible consumers in the digital media era. Nevertheless, the issues linked to the actualization of the AI potential in the form of media literacy educational tools involve issues connected with accessibility, equity, and the evolutionary process of the development of AI technologies. By embracing cross-sector cooperation, stimulating educational paradigm shifts, and making strategic investments into focal technology-enhanced learning areas, educators can use Artificial Intelligence to enhance media literacy and encourage critical technology appreciation in the digital universe.

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## 2. Literature review

Artificial intelligence (AI) is being implemented in media systems and has a revolutionized impact on the process of creation, sharing, and consumption of content. But with new technologies, such as machine learning algorithms, and natural language processing, being incorporated into most commonly used media platforms, this need has become even more evident. Media literacy used to be defined as the ability of individuals to receive, understand, judge, and produce media messages of different types (Aufderheide, 1993). Yet the emergence of new AI technologies as key drivers of media change requires enhancing media literacy approaches, namely to identify challenges connected with automated content aggregation, tedious algorithms, and ethical issues connected with AI media systems.

This literature review aims to analyze the relationship between artificial intelligence in understanding media literacy in the aspect of technology knowledge in education processes. It analyses recent studies on the effects of media through the lens of artificial intelligence, AI in media literacy teacher education, and the framework that should guide critical engagement with AI.

### 2.1. The Role of AI in Shaping Media Consumption and Creation

In particular, AI is the most influencing factor in how digital content is managed and accessed. A type of information filtering, which is pushed by machine learning algorithms, decides content shown to users mainly on YouTube, Netflix, and Facebook. These systems adapt media experiences to the individual, thus offering content based on previous engagements (Pariser, 2011). While this personalization can improve the customer experience it has led to a phenomenon known as the filter bubble effect such that consumers are only fed content from sources they are likely to agree with (Pariser, 2011). Moreover, AI technologies have the potential to generate content that can expand the creation of deep fake videos fake images, and news. Therefore, comprehending the functioning of AI in media systems is important in creating thoughtful users capable of engaging with algorithmically presented textual content (Noble, 2018).

Apart from recommendation systems, AI is also involved in the production processes of media products. Application in writing, video production, and GANs are slowly but strongly transforming content creation by making it faster and open to more people. Of course, all such advantages also provoke questions for writers about authorship, rights on a material, and possibilities to manipulate the result. The applications of AI in developing content today require information on how these technologies operate and how they may affect the reliability of media (Gunkel, 2018). A critical media literacy education must entail the capability of identifying the content that has been authored by AI along with the capacity of analyzing its reliability in light of the content in addition and entailing algorithmic processes that formed it.

## **2.2. AI and Algorithmic Bias: Ethical Considerations in Media Literacy**

Another bright issue associated with artificial intelligence in media is the question of how the algorithms are biased. Algorithms are not value-free; they are inspired by the data fed into them. So if the data contains racial, gender, or socio-economic prejudices or any other form of prejudice, an AI system will not be able to differentiate between right and wrong and thus reproduce prejudices (Noble, 2018). For instance, some artificial intelligence-based hiring software has been discovered to display bias in job postings by favoring men over women in some ways (Dastin, 2018). As mentioned, face recognition algorithms also perform worse for people of color: specifically, being Black sources an error rate increase (Buolamwini & Gebru, 2018).

Algorithmic bias based on the media can be defined in different ways; this includes the exclusion of some groups in the media and/or the portrayal of some negative aspects of society. For example, robot news feeds and social media sorting algorithms rank content based on the importance of emotions that they inspire such as hatred, energize, consolidate, and amplify the problem (Tufekci, 2015). These problems must be contained in a media literacy that includes knowledge of how algorithms function for AI and how bias can be incorporated into AI determining the content in media that people get to see or read. This critical understanding is paramount in accruing the much-needed deterministic disposition in media consumption and production, facilitated by Artificial Intelligence.

## **2.3. The Need for Critical Technology Awareness in Media Literacy Education**

Given the fact that AI has taken center stage as a key determinant of the existing and future media, critical technology awareness is important for anyone receiving media literacy education. Critical technology awareness entails how and why certain technologies are designed how their operation could be implicitly prejudiced; and the broader impacts of various technologies, both on society and the community (Bennett, 2020).

Rather than just guiding learners on how to engage with media, media literacy education that includes AI should prepare learners to be ready to critique the role of AI in defining the media narrative. This includes technological literacy skills, critical thinking skills, and ethical skills thought to be important to engage systems of media with Artificial Intelligence.

