



## Artificial Intelligence Applications and their Impact on Developing Creative Linguistic Self-Enhancement among Outstanding High School Students.

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**Abstract:** This study aims to develop creative linguistic self among gifted high school students and examine the impact of artificial intelligence applications in enhancing its dimensions. To achieve this goal, a list of dimensions for creative linguistic self was prepared, consisting of (27) dimensions, along with a creative linguistic self-assessment scale. The research followed a quasi-experimental methodology, using a single-group experimental design. The study group consisted of (30) gifted students from Al-Azhar secondary third grade. Pre- and post-application assessments of the scale were conducted.

The results revealed statistically significant differences between the mean scores of the research group in the dimensions of creative linguistic self as a whole, as well as in its main dimensions individually, in favor of the post-application. The difference was statistically significant at the (0.01) level, with a large effect size of artificial intelligence applications, reaching (0.99).

The research recommended the necessity of using artificial intelligence applications in teaching, focusing on developing creative linguistic self among learners at various educational stages, utilizing the research tools and materials, and integrating them into the educational process, among other recommendations. Additionally, the research presented a set of proposals related to the findings.

**Keywords:** Creative linguistic self, artificial intelligence, gifted students, quasi-experimental approach.



## **1. Introduction:**

In recent years, the process of teaching and learning has witnessed remarkable developments due to advancements in technology and modern communication tools. The internet has become an integral part of education, and tablets have replaced traditional textbooks. However, despite this incredible progress, it may pale in comparison to the anticipated spread of artificial intelligence (AI) and its integration into the education sector. Therefore, leveraging AI has become an urgent necessity to keep pace with the significant advancements in the information and communication revolution, paving the way for a better future for coming generations (Sabah Eid, 2020, p. 321). The systematic integration of AI in education empowers stakeholders to address some of the biggest challenges in education today, innovate teaching and learning practices, and ultimately accelerate progress toward achieving the Sustainable Development Goals. UNESCO is committed to supporting member states in harnessing the potential of AI technologies to fulfill the Education 2030 agenda (Magdy Salah, 2021, p. 105).

Teaching the Arabic language is an intentional educational process based on scientific foundations, aiming to equip students with integrated linguistic proficiency. It enables them to express their thoughts effectively using their language skills, fostering communication with others and interaction with their surroundings. Achieving this goal requires students to trust in their linguistic abilities and utilize them optimally, allowing them to appreciate the beauty in what they say, read, or write. A positive self-perception enhances their academic success, relationships with peers and teachers, and other factors, boosting their motivation and self-awareness.

Self-awareness in general and linguistic self in particular are among the most important variables in the educational process for learners, as they play a significant role in building confidence in their linguistic self-concept and making them more positive and eager to acquire language skills (Nizar Mansour & Adnan Al-Abed, 2016, p. 1051). Achieving this primarily depends on the learners' mental abilities and their conscious preparation, which nurtures their creative capacities through a systematic, scientific approach based on a culture of innovation rather than a culture of memorization (Salahuddin