Artificial Intelligence and Creativity
in Art Education

Absract

The research deals with the issue of, education in general, and art education in particular, and the importance and role of artificial intelligence applications in teaching it. The researcher raised in the title of the research the relationship between artificial intelligence and the issue of creativity in the arts, with the aim of being aware of the two issues and drawing the boundaries of convergence and difference.

The researcher addressed the issue of creativity in art and its manifestations in the human mind, as well as its presence as a goal among the objectives sought by art education. Then she addressed the issue of art education in all its aspects that the lines of the research allow, reaching the issue of digital and artificial intelligence. The research clarified the extent to which artificial intelligence applications can be used in teaching art education, by identifying the art education subject, which is one of the subjects that work to develop students' abilities and skills to be creative and distinguished, and the applications of artificial intelligence and employing them in teaching students at that stage.

Thus, the research included a conceptual framework through which the researcher clarified the concept of art education and artificial intelligence. The research concluded with several recommendations, including the need to focus on training faculty members and workers in the field of education on the use of modern technological techniques and how to use them within the educational process in all its aspects.

Keywords: **creativity, artificial intelligence, art education.**

ملخص البحث

يتناول البحث مسألة التربية عمومًا والتربية الفنّية خصوصًا وأهمية ودور تطبيقات الذكاء الاصطناعي في تدريسها. وقد اثارت الباحثة في عنوان البحث العلاقة بين الذكاء الاصطناعي والمسألة الإبداعيّة في الفنون، وذلك بهدف وعي المسألتين ورسم حدود التلاقي والتفارق.

فقامت الباحثة بالتصدّي لمسألة الإبداعية في الفن وتجلياتها في الذهن البشري، كما حضورها في كغاية من ضمن الأهداف المتوخاة من التربية الفنّية. ثم تناولت مسألة التربية الفنّية بكافة جوانبها التي تسمح بها سطور البحث وصولًا إلى مسألة الرقميات والذكاء الاصطناعي. وأوضح البحث مدى إمكانية الاستفادة من تطبيقات الذكاء الاصطناعي في تدريس التربية الفنية من خلال التعرف على مادة التربية الفنية التي تعد من

المواد التي تعمل على تنمية قدرات ومهارات الطلاب على الإبداع والتميز، وتطبيقات الذكاء الاصطناعي وتوظيفها في تدريس طلاب تلك المرحلة.

وهكذا تضمن البحث إطارًا مفاهيميًا أوضحت الباحثة من خلاله مفهوم التربية الفنية، والذكاء الاصطناعي. واختتم البحث بطرح عدة توصيات منها، ضرورة الاهتمام بتدريب أعضاء هيئة التدريس والعاملون في مجال التربية والتعليم على استخدام التقنيات التكنولوجية الحديثة وكيفية استخدامها داخل العملية التعليمية بكل جوانبها.

كلمات مفتاحيّة: **الإبداعية، الذكاء الاصطناعي، التربية الفنّية**

Introduction

In the age of digitization and "artificial intelligence", the issue of "art education" raises many questions at a time, when humanity lives in an era full of rapid technologies and innovations, and one of the most prominent of these innovations is what is known as "artificial intelligence" (A.I). Artificial intelligence is considered a modern and exciting field that combines computer science and intelligence sciences, and it is related to the development of computer systems and programs capable of carrying out tasks that require intelligent capabilities that are usually considered the preserve of humans.

The researcher, while addressing the issue of "using artificial intelligence in art education" finds it necessary to be aware some of the titles that are directly related to the issue, if not at its core, namely: creativity and innovation as the goal of artistic work, as well as the process of art education with its goals and depths, in preparation for receiving the new visitor, "artificial intelligence".

In order for the research to be consistent with its effects, one of the artificial intelligence programs (ChatGPT) was asked to define each of the processes referred to in the research, and the answers came as follows:

Creativity:

Creativity is the ability to generate new ideas, concepts, or solutions by thinking outside conventional boundaries. It involves combining knowledge, imagination, and originality to produce something unique, whether in art, science, problem-solving, or everyday life. Creativity can manifest in many forms, from writing and painting to innovative thinking in technology or business. It's not just about being artistic; it's about approaching challenges with an open mind and a willingness to explore different perspectives.

