

## Stifling Creativity in the classroom: The Challenge of Artificial Intelligence (AI)

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### Abstract

The paper focused on stifling creativity in the classroom looking at the challenge of Artificial Intelligence (AI). AI is being used in education to enhance teaching and learning. Individual students also employ AI to help them learn. The growing desire to use AI in education is shaping the classroom environment and the creativity of the students. However, creativity is not a skill but a way of thinking which has to be nurtured. The paper examined the positive impact of AI as in increasing learning effectiveness, providing learning experiences tailored to individual needs, and speeding up the sourcing of educational information. The paper highlighted the relationship between AI and Creativity, areas where AI stifles the creativity of individuals in the classroom, and the way forward on the usage of AI in the classroom.

**Keywords:** Artificial Intelligence; Creativity; Stifling Creativity.

### Introduction

Education is the key to human civilization. The method of education for the members of the society is constantly evolving and undergoing various changes due to new innovations. One of such innovations is Artificial Intelligence (AI). The introduction of Artificial Intelligence (AI) in the Education industry focuses on enhancing and nurturing the development of creative skills in the teaching and learning process. Currently educational models are being developed which encourage teaching and learning to move away from standardized methods towards individualized and adaptable approaches (Thorat et al., 2024). Such creative educational models are designed and driven by AI.

The traditional society nurtured/developed creativity primarily in terms of social skills, and regarded interaction with people as inherently more important than objects. Thus fostering a more society oriented setoff creative cognitive skills. Through the processes of imitation and identification, children appear to adopt many characteristics of their parents' creative skills.

With the introduction of AI in formal education process the traditional process of nurturing and development of creativity appear to be stifled because of AI media and techniques. Researchers and AI scientists are making efforts to carry out a wide variety of formerly manual tasks in the classroom

automatically (Allam et al., 2023). Although AI gain rapid response in all areas of human life, and everyday life is changed since the adaptability of AI, the thought process automatically raises a challenge. Does the use of AI in the classroom enhance or stifle creativity in the classroom? The paper x-rays the concept of AI and creativity, features and relationship between AI and Creativity. It also examines how the application of AI could stifle creativity of the students in the classroom. The present study has many benefits to the present study. The study would contribute to expanding research and advancement of knowledge and debate on the effect of AI on students' creativity. Government policies and initiatives focused on promoting AI application in the classroom would be guided.

### Concept of Creativity.

The ability to think creatively is an important aspect of an individual (Van Hooijdonk et al., 2022). The names people bear (Madu ka aku, meaning, human beings are more important than object or what you have; Madu bu chi ibe ya – people act as gods to their fellow human beings), including the pattern of music played (different people play different musical instruments expressing co-operation which harmonize to give enjoying tune), and it is related to the traditional idea of 'one man defines another' and reveal the creative spirit/skills of the traditional

society (Mgboro & Eke, 2017). Parents achieve those creative cognitive skills in their children by allowing their children to stay with them, giving them freedom to explore the environment, discussing, playing with them and listening to them. Moreover, interaction in the traditional society focused more on the thought processes, feelings about certain actions, attitudes towards various members of the family, hugging, cuddling, and listening to the child or ridiculing and ignoring the child are some of the ways of interaction which may correlate with creativity (Mgboro & Eke, 2017).

The desire to apply creativity in the classroom has a long history (Akpur, 2023). There is lack of consensus on the definition of creativity because creativity has evolved through different eras (Mgboro & Eke, 2017). The different eras depict the different perceptions of people about creativity. The eras are:

Creativity in Diverging era (1950s to 1960s). The focus of the period was studying the personality traits of creative people and training students' in divergent thinking. Most outstanding events of the era was Guilford (1897 to 1987) contribution to the field of creativity. Based on Guilford's work, Torrance developed and added other components of creativity termed elaboration, as well as test for creativity called Torrance Test of Creative Thinking (T.T.C.T.) (Mgboro & Eke, 2017). The T.T.C.T. according to Mgboro and Eke, is measured by four criteria:

1. Fluency (ability to generate alternative for a given problem. The more ideas or alternatives one can generate, the higher the probability that one of the answers would be an appropriate answer).
2. Flexibility (ability to produce variation in ideas). A brick can be used to build houses, apartments or for landscaping as a paper weight or as a weight for skin divers, as a placement in tank for saving water).
3. Originality (ability to generate an inconspicuous solution).
4. Elaboration (ability to elaborate or develop and define ideas to solve problems).