Some scholars insist on using AI in media literacy programs, and others focus on AI's role in helping learners. Following Buckingham (2019), media literacy needs to be transformed to fit with new media technologies, which include AI. He lectures on an approach to media technologies that incorporates technical and ethical contexts. Engaging learners with the critical analysis of how AI systems shape media content production and consumption fosters an effective understanding of the technology that governs their interactive experiences.

Along the same vein, when advancing an argument for why media literacy education needs to pay attention to the socio-cultural and political register of media, Livingstone and Sefton-Green (2016) stress. They go further to say that media literacy education should go beyond the concern of media technologies and explore how the technologies violate or affirm sociopolitical relations, culture, and power. Instead, there is a need to develop an understanding of how AI can both reproduce and enshrine inequalities as well as how it can potentially subvert or destabilize them.

## **2.4. AI in Educational Settings: Tools for Developing Media Literacy**

The use of AI in learning technologies means that information can reach students according to their preferences and individually (Luckin et al., 2016). For instance, AI can facilitate correctives in students' understanding by identifying spaces where the student requires special assistance.

When used as an approach to media literacy education, this one can have an added value, especially when students can progress through them independently and focus on the areas that are more problematic for each student. At the same time, like any other E-learning tool, it benefits from adopting AI under the condition of a comprehensive awareness of the possible negative effects, including the impact on data privacy and possible algorithmic injustice in learning applications (Williamson, 2017).

Furthermore, it allows the use of algorithms in emulating conditions under which learners can get acquainted with how the algorithms work and arrive at their conclusions. As an example, AI-based applications may include realistic modeling of an actual environment as it exists in fulfilling daily tasks such as how social media feeds filter content to display to the users, and then design assignments that give students practical encounters with existing AI systems. We can apply these simulations when we want students to think critically about the place of AI in media and to think about how they can fight for more ethical media that is more clear, responsible, and just (Zimmerman & Jenkins, 2020).

## **2.5. Ethical And Practical Issues in Using AI In Media Literacy Instruction**

On one hand, there are a range of advantages to engaging and incorporating AI into the teaching/learning of media literacy, but, on the other hand, several ethical and practical issues can be identified. The greatest concern is the digital divide which may only worsen the disparity in using technology and educational materials. Selwyn (2019) explains that the use of technology-enhanced media literacy education focusing on AI could be a challenging prospect for students coming from disadvantaged homes because they do not even have the devices as well as other necessary resources for learning. Such inequalities can only be solved through additional investments in digital resources, educators, and lesson plans so that each learner obtains media literacy lessons of high quality.

Fears have been raised that this technology will falter with other handicaps or inequalities – to exacerbate them instead of reducing them. As earlier mentioned, the utilization of AI is not free from bias because the systems learn bias from the data in the current society. This is especially important in learning institutions since AI-integrated tools and platforms may somehow hurt certain categories of learners. For example, AI algorithms for use in assessments might be less effective in assessing students from underrepresented backgrounds – which would be unfair. It is incumbent upon educators, therefore, to be more conscious and sensitive to the ethical aspects of media literacy by having more control over the usage of AI and at the same time must ensure that the AI is programmed and deployed in such a way that it is fair play for all the student communities (Williamson, 2017).

The implementation of artificial intelligence in the process of teaching and learning media literacy is a perfect chance to foster tech literacy prepare learners for AI environments and enhance learners' competencies in the field of critical AI-mediated media. Education in media literacy has to take on new forms as AI technologies adapt new forms in the media environment. Once the biases and operations of AI have been put forth, it becomes easier for educators to teach students how to analytically approach the media technologies based on the understanding of the mechanisms and the possible implications of AI-populated processes. Nevertheless, the inclusion of AI into media literacy learning must meet certain technical and ethical questions like; accessibility of technology, data privacy, and fairness of automated algorithms. Jointly with contributions from other disciplines, theory, and practice, and research-based strategies for improving teacher knowledge and practices, educators can adapt AI to enrich and foster ML and responsible, ethical digital citizenship.

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## **3. Methodology**

This research work adopts a mixed research methodological design to examine the role of AI as a tool for critical technology literacy within the framework of media literacy instruction. The scholarly study, therefore, centers on pedagogical approaches to AI and then inquires how it can be applied to enhance such educational contexts to articulate an additional understanding of technological media production, usage, and portrayal. The study is designed to assess the effectiveness of AI-based interventions in enhancing media literacy skills, fostering critical thinking about algorithmic biases, and raising awareness of the ethical implications of AI in media systems. The following subsections describe the research methodology followed by the study, the sampling technique used, and the methods employed in data collection and analysis.