Art education:

Art education is an educational process that aims to develop individuals' creative and artistic abilities and enhance their appreciation of the various arts. This process includes teaching

basic skills such as drawing, sculpture, design, and music, in addition to promoting critical thinking and personal expression.

Artificial intelligence:

Artificial intelligence (AI) is a branch of computer science that focuses on creating systems that can simulate human intelligence. This includes the ability to learn, understand, reason, and make decisions. (The researcher notes here that the definition did not refer to the issue of the ability to create!)

The researcher sees, after these definitions extracted from the artificial intelligence system itself, that they are considered the nucleus for its launch, and the necessity of placing each of them under governance, according to the standards of human thought and the available knowledge that has accumulated until our current era, and its position in the targeted artistic education process, and perhaps in this is what raises the following problem:

The Problematic

Since education through art means learning through research and discovery, encouraging the learner to take the initiative and self-confidence and developing his creativity and innovation. The concept of "art education" has expanded from before and now includes all types of artistic culture available in general education, as well as all efforts made outside general education, to educate students with an appreciation education, through which they can get to know the language of forms, read it and be influenced by it.

Since the "technological revolution" has cast its shadow on all fields of knowledge, including the field of "art education", and the necessity of keeping up with the times with its tools, and since creativity is the distinguishing characteristic of art, the researcher sees in this what raises the following problematic questions:

- To what extent is the art education teacher aware of the creative dimension in the artistic process and its concepts?

- To what extent is the art education teacher familiar with digitization and artificial intelligence skills in art education curricula?

- To what extent can artificial intelligence contribute to the creative process?

Study objective:

This study aims to shed light on the process of art education in general, as it is the ship that carries students in the sea of artistic knowledge to safety, by keeping pace with the tools of the era necessary to express the hidden potentials within them, especially with the presence of the "technological revolution" and at the top of it "artificial intelligence" as one of the contemporary artistic trends, to benefit from it in preparing the visual discourse. On the importance of digital art,

and its applications in the field of education, and the fields of art education in the different stages of education.

Study hypothesis:

The research assumes that the art teacher keeps in mind the issue of creativity and innovation, as it represents the goal of the arts, and everything that is taught to students in art education classes, is to refine talents after they are discovered by the curators.

Therefore, the art teacher in the digital age must be familiar with digital skills as well as familiar with the principles of art education in general. In this case, artificial intelligence may be a good helper due to its high capabilities in analyzing students' works and its quick response to relevant requests.

The importance of the study:

The importance of the study lies in clarifying the relationship between artificial intelligence and the educational process in general, as this system has transformative capabilities in the educational approach, which requires awareness of the situation of its positivity, meaning benefiting from this energy on the one hand, and on the other hand anticipating the negative influences that may accompany it, technically, mentally and morally.

Study terms:

1- *Computer:*
    A computer is a machine that can be programmed to automatically execute a series of arithmetic and logical operations. Modern digital electronic computers can execute sets of operations called programs, allowing them to perform a wide range of tasks.

2- *digitallation:*
    Digital or digitallation, its meaning in technology can be: a digital computer, a computer that carries information expressed in restricted values. The term digital describes the electronic technology that generates, stores and processes data, and has become a daily bread in people's lives, starting with the mobile phone and not ending with the most complex computer programs.

3- *Human intelligence:*
    It is the natural intelligence of humans that results from the mind, and it is the mental abilities related to learning, understanding and thinking, and includes the ability to comprehend ideas, plan, create, solve problems and use language in communication. These are things that distinguish humans from other creatures and from artificial intelligence.

4- *Artificial Intelligence:*
    Artificial intelligence (AI) is the field of computer science dedicated to solving cognitive problems typically associated with human intelligence, such as learning and

image recognition. The goal of AI is to create self-learning systems that extract meaning from data. AI can then apply that knowledge to solve new problems in human-like ways. For example, AI technology can respond meaningfully to human conversations, generate authentic images and text, and make decisions based on real-time data inputs.

Study Procedures

Study Methodology:

This study adopted the descriptive analytical method, because this method prepares through the description of what exists and explains it, and it is concerned with determining the circumstances and relationships that exist between "facts", as it is the method that analyzes, describes and explains the reality or phenomenon under study.