Packages and programme era, (1970s to 1980s). The waning of the above period led to the packaging of observed qualities of creative people for students to study and emulate. Emphasis was placed on using multiple criteria in assessing and nurturing more complex skills. Thinking skills were published and computerized information on creativity skills were prominent in this era. Mgboro and Eke, (2017) however observed that such computerized packages rather stifle creative skills evidenced in traditional society. With the use of computerized packages

students were forced to use already available formulae for solving problems without recourse to the process, setting goals, assessing the values and situational factors leading to creativity. The above shortcoming led to the emergence of ecological era.

Ecological era. Between 1950 and 1980, creativity was challenged as being uni-dimensional, static and unchanged (Amabile, 1988). In the Ecological era, creativity was no more a set of prescriptive techniques to be followed dutifully rather it involves personal, process and situational factors. The personal is the individual characteristics, the process entails the social institutions under which the individual passes through – family, school, media, and situational factors are the socio emotional climate existing among the members of such institutions. They include the verbal stimulation (spoken or written) and interaction with parents, role play/expectation, efficacy expectation (being convinced ones behaviour would produce a desired outcome). Amabile, (2012) propounded the componential theory of creativity emphasizing the components within the individual: domain-relevant skills; creativity – relevant process; intrinsic task motivation and social environment, which the individual operates. Domain - related skills entail having an in-depth knowledge of participator's field of study which help to generate various ideas. Creativity related skills entail thinking outside the box and the recombining of ideas to form some new knowledge. Intrinsic tasks motivation and social environment involves being open to new experiences, willingness to ask question, feeling of independence, having social support, ability to take risks, freedom to explore the environment among others.

In the classroom, creativity is seen as a major aspect of cognitive development which plays an important role in learning (Akpur, 2023). Bloom, & VanSlyke-Briggs, (2019) notes that students have been scoring poorly in creative thinking over some years. Empowerment of creativity skills can be done by providing activity-based learning that includes problem-solving, problem-posing, and activities that help students increase student capacity concerning the components of creativity. An aspect of creativity which is now driving the change in creative learning is Artificial Intelligence (AI).

### Concept of Artificial Intelligence (AI)

Artificial Intelligence (AI) embeds various definitions in scientific literature, thus Artificial Intelligence (AI) is the science of making intelligent computer programs and intelligent machines (Nalbant, 2021). It is the demonstration of intelligence in computer (Allam et al., 2023), the

adaptability of machines to situations in order to face emerging situations, solve problems, answer questions, devise plans and carry out various functions requiring the level of intelligence exhibited by human beings (Chen et al., 2020). Based on the above definitions, it could be deduced that AI is the culmination of computers including computer enhanced technologies, machines, and innovations and development which enable computers to carry out human –like functions through the use of algorithms that learn from human activity and pattern recognition.

McCarthy was the first person to use AI in 1956 (Nalbant, 2021). However, AI has evolved through various stages since 1931 to the present day. Each of the stages witnesses an improvement on the already existing work. In the last 28 years AI has developed significantly. Such development has led to AI application programs or technologies in teaching - learning settings. AI could therefore be useful in the classroom in various ways to enhance creativity. With the evolution of educational models which lead to a shift from standard methods to a personalized/ adaptable approach. AI is customising educational materials according to the distinct requirements and desires of the learner. AI therefore enhances the effectiveness of teaching and helps learners to cultivate more Personalized and creative learning environment (Thorat et al., 2024),

### **Features and relationship between AI and creativity.**

Some features of AI make it to be a useful tool for learning. The challenge of sourcing information from books which are not readily available, the time it takes to read through volumes of pages in order to get answers to questions, getting teachers to answer ones questions whenever students require them, are readily overcome with the aid of AI. It follows that AI application in the classroom facilitates decision making, teaching, and learning (Nalbant, 2021).

The learning of some subjects, especially science oriented subjects, which usually pose problems to students sometimes due to poor teaching methods, become easier for students to cope with the challenges involved (Odimkpa et al., 2024) because AI makes the students to access the information both theoretically and practically through audio and virtual means. AI shapes, transmits and disseminates global knowledge. One can learn a language foreign to the individual, translate texts written in different languages, adapts same to solve problems in one's environment easily with the help of AI.

The reduction of errors in writing assignments by students and making correct assessment by teachers is enhanced with the use of AI in the classroom (Thorat et al., 2024). Furthermore, Thorat et al. (2024), observed that personalized learning experience is enhanced using AI. Students move at their individual pace and achieve their goals. Such is a departure from the one teacher fit all pattern of teaching. AI therefore enables each student to have individual teachers. Students can also rehearse the parts of the lesson they do not easily understand as many times as they desire.

AI bridges the gap between challenged (handicapped) students and others who try to access information. Visually challenged students can also receive education using aids that convert text to sound while the hearing impaired ones can systems that convert text to sound. Physically challenged and those who are not healthy can participate in learning from the comfort of their homes. (Allam et al., 2023).