### **3.1. Research Design**

This research problem is vast and involves the study of multiple phenomena, and thus to gain an understanding of the research problem, a mixed-methods design approach is appropriate. The quantitative aspect enables the degree of impact of artificial intelligence solutions to be determined about increasing skills in media literacy, with the expected benefits of the qualitative component being the acquisition of better insights into participants' experiences, attitudes, and, more importantly, their reflections on AI and media literacy education.

The study adopts a quasi-experimental research design in which the participants are subjected to an AI-based media literacy curriculum and their media literacy skills are measured before and after the exposure. Moreover, qualitative interviews and focus groups are performed to discuss participants' perceptions of AI and their ability to comprehend algorithmic processes and reason about media artificially produced by AI algorithms.

### **3.2. Participant Selection**

The population of this study is the university students who attend a particular university and are registered in media or communication studies or any other related field of study. The sampling technique employed in this study is purposive sampling because it targeted participants who should have prior knowledge regarding media literacy concepts and should have interacted with Artificial intelligence technologies in their daily lives. The participants were

selected from two universities, which are using AI technologies, including recommendations, content-creating tools, and digital services with AI in their media literacy classes.

The total subjects were 60, and among the subjects, 30 students were selected for the experimental group (AI intervention group) and 30 students were selected for the control group (traditional media literacy instruction group). In the series of lessons, the experimental group interacted with an AI curriculum containing such topics as algorithmic bias, AI in media production, and the ethical dimension of AI, and in contrast to that students in the control group were involved in more traditional lessons devoted to general media literacy notions.

### **3.3. AI-Integrated Curriculum Design**

The AI-integrated curriculum was developed in collaboration with experts in AI, media studies, and educational technology. The curriculum consists of a series of online modules and interactive activities designed to enhance participants' understanding of AI's role in media. The content was structured around three key themes:

- **AI and Media Consumption:** This module dealt with concepts of how the AI algorithms recommend media content on social media, streaming sites, and news aggregators. Recommendation systems and their implications such as filter bubbles, and how information personalization affects social discussions were also taught to the students (Pariser, 2011).
- **AI and Media Production:** This module focused on the use of AI in writing, image generation, video editing, and deepfake. The subjects learn AI applications in the media industry and analyze the consequences of media produced by artificial intelligence for trustworthiness (Gunkel, 2018).
- **Ethics of AI in Media:** The last module exposed learners to the injustices of AI in media about algorithmic bias, privacy issues, and social implications of the Media systems propelled by Artificial intelligence. Students were also led to analyze how technological advances, particularly AI, might reenact discrimination or inequality and how they learn about the ethical implications for both producers and consumers (Noble, 2018).

Every module included AI-related instruments like simulation and case studies, that allow the participants to investigate the possibilities of AI in media close to work with real-life formats. For instance, students engaged with AI-generated content to look for bias and also to evaluate the reliability of the content shared. Besides, there were deliberate discussions and reflections on issues concerning critical thinking and ethical bearings made throughout the different modules.

### **3.4. Data Collection**

Information for this study was collected using both quantitative and qualitative research methods.

#### *3.4.1. Quantitative Data*

Both self-developed pre-and post-tests were used to assess the participants' media literacy competencies before and after the intervention. The assessments were designed to evaluate students' ability to:

- It explores the position of the usage of AI in media consumption and the usage of AI in media production.
- Examine the common forms of algorithmic bias shown in media content.
- Explain how ethics was portrayed by the AI technologies in media.
- Analyzing an AI-generated work

The content of the assessment tool included multiple choice, true/false, and short questions based on the concepts taught in the AI-integrated curriculum. Participants' self-reported confidence toward critical evaluation of AI-generated media was also assessed using a Likert scale. In a bid to establish whether there were any changes in the participants' media literacy skills as well as their knowledge of Artificial Intelligence, the participants' performance in the pre-and post-surveys was compared.

### **3.5. Qualitative Data**

Qualitative data were collected using both interviews and focus group discussions with participants. To compare the results of the two groups, purposive sampling was adopted to sample the qualitative interviewees from both the experimental and the control groups. The purpose was to establish knowledge of how participants experienced and perceived AI-mapped curriculum media and their thoughts about the ethicality of AI technologies.