Study community:

The research community was deliberately selected from female students in the Department of Art Education at the College of Basic Education in Kuwait.

Research Context

Creation and Creativity in the Arts

In the search for a definition of creativity, the researcher found that there is a real problem in arriving at a single definition, due to the breadth of the fields of knowledge and the solutions to the creative issue in them, so an effort will be made to shorten them as much as possible, as the research space allows.

In the "webster" we find: Creativity (noun), the ability to create (her artistic creativity), the quality of being creative. make or bring into existence something new, an artist who is good at creating.

As for defining creativity in different fields, such as the plastic arts for example, Matisse asserts that: «Creativity is the true function of the artist, and where there is no creativity there is no art» (7: 7). As for the rest of the fields, definitions vary and blend, as researchers in the field of creativity see that creativity means: "the ability to make human products, such as symphonies or solutions to social problems, novel and valuable to others». (14: 284)

Or it is that cognitive process that leads to the result of something that is characterized by originality and worthy of importance (18: 528), and others define it as «… a process of sensing problems, becoming aware of weaknesses, gaps, inconsistencies and lack of information, searching for solutions and prediction, formulating new hypotheses, reformulating or modifying them in order to reach new solutions or connections using the available data, and conveying or

communicating the results to others» (19), while we find elsewhere «… as readiness traits that include fluency in thinking, flexibility, originality, sensitivity to problems, redefining the problem and clarifying it in detail or elaboration». (15)

Among the definitions given for creativity, we find in the "Arab Philosophical Encyclopedia" that creativity is the production of something new or the formulation of existing elements in a new way in one of the fields, such as science, literature, and the arts. As for the New Encyclopedia Britannica (1992), it defines it as the ability to find something new, such as a solution to a problem, a new tool, an artistic work, or a new style. In psychology, we find it as «an expression used by specialists and others to refer to the mental processes that lead to solutions, ideas, artistic forms, theories, or unique or new products» (1: 20), and the same book sees creativity as «a combination of abilities, predispositions, and personal characteristics that, if a suitable environment is found, can elevate mental processes to lead to original and useful products, whether in relation to the individual's previous experiences or the experiences of the institution, society, or the world, if the products are at the level of creative breakthroughs in one of the fields of human life». (1: 22)

The list goes on, so the researcher believes that, with the multiplicity and diversity of definitions, and since there is no single theory to explain creativity, the problem will remain until the concept of creativity is precisely and clearly defined. The definition of "Qasim Hussein Qasim" (قاسم حسين قاسم) is found in the research to be a summary of a large group of those definitions, which is as follows:

«Creativity is a cognitive mental process characterized by a type of high-level thinking, which leads to the production of an achievement that has value and importance, and adds something new to knowledge in its field of specialization that arouses pleasure and astonishment». (6)

This is creativity... that a person comes up with a unique solution to a specific problem.

Art Education

To examine the process of "art education", it was necessary to introduce the concept of education and teaching, to define art education and present its goals and the educational theories from which it was launched, and to focus on the status of arts in education, the role of arts in developing the mind and general taste of society, and the relationship of art education to the social environment in general.

Education is the deliberate effort that aims to have the young person absorb the elements of culture, adapt to them and modify them in order to achieve progress. This clearly means that education is not limited to the school through formal education within its walls, but rather it is a process carried out by society as a whole, whether inside or outside the school.

Then, education, as the "Arab League Educational, Cultural and Scientific Organization" sees it, «is comprehensive development in all its human and economic dimensions and is the gateway to technological and scientific civilizations, and man is the focus of all of this, a means and an end». (3: 29)

Education is therefore a collective action in a specific time and place and in response to the demands of social development as dictated by demand and the needs of society in general.

As for "artistic education", it means education through art, and thus it includes two interrelated contents, namely the educational content as an end, and the artistic content as a means, «If education means the comprehensive development of the personal human aspects, mental, emotional and physical .... then this development is through art, as an expressive, creative, listening activity with a purpose». (20: 69)

This meaning is not limited to the visual arts alone, but to every aesthetic aspect that is stimulated by any activity that awakens human feelings and sensitivity (such as music, singing, acting, poetry...), because it shows the law of beauty in everything that surrounds the human being, regardless of the nature of the material being processed, or its subject and purpose.