Reduction of environmental pollution, and enhancing environmental protection. Using AI in classroom implies reducing the number of students involved in transportation and consequently reducing harmful gasses released by cars. Moreover, digitalization of information entails reducing the number of trees cut for production of paper. Such effort enhances environmental protection (Chen et al., 2020).

The relationship between Creativity and AI is a symbiotic type (Thorat et al., 2024). Personalized learning stimulates creativity skills (originality, flexibility) which are domicile in the learner (Mgboro et al., 2023) and on the internet (Chen et al., 2020). Creativity, like AI, enables one to apply strategies, convert information, and experience gained from the process into new knowledge and skills (Ayasrah et al., 2023).

AI and creativity enable people to devise new ways of solving problems and meeting challenges. With the era of moving away from standardized method of teaching and learning to adaptable strategies, using AI technologies (Grammarly, ChatGPT, Brainly, Mendely, Write) is helping to drive the change for adaptability and inclusiveness. A typical Nigerian teaching and learning classroom entails that teachers deliver their lessons to groups of 40 – 50 students. The situation leads to a uniform standardized learning path for all students. Using AI would lead to a more creative flexible learning environment which ensures personalized steps to enhance learning experiences. The conventional one method fit all classroom arrangements are gradually paving way to AI driven individualized learning experiences (Odimkpa et al., 2024).

Both creativity and AI are patterned to achieve adaptive learning and intelligent tutoring in order to improve the quality of teaching and learning (Sharma et al., 2019). For instance, teachers use interactive learning environment to manage and provide feedback to students; Intelligent tutoring system, for example, ACTIVE Math, Comet, and Viper are platforms for tracking performance and improving the tools for classroom assessment (Chen et al., 2020). Children need the conducive environment and opportunities to nurture their creative thinking ability, to independently solve problems and take intellectual risks. It follows that teachers and students could use AI to kick-start the creative process in ideas, writing and thinking critically, brainstorming, exploring variations and providing innovations that could lead to unexpected creative outcomes.

Creativity thrives in a collaborative social environment where ideas are generated, explored and refined by parties involved (Mgboro et al., 2023). By bringing together different professionals – designers, data analysts, linguistics statisticians, psychologists and other experts – to design and implement new ways of facing challenges, ideas are generated, explored and refined by parties involved. Such collaborative effort could lead to further innovations which are enhanced using AI. AI therefore serves as a tool to inspire, extend and accelerate the process of creativity.

### **How AI stifle Creativity in the classroom.**

Notwithstanding the relationship between AI and Creativity, Chen et al, (2020), Nalbant (2021), Allam et al. (2023), and Mgboro et al. (2023) observed that AI could stifle creativity.

The authors noted that AI usage in the classroom might lead to technology addiction by students. The physical one-on-one interactions experienced by students in the conventional classroom becomes almost extinct. The students would rather spend more time on social platform, and less contact with their classmates. Such situations would isolate the individual and give them asocial personality (people with knowledge but no interactive skills).

Creative thinking is enhanced when one is exposed to environment that fosters it (Bloom & VanSlyke-Briggs, 2019). This explains that the creative ability can be in a person and may not be exhibited because the enabling environment and task such as practical works done with application of learning by inquiry which involves problem-posing and problem-solving activities which help students improve their creativity were not created. This

connotes what AI does. AI does not give room for the creative task to be done using students' critical thinking ability. Furthermore, Creativity is built on students' knowledge and continuous practice, using students' imagination for ideation, raising hypotheses and testing, in order get alternative solutions to problems, thereby enabling them to achieve better results in challenging circumstances (Ayasrah et al., 2023), acquired through experiences at several situations. Usage AI might not allow these experiences to be, thereby not helping students' mind to grow flexibly as the teachers could do. AI functions only on level of garbage in garbage out as it only operates on the data being fed into it, which in most cases might not be the complete information. Such situation would not remedy the mistakes identified in the learning style or assimilation level of the students (Allam et al., 2023).

AI has the ability to enhance students' understanding of complex concepts which were used in the classroom making learning easier and cheaper for students. However, this is in the case where students may need additional help off regular class durations (Dipanwita Bit et al., 2024), not while the students are in the classroom and the teacher still in the process of enhancing the students' understanding of the concepts. This scenario seems to be too frequent nowadays, to the extent that some students no longer give solution to common questions being raised in the classroom without consulting ChatGPT. This stifles intuitive thinking and may lead to generation where creativity would be a thing of the past.

The socio-emotional bond which is a vital component of classroom environment and creativity is none existent with the use of AI. Furthermore, since learning and gaining from experience are major ways of fostering societal growth, AI provide only the data given to it without the feelings of worry, anxiety, unity and togetherness which serve as a hunch for redefining some decisions made. Thus decision made by AI might be misleading.