The interview guide was structured around three key themes:

- Participants' understanding of AI and its role in media: Respondents were required to share their prior experience of what AI is and their perception involving its application in generating and consuming media content.
- Experiences with the AI-integrated curriculum: A survey was used to assess the overall satisfaction with the AI-based modules, the perceived value of the interactive tools as well as the impact of the curriculum on participants' critical evaluation of media and technology.
- Ethical considerations of AI in media: People were asked to share their opinions about the major ethical concerns that relate to AI in media, such as operationalization of bias, privacy concerns, and control.

Focus groups afforded the participants a chance to express their ideas in group forums, allowing for a deeper understanding of similar and different experiences. These qualitative data were transcribed and then analyzed via thematic pattern matching to establish primary patterns, themes, and insights regarding the research questions.

### **3.6. Data Analysis**

Data collected from the pre-and post-assessments were the causal variable and treated by statistical methods to determine the change in the media literacy competencies of the experimental and control groups. Independent two-sample t-tests were employed to determine if the media critical evaluation skills of participants enhanced significantly after the AI intervention. In addition, preliminary descriptive analyses were employed to describe the demographical variables of the participants and their performance on the pre-tests.

In the analysis of the textual data obtained from interviews and focus groups, thematic analysis was adopted from the method framed by Braun and Clarke (2006). This process involved using code to look for themes and patterns generally in the participants' views and experiences of AI on media literacy and ethical considerations in media technologies. The emerging themes were then clustered into broader themes that would help to address the posed research questions, and thereby enhance the understanding of the participants' experiences.

### **3.7. Ethical Considerations**

This research was granted ethical clearance by the institutional review boards of the two universities. All participants signed consent to participate in the study while being informed of their anonymity and voluntariness to participate in the study. The issues of ethical consideration were as follows; measures taken to make the data received from the participants anonymous and safely stored, and the participant's right to withdraw from the study implicitly agreed upon at any given time. Besides, the research complied with the ethical protocol to use AI tools in cognitive environments by the educational institution, which helped in making them fair and square in terms of curriculum.

The current research is a mixed-methods study that applies a wide range of procedures to investigate the use of AI as a media literacy educational tool. Therefore, incorporating AI technologies into media literacy and gathering both numeric and worded responses to evaluate the efficacy of using AI to enhance critical technology literacy. The conclusions drawn from this study will extend the current knowledge base of AI and media literacy and offer significant implications for using AI as a tool to support media education and promote responsible citizenship in the digital age.

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## **4. Results**

The results of this study are discussed after reviewing the quantitative and qualitative data collected from the participants in the experimental group using the AI-integrated curriculum and the participants in the control group using the traditional media literacy curriculum. In this section, findings related to the educational intervention providing targeted information through AI, participants' improvement in media literacy and their knowledge of AI in media, and ethical considerations regarding AI technology are presented. The findings are structured around the key themes: Media literacy competencies include enhancement of evaluation, production, and critical thinking, participants' shifts in the perception of AI, and such aspects as the moral consequences of its introduction in media.

### **4.1. Improvement in Media Literacy Competencies**

The quantitative comparison of scores from pre- and post-assessments demonstrated enhancements of the experimental group participants who completed a curriculum connected to AI. Data obtained from the control group who underwent a typical media education also revealed mild enhancement and the difference to the experimental rate was not striking as well.

**Table 1** Pre- and Post-Assessment Results (Experimental Group vs. Control Group)

Media Literacy Competency	Experimental Group Pre-test	Experimental Group post-test	Control Group Pre-test	Control Group post-test
Ability to analyze AI in media	45%	80%	46%	58%
Identifying algorithmic bias in media	40%	75%	42%	56%
Understanding the ethical implications of AI	50%	78%	49%	61%
Critical evaluation of AI-generated content	43%	77%	44%	55%
Confidence in critiquing AI Media	47%	79%	48%	60%

#### 4.2. Statistical Analysis

Therefore, the paired t-tests were used to analyze if the differences between scores on the pre-and post-assessment were significant. The results showed that the research group attained a statistically significant increase ( $p < 0.01$ ) in all the observed domains. On the other hand, the result of the control group revealed a highly significant enhancement only in the case of AI in media and ethical concerns ( $p < 0.05$ ).