Education through art also means learning through research and discovery, encouraging the learner to take initiative and self-confidence, and developing his ability to create and innovate.

It is clear from the above that art education is a guarantee of the distinguished growth of the individual through art, growth in artistic vision, characterized by beauty and its appreciation. It stems from the philosophy of building the creative, sensitive, thinking individual, by returning art to the components of culture and enriching it with aesthetic relationships, through his sensitivity and interaction with the surrounding environment, his understanding of civilization, the dialogues of other peoples, and his awareness of the relationships between art and humanity.

What is Art Education?

Art education in any society is considered part of general education. In ancient and modern human society, it has taken two forms: Art education in its broad sense and its unintended form through the two parties of communication (sender and recipient) in teaching the old to the young, meaning teaching the one with experience to the one who needs it in the fields of craft activities required by daily life.

Art education is, «a term consisting of two elements (art and education), meaning that it is education through art, which in all its various fields is a means of artistic education, and what artists acquire in terms of ideas about artistic taste and renewed aesthetic relationships, and artistic expressions with all the human and social feelings they carry. As well as collecting technical

innovations in applied arts that are translated into means upon which the foundations and programs of art education are built». (4: 35)

It is, «a new harmony or a single compound of selected artistic knowledge, which develops awareness and conscious understanding of the things we see and touch, and develops innovative behavior». (11: 14)

Art education contributes to the learner's comprehensive mental and emotional growth, meaning that «art and education are two integrated and intertwined elements in building the human personality of the learner in art, as a human activity that has its educational role in terms of innovative development and aesthetic vision. Likewise, education as a comprehensive growth of the human personality lacks the growth of the aesthetic aspect that art performs, which, without it, loses its aesthetic impact on the human personality». (12: 45)

The term art education, by the way, was not known until the first quarter of the twentieth century, but what was known before that date was the teaching of drawing and handicrafts. These two types of arts had supporters who defended them within educational institutions. In fact, teaching drawing was completely separate from teaching handicrafts and their objectives as well, and each had its own specificity and purpose.

Teaching the art of drawing has taken on dimensions and developments within education. At first, it taught drawing decorations and shapes, then it developed into the art of drawing, and it taught the accuracy of imitation of nature, then it took a new form, which is the artistic expression of imaginary subjects or current events and others. Despite the various developments in teaching drawing, the basic idea is that it is teaching art with different concepts.

As for teaching handicrafts in schools, they were taught as skilled arts and crafts with industrial origins, such as carpentry, metalwork, stained glass, paperwork, weaving, and carpets. This is because «art education is a means through which the individual expresses his thoughts, feelings, sensations, emotions, and reactions about hidden and apparent things in his environment, and it is the only outlet for his living imagination» (8: 174). It aims to reveal creative abilities and create an artistic atmosphere (plastic and craft) in which learners practice their activities with complete freedom, and it is a space for venting their concerns.

In the definition
The definitions of the concept of art education have varied and diversified. "Suzanne Langer"[1] defined it as: «The tool of civilizational progress and the driving force of artistic creativity. It is the education of insight that is received through sight, hearing, reading, and works

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1 -**Suzanne Langer** (1895 - 1985), American researcher in the field of art education.

of art. It is the development of the artist's eye and the absorption of ordinary scenes for inner vision and the addition of expression to the world». (10: 20)

In another definition, «It is an educational process that helps the young and the youth understand the language of art and its function in society and know the extent of the impact of art on the environment created by man, as well as the development of language and behavior for creative production and response to art and critical evaluation of it through aesthetic judgment». (11: 22)

Accordingly, art education is manifested as «emotional expression and aesthetic magic, harnessing nature, mental organization and penetrating insight, mature awareness, and determined will». (9: 4)

Art Education and the Age of Technological Revolution
In order to achieve the desired goal of the art education process, it was necessary to keep up with the times and face the challenge represented by the "electronic memory" that we know today, represented by computers (computers), which came into existence at the end of the fifties of the twentieth century.

Over half a century, this technology has advanced in an unprecedented way through a series of qualitative shifts towards the smaller, faster, more efficient, cheaper and easier to use, and the computer has advanced from being a huge calculator for crunching numbers and processing data, to a machine for storing and processing information in order to extract statistics and indicators, and thanks to artificial intelligence, it has become a machine that represents and searches for knowledge, a machine that understands, analyzes and solves mathematical problems and laws, proves theories, makes decisions, composes texts, generates shapes and so on.