Even though AI might be able to analyse students' performance records over time to imply future results, which might include the likelihood of quitting or failing a course, AI is yet to detect whether the students' performance status was as a result of other environmental factors in which the students were exposed to such as the socio-economic background of the parents, poor funding and provision of instructional resources of the school, moreover these factors might contribute to the academic achievement of the students.

Using AI in the classroom might also further widen the socioeconomic gap existing among

students. Education is the only instrument for bridging the gap among societies (Bereketeab, 2020). Applying AI in the classroom entails that students from low-income families would not have access to some AI-driven teaching – learning programs. The situation is better appreciated when one acknowledges that greater percentage of students in Nigeria live in the rural areas where there is no electricity to drive internet facilities. It follows that the level of education would be decreased among some people but increased for others (Akpur, 2023). Students might therefore resort to examination malpractice as a way of bridging the gap and coping with the challenge of dropping out of school.

In education, policies are made after years of analysis and discussions of the impact of such policies on social ethics. However, AI might still not be able to handle the effect of its reliance on the future of students in a case of incorrect or misleading information (Allen, 2024).

Although it has been recorded by some researchers that AI have the ability to identify patterns and trends using algorithm, the need for human oversight and creativity remains essential because human lives are too complex for students may not always explain what they are struggling with and might not express their challenges to machines. Human experts with innovative abilities might be needed to address such challenges.

Some researchers had noted that AI encourages and fosters honesty and integrity in the classroom (Sutton, 2019, Murphy, 2019), however Chen et al., (2020), noted that AI not merely avail students of materials needed for learning but provide opportunities for students to download assignments to just pass, thereby depriving students of critical thinking and originality skills. It would therefore be said that AI discourages creativity (reflective thinking) which enables individuals to consciously analyse and evaluate ones thoughts, experiences and actions. Using AI in the classroom could lead to unfair judgement in evaluating students. Grading of papers/examination by AI might reduce bias (Chen et al., 2020) however test scores sometimes might indicate a lack of opportunity that is needed to be provided for the individual in the course of learning instead of individual competence that is missing (Allam et al, 2023). Using AI in the classroom would make the above distinctions impossible and consequently creativity is stifled.

Classroom learning especially in primary and post primary levels of education is basically about the culture of the people, language, folktales, music, proverb, and riddles. The interpretation of those cultural attributes which are based on peoples'

perception of the world around them create fertile ground for originality, fluency, flexibility in thinking, and elaboration which are criteria for assessing creativity (Amabile, 1988). Currently, AI does not take care of different languages, music, folktales, norms that fit the diverse nature witnessed in African culture (Cashdan, 2025). Therefore using AI in the classroom would demand adapting the AI tools to utilize those cultural attributes of the people which houses creativity.

Furthermore, reading - a tool for intellectual development, appears to be replaced by sounds and images used by AI. This has resulted to situations where some students appear fluent in speaking because of listening to AI but not in writing and reading printed materials, their creativity might be stifled.

## Conclusion

Creativity is a major aspect of cognitive development defined based on the eras the concept has passed. It is generally defined using four criteria- originality, fluency, flexibility and elaboration. Creativity is now driven by AI.

Artificial Intelligence embeds multiple definitions in scientific literature. It focuses on developing the creative skills of students in the process of teaching and learning. Such process of creative development in the traditional society is nurtured through the interaction between parents and their children. The introduction of AI in education appear to stifle those creative cognitive skills in children.

AI helps students to source information easily, students move at their pace and it allows for individuality in learning. Both AI and creativity are patterned to achieve adaptive learning. However, AI can stifle creativity by reducing the degree of interaction with people/teacher, widening the socio-economic gap existing among classroom members and unfair judgement in evaluating and grading of students.

## Way forward.

The following suggestions are provided:

Decision – makers of AI should improve AI so that apprentice system which focus on mastering the work of other experts, reading their minds, standing on their shoulders instead of getting their crumbs should be the focus of AI in education.

Various specialists in different AI tools should visit schools to interact with students. Their interaction with classmates and teachers whereby emotions are expressed should be combined with AI tools.

Not only Curriculum planners, but policy makers and educators might try to emphasize the process of solving challenges more than the product. Creative process is more than the end product, therefore adequate occasion for students to have the privilege to ponder on vague, open-ended assignments and projects should be encouraged.

Collaborative spirit which leads to coming together of different resource persons to solve challenges should be encouraged in the classroom, therefore different specialists from various subject areas should be invited by teachers to share their creative skills with the students in the classroom.

Government policies and initiatives focused on promoting AI application in the classroom should put up a check- team with a mandate of monitoring the over-reliance of students on AI which many researchers reported as the main channel through which AI stifles creativity in the classroom

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