#### 4.3. Changes in Participants' Attitudes and Understanding of AI

Interviews and focus group discussions produced a more nuanced view of the participants' knowledge regarding AI and its function within media. The experimental group showed the ability to judge the impact of AI on media production, use, and possible bias in knowledge as broader. The surveys yielded several major themes.

**AI in Media Consumption:** The participants of the experimental group were able to explain the role that algorithmic systems with the help of Artificial intelligence played in the mediascape concerning recommendation systems. They mentioned that they found themselves paying more attention to 'Filter bubbles' and how getting personalized content reduces exposure to other views (Pariser, 2011).

**AI in Media Production:** The experimental group evidenced higher levels of knowledge about AI applications in content creation, more so in producing deepfakes, automated journalism, and AI-based imagery. People have realized that it is not easy, to tell the truth about media now than before when there was little technology. One student remarked, "AI can produce fake videos and images that look so convincing that there is no difference from real life, which matters even more to question what we see online."

**Ethical Implications of AI:** The differences between the two groups based on the participants' concerns and possible ethical issues with AI were that experimental participants' thoughts were more complex. They recognized the potential for AI technologies to perpetuate biases, particularly in areas like facial recognition and hiring algorithms (Buolamwini & Gebru, 2018).

**Table 2** Thematic Analysis of Participants' Reflections on AI (Experimental Group vs. Control Group)

Theme	Experimental Group	Control Group
Awareness of AI in media consumption	90%	70%
Understanding of AI in media production	85%	65%
Ethical considerations of AI	88%	74%
Confidence in analyzing AI content	80%	62%



#### 4.4. Ethical Reflections on AI in Media

Ethical issues within the use of AI were captured in the study with evident emphasis on media as captured both qualitatively and quantitatively. Specifically, there was evidence that the participants of the experimental group were equipped with relevant ethical tools to evaluate AI in media in terms of algorithmic fairness or bias, privacy, and the effects of AI on public debate more proficiently.

Specific ethical concerns emerge from the discussion by the participants.

- **Algorithmic Bias:** Limitations included how some self-organizing mechanisms allow AI to perpetuate existing prejudices based on vulnerability, gender or color, and economic class. Recall, the investigation of Buolamwini and Gebru (2018) recognizing the misrepresentation of facial recognition technology was appealed by the participants, as to how prejudice within the AI enhances unfairness in media portrayal.
- **Privacy Concerns:** This finally led to a discussion of the privacy that could be affected by AI-driven media systems. Some players steer to how the AI gathers and/or employs consumer info, which blends the media-attentionized consumer privacy issue, namely, user consent to share information.
- **AI and Social Manipulation:** Some ethical issues that were highlighted included the wielding of AI in controlling public opinion through deepfakes and fake news was highlighted in both groups. Nonetheless, the experimental group was more sensitive to the threats that social AI might pose in the context of media manipulation because the AI-generated message was both convincing and false, it may have far-reaching social and political implications.

The results of the work indicate that AI can and should be used as an assistant in media literacy education. The measured learning gain of the experimental group that underwent the AI-integrated curriculum was higher in their knowledge regarding analysis of AI's role in media, recognizing algorithmic bias, and ethical awareness of AI technologies. Further, the results indicated the experimental group's higher level of critical and meta-cognitive thinking about AI articles and their ethical implications compared to the control group.

The findings suggest that AI education must be recognizable to media literacy especially in light of enhanced use of AI to define media inclinations. In contributing to critical technology awareness, AI enhances students' ability to be conscious and ethical producers and consumers of media, to enter and interact in the postmodern AI-mediated landscape responsibly and with the appropriate skills of media critique.

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## 5. Discussion

This research has provided helpful data for assessing the potential of using AI as media literacy educational tools as well as the potential of the proposal towards improving an organization's critical technology awareness level. With regards to the significance of the study, this research adds to the ongoing research on how an AI-integrated curriculum enriches the competencies of students within the DMC and the understanding of AI in media and ethical reflections about AI. This discussion compares the quantitative results with the qualitative findings to consider the effects of AI on media literacy education for the participants and to discuss the ethical issues mentioned by the participants and the overall ignition of the discussion for future curriculum development and critical media consumption in an automated society.