Then virtual reality technology called for «building worlds based on symbols in order to simulate reality, or establishing imaginary worlds that have no connection to it, worlds in which the individual immerses himself to practice experiences that are difficult for him to practice in his real world, such as visiting a museum, or roaming outer space, or traveling in time through geological eras. With the emergence of the Internet, it became a window for man to the world through which he practices most of his mental and practical activities remotely, retrieves information, shops, learns, chats, and tastes». (13: 115)

Since the goal of education in this era is to prepare a graduate capable of acquiring the highest degree of flexibility, quick thinking, accepting risks, learning through discovery, experimentation, a sense of individual responsibility, dealing with the possible and the unknown, with the real world and the virtual and symbolic worlds, and moving from directed learning to self-learning and distance learning, in addition to developing his ability to be creative, imaginative and appreciative, one of the manifestations of this digital world is the most complex system, which

research seeks to decipher and understand the relationship between it and artistic education, which is "artificial intelligence."

Artificial Intelligence.. The New Visitor

Artificial intelligence is almost the daily bread of humans in their activities, lives and lifestyles, starting with the mobile phone and reaching many minutes related to the profession or household supplies. Therefore, artificial intelligence is one of the important fields that has attracted the attention of many scientists and researchers, as this field has witnessed continuous developments that have achieved important effects on the future of humanity at all levels due to its focus on human participation and assistance in various daily tasks that affect humans in their practical, social, health and other lives.

In parallel, «artificial intelligence has revolutionized education due to its many benefits and its ability to increase the efficiency and effectiveness of teachers if used in a proper way, because it has the ability to understand information better, and increase their awareness and culture». (4: 277)

In this context, art education curricula were not immune to this development, as the contemporary digital revolution affected the form of artwork and the process of its production, and provided new horizons for creativity and artistic expression in all artistic fields. What is known as "Digital Art" emerged, a term given to the visual art movement that uses computer technology, advanced effects, and the mechanism of interaction between the artist's mental vision and the digital vision on the computer screen. The use of digital technology did not stop at these borders, but rather extended to the use of artificial intelligence in the process of "production" of arts as in the process of art education. So what is this artificial intelligence?

In simple terms, «Artificial Intelligence (AI) is a branch of computer science that focuses on creating systems that can simulate human intelligence. This includes the ability to learn, understand, reason, and make decisions. AI can be divided into two main types:

1- **Narrow AI**: A type of AI designed to perform a specific task, such as recommendation systems, image processing, or voice assistants.
2- **General AI**: A theoretical type of AI that has the ability to understand and learn any mental task that humans can perform. AI technologies are used in a wide range of applications, from self-driving cars to healthcare, where data can be analyzed and outcomes predicted». (2: 88)

In the History of Artificial Intelligence

The seeds of modern artificial intelligence were planted by classical philosophers who tried to describe the process of human thought as a mechanical manipulation of symbols. This work

culminated in the invention of the programmable digital computer in the 1940s, a machine that relied primarily on mathematical "calculations," which is perhaps what gave it the name "computer."

This device and the ideas behind it inspired a handful of scientists to begin seriously discussing the possibility of building an electronic brain, as «…the field of artificial intelligence research was founded at a workshop on the Dartmouth College campus during the summer of 1956. Those who attended would become leaders in artificial intelligence research for decades. Many of them predicted that a machine with human intelligence would not exist in more than a generation, and they received millions of dollars to make this vision a reality» (16:15). Perhaps this is what leads the research to a comparison between the two intelligences.

Between Human Intelligence and Artificial Intelligence
Human intelligence is characterized by a number of capabilities that specialize it. A person has the ability to:
- **Critical thinking**: meaning the ability to analyze and evaluate information logically.
- **Creativity**: meaning the ability to produce new ideas and solve problems in unconventional ways.
- **Learning and adaptation:** as well as the ability to acquire knowledge and skills from previous experiences and adapt to changes in the environment.
- **Communication:** meaning the ability to express thoughts and feelings in understandable ways and build relationships with others.
- **Abstract thinking:** meaning the ability to think about intangible concepts, such as values and philosophical ideas.
- **Emotional intelligence**: which is the most important in terms of the ability to understand and manage feelings, whether they are the feelings of the person himself or the feelings of others.

These characteristics make human intelligence unique and diverse, which facilitates interaction with the world in a complex and rich way.

As for artificial intelligence, it is characterized by several aspects, including:

- **Speed and efficiency**: meaning it can process huge amounts of data faster than humans, making it ideal for tasks that require big data analysis.
- **Machine learning:** meaning it can improve its performance over time by learning from data, allowing it to develop new strategies and provide innovative solutions.
- **Accuracy:** as in many applications, AI can achieve high accuracy, such as diagnosing diseases or recognizing patterns.
- **Repeatability**: meaning it can perform the same task repeatedly without fatigue, making it suitable for routine or repetitive tasks.
- **Ability to work in difficult environments**: it can be used in conditions that may be

dangerous to humans, such as space exploration or handling hazardous materials.
- **Not affected by emotions**: it can make objective decisions based on data without the influence of feelings or psychological pressure.

These features of artificial intelligence, compared to the features of human intelligence, the researcher notes a real difference, as the machine lacks purely human qualities, such as creativity, abstract thinking, emotions, and others, which are matters that enter into the fields of art in general and art education in particular. So how are these features manifested in education in general and art education in particular?

Artificial Intelligence and Art Education

Art education is specifically classified as an idea for purposeful artistic experimentation, and setting new standards for artistic design, in light of digitization and the use of artificial intelligence technologies in education in general. This digitization enables the use of artificial intelligence applications and constitutes a creative artistic launch for the art education teacher in all its fields. Through it, the art education teacher begins to realize new artistic concepts that develop awareness, creative thinking and artistic relationships, in addition to searching for new methods and techniques that enrich the artistic field.

The fields of art education are many and varied, and creative designs are endless, so it is possible to benefit from the applications and skills of artificial intelligence in the fields of art education, which will open many horizons for art education teachers.

Artificial intelligence applications play an effective role in art education curricula in many ways, as these applications can help students develop critical thinking and problem-solving skills by providing them with new tools and techniques, so that artificial intelligence can be used to create programs and applications that allow students to experiment with new techniques and create new art forms, which enhances innovation and creativity.

Artificial intelligence can also help teachers improve their teaching efficiency, as it is able to provide tools and technologies that can analyze student data, as well as provide them with personal feedback, by creating systems that track the progress of each student and identify their strengths and weaknesses, which allows the teacher to draw up the required curricula for accurate follow-up.

By removing the physical and economic barriers that can prevent people from participating in art, AI can help make art more accessible to everyone, by using it to create programs and applications that can be used to create and share art without the need for expensive technical expertise or equipment. What are these applications?

There are many applications and tools of artificial intelligence that can be used in the fields of art education, including those used in: research and design, creating educational artistic content, writing artistic articles and research, creating artistic tests, and creating artistic presentations. (3)

In this context, the researcher finds it necessary to mention some artificial intelligence applications and tools that can be used in the art education process:

- **(Tutor AI),** an application that provides a search service in the form of an educational course.
- **(Perplexity),** an advanced and high-quality search engine that you can ask and it will answer you, and discuss with you easily and conveniently.
- **(ChatGPT),** provides you with a strong conversation between you and the chat and answers your questions and gives you strong solutions to most problems (the researcher used it partially in this research for the sake of enlightenment and confirmation)
- **(Designs),** through which you can create distinctive designs for social media sites, design videos, and logos quickly and easily.
- **(Artboard),** enables you to design or create a video professionally quickly and easily.

There are many other applications and tools of artificial intelligence, some of which can even be used in creating educational content. Therefore, artificial intelligence can be used in art education curricula in several ways, including:

- **Simulating the arts**: Artificial intelligence can simulate different artistic styles, which helps students explore new techniques, such as taking an "impressionist" painting and turning it into "cubism" and others, which stimulates the student's mind and makes it more flexible.
- **Personalizing learning**: Artificial intelligence can analyze the level of students' skills and provide customized educational content and resources that suit their needs. Augmented reality and virtual reality technologies provide realistic and interactive educational experiences, so that «students will be able to explore virtual worlds and realistic simulations to interact with educational concepts and learn through practical experiences». (2: 132)
- **Feedback:** AI tools can be used to provide instant feedback on artwork, helping students improve their skills faster. Beyond that, big data analytics and machine learning techniques can be used to analyze educational data and provide valuable insights into students' progress and learning needs. Teachers will be able to leverage this data to better understand student needs and tailor instructional plans and resources effectively.
- **Artistic style analysis**: AI can analyze different artistic styles and provide suggestions to students on how to develop their own style.
- **Artistic content creation**: AI-powered programs can create new artworks, giving students inspiration for artistic expression.