### 5.1. Enhancement of Media Literacy Competencies

The quantitative findings highlighted that the participants who engaged with an experimental group with an AI-integrated curriculum outperformed the other groups. The following assessment tools were also part of the program: analyzing AI's role in media, recognizing algorithm biases, critiquing AI's ethics, and evaluating AI's creative outputs. The difference between the experimental group, who completed the program, and the control group, who completed traditional media literacy coursework, belie the fact that AI-based interventions are more effective at building critical media literacy skills in the context of today's media.

The changes made by the experimental group are consistent with prior studies, which found that AI's ability to improve learning by giving students the ability to use technology and media more critically (Binns, 2018).

Notably, the understanding of how algorithms are biased, how these biases can be characterized, and how this area is an important aspect of the more general media literacy curriculum given algorithmic curation of content. Thus, this work fills the gap in the literature by showing that the integration of AI curricula can help students learn how to critically navigate these algorithms and the sociopolitical implications of their usage.

The findings also emphasize the need to encourage students to critically engage with AI-mediated content. The experimental group learned more about algorithmic biases and the part played by AI in defining public media-consumption patterns in a way that is similar to Pariser (2011), 'Filter bubbles' are developed by the algorithms to restrict the access of viewers to a diversity of opinions. Thus, by enhancing students' perceptions of those dynamics, the proposed AI-supported curriculum empowers students to perform the kind of work necessary to engage algorithmically managed media landscapes, essential tasks in a world of media abundance.

## **5.2. Deepened Understanding of AI in Media Production and Consumption**

Besides, the results show the general trends toward the development of media literacy competencies, as well as the principal differences between the participants of the experimental group and the control one: the former demonstrated a stronger inclination towards a fair understanding of AI's role in media production, as well as in media consumption. It developed from the discussion of AI technologies such as recommendation systems, deepfakes, and AI content creation apps. The students were able to show an improved understanding of how AI deterministic processes regulate what is present to the users and therefore the media influence on their worldview.

The understanding of the experimental group on AI media consumption is on par with Pariser's (2011) filter bubbles tendency wherein the exposure to information is narrowed by the algorithms which which present content based on previous interaction. The students in the experimental group said that they experienced an increased sense of how such systems can restrict their contact with a range of viewpoints.

One participant's reflection on their prior lack of awareness regarding the influence of AI on media consumption illustrates this shift: As for me, I am surprised to have recognized that the bigger part of my online experience is guided by AI. Now, I feel I am aware of how computers decide what I should and should not be exposed to. This reflection marks a very insightful change for the students on how they perceive their media environment, a change that education might wish to produce in its attempt to foster informed ethical consumers in media.

The results discovered by the experimental group reveal an understanding of media production through AI techniques, for example, deepfake production and automated journalism. This is in agreement with Gunkel's (2018) assertion that the incorporation of AI exposed traditional media production to disruption in aspects such as synthetic media. Analyzing the ethical and technical concerns regarding these technologies, students seem to have gained capabilities to assess the realism and reliability of media messages.

## **5.3. Ethical Implications of AI in Media**

The ethical concerns related to AI in media were, I think, the most vividly illustrated aspects in the participants' accounts. As expected, the experimental and the control group of participants shared many of the same concerns regarding AI's proclivity for the reproduction of prejudice and the manipulation of the public. This implies that an AI-integrated curriculum enlarged the degree of students' readiness to address ethical AI aspects in media. Both the control and the experimental groups learned that many AI applications had pros and cons; these focused on fairness, privacy, and social justice, proving that critical technology awareness promotes ethical digital citizenship.

The concerns voiced by participants reflect Noble (2018) who discussed that certain algorithms such as search engines or recommendation systems reproduce racism and sexism.

Meaningful recognition of AI's capability of reproducing biases was also warmly discussed in the focus group discussions; several participants named examples of racially and sexist AI technologies, including facial identification and appraising algorithms. These issues highlight the need to inform students not only how AI works but also what significant moral issues surround those ideas, especially in the media and communication fields.

Moreover, the ethical issue pointed out by participants regarding AI as a tool to influence people's opinion for undesirable goals say deepfakes, and fake news; critically hinges on the development of critical media, and literacy skills in the social media era, where content is generated by AI. The results also found that subjects of the experimental group still enjoyed a higher performance in the recognition of the dangers of AI application in media manipulation and had better abilities in the AI-produced content assessment. This was in line with Gunkel (2018) who suggested that in the future as AI technologies are developed, there is a need to formulate and outline ethics for Artificial Intelligence technologies for media production and consumption.