- **Technological skills development:** Teaching students how to use AI tools in their art can expand their artistic skills and open up new horizons.
- **Organizing art exhibitions**: AI can be used in organizing exhibitions, by analyzing works and selecting the most appropriate ones for display.
- **Access to education:** The shift towards smart education can be a challenge in accessing education in some communities, especially in remote areas or low-income areas. These challenges must be addressed by providing the necessary infrastructure and providing appropriate access to educational technology. (17)

Thus, we see that artificial intelligence in the field of smart education is a promising field thanks to the use of technology to improve learning and education. With an increased focus on personalization and advanced technology, more effective and personalized educational experiences can be achieved, with constant attention to addressing ethical and security challenges, and ensuring equitable access to educational technology for all.

Conclusion

The strategic goals of ancient "alchemy" were to achieve two things: First, to invent the "elixir" which grants eternal life and keeps death away from humans, and second, to "transform metals into gold" to ensure abundant benefit from the resonant metal. These two goals formed the first building blocks of the sciences that developed and branched out and reached the steady progress they have reached today, through the studies and experiments that accompanied the pursuit of these two goals.

This introduction draws attention to the negatives that must be avoided if the goals of alchemy were achieved. If all metals were transformed into gold, it would no longer have a distinctive value and there would no longer be a strong demand for it, so what if the first thing was achieved and no human being died and met his Lord!

Artificial intelligence, like all inventions that transform human societies, has its benefits and negative aspects. When the researcher discusses the use of artificial intelligence in art education, she does not reject the benefits that result from this use, but rather draws attention to the negative aspect that may accompany it.

In the issue of creativity, the researcher recalls one of the definitions mentioned in the research, which is that creativity is: "emotional expression and aesthetic magic, harnessing nature, mental organization and penetrating insight, mature awareness, and determined will." Does artificial intelligence have these purely human characteristics?

Artificial intelligence, as we have seen, has many capabilities, including a huge amount of information, speed of response, and many digital features that exceed human capabilities. However, feelings, emotions, sentiments, and other stimuli for creativity and honest artistic work are unique to humans.

When the researcher raises the ethical issue from time to time, this is because artificial intelligence, like other emerging phenomena, has some ethics that must be taken into account in its uses, including:

- **Transparency:** The processes and decisions made by AI must be clear and understandable to users.
- **Privacy**: Protecting personal data and not using it in ways that conflict with the wishes of individuals.
- **Fairness**: Avoiding discrimination and bias in systems, and ensuring that outcomes are fair to all groups.
- **Accountability**: Assigning responsibilities for decisions made by AI, whether the outcomes are positive or negative.
- **Security**: Ensuring that systems are protected from attacks and manipulation, and that they operate reliably.
- **Sustainability**: Considering the impact of AI on the environment and society, and working towards developing sustainable technologies.
- **Respect for human values:** Ensuring that AI is consistent with human values and ethics, and is not used in ways that harm individuals or communities.

Research recommendations and suggestions

After taking into account the creative issue that is specific to humans alone, and after being aware of the caveats mentioned in the research, the researcher recommends and suggests the following:

- Holding specialized training courses for art education teachers in different educational stages to train them on practicing art digitization and artificial intelligence applications in the fields of art education.
- Including artificial intelligence skills, concepts of art digitization, its programs and tools within the programs for preparing male and female art education teachers.
- Directing researchers' attention to research in the fields of art digitization, and applications of artificial intelligence in the educational process and fields of art education.
- Issuing periodic bulletins that include introducing art education teachers to everything new in the field of art digitization and artificial intelligence applications.
- Using modern strategies to develop digital skills, and artificial intelligence skills in the field of art education.

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