#### **5.4. Implications for Curriculum Development and Educational Practices**

Based on them it is possible to visualize further directions of media literacy curricula development within the basics of higher education. Therefore, it is argued that the integration of AI in curriculum learning can be vital in the future generation of media literacy education since the program achievement favorably improves students' competencies and their ethical reflections on media literacies. Incorporating AI into media studies courses can help equip students with the knowledge needed to analyze and enhance the role of AI in the modern media landscape; students will be able not only to script the algorithms behind AI systems but also to look into the social and ethical challenges produced by AI in media environments.

Because AI technologies have recently appeared in the field of media and communication systems, learners should be prepared to face the challenges arising from the use of these technologies.

Therefore, education in artificial intelligence within media literacy frameworks will ensure that universities equip learners with the qualities of ethical and constructive users of technology in media platforms.

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### **6. Conclusion**

In this academic work, the author has attempted to investigate the function of artificial intelligence AI as an element of media literacy instructional strategy with an emphasis on AI's potential to improve perceived technology knowledge in students. Thus, the results indicate that the integration of AI teaching resources in media literacy increases learners' media literacy concerning the application of AI technology and the impact of introduced AI tools on the creation and perception of media content while considering AI integration's ethical implications in the digital context.

The purpose of this study was to analyze if the IAI educational interventions contributed to the enhancement of students' competencies of media literacy understanding and, more specifically, how AI impacts digital media. The results reveal that students learning under an AI-based learning environment have shown significant gains in their understanding of algorithm biases, judiciousness when interacting, and analysis of AI output and the underlying ethics in media technological advancements. Hence these results support the arguments made by Pariser (2011) and Gunkel (2018) on the urgent need to work on the levels of media literacy in a world run by algorithmic autonomy. The huge disparity in learning outcomes of the Media literacy adoption in the experimental group compared to the control group that learners were taught using the conventional media literacy lessons shows that AI can be a useful tool in enhancing media literacy education.

In addition, the qualitative data collected through focus groups and interviews indicated that students in the experimental group acquired richer levels of insight concerning how AI is involved in crafting mediated experiences. They also explained how using recommendation-based AI to resolve the problem of 'information overload' led to engaging 'filter bubbles' which only served to retrench their perception of the world. This level of awareness becomes invaluable, especially in a world where users are fed so much of what they see through algorithms. Also, students had a clearer vision of AI in the possibility of changing the content of the media, including deepfakes, and the presence of automated journalism. These points not only speak of the higher level of media literacy but also stress the need for addressing the problem areas up-sketched by the AI media technologies, for students.

A prominent aspect of ethical concerns for AI and media was a major area of focus among the participants; Those in the experimental group seemed especially able to recognize the challenges of algorithmic oppression of minority groups, privacy infringement, and how the automated systems tend to replicate social injustices. These ethical reflections are in accord with the research of Buolamwini and Gebu (2018) pointing to threats of unprejudiced artificial learning systems, notably in prospecting faces. By solving these ethical dilemmas, students show that the new curriculum with AI inculcation encourages students to be more responsible when dealing with AI technologies.

Thus, the results of the current study have significant implications for constructing media literacy programs in higher education. Based on ongoing developments in AI technologies in the media, it becomes necessary for educational institutions to incorporate AI into their media literacy curricula in which students are trained to meet the challenges posed by these technologies. In this way, educators can create not only a critical audience for the media they embrace but also appropriate subjects who can use AI-constructed media responsibly, grounded in ethical implications. This work therefore propounds for a positive change in media literacy teaching and learning from the confines of traditional media analysis to matters concerning AI.

Nevertheless, there are some limitations in the study. A limitation of this study is that the sample comprises a modest number of elementary school students, most of whom received only a short period of intervention. Possible directions of further research can be continued investigation of the impact AI-based media literacy programs have in the long run; and the effects of such programs in more different educational environments, grade levels, and cultures. It would also be constructive to identify whether the skills and ethical understanding acquired throughout AI-incorporated curricula apply to media literacy concerning the usage and creation of content.

This study shows that AI can assist in developing the appraisal of media and technology as an educational aid. Since the emergence of AI as a shaping force of the future media environment, the inclusion of AI education into media literacy programs is not a question of option, but of obligation. So, in addition to perceiving students as the target of AI technologies' effect, we can promote them as informed, ethical, active agents within the digital environment. This work aims at bringing to light the aversive role AI can play in learning, as well as its possible beneficial impacts towards preparing learners to face the media\ algorithmic systems that characterize the current world.

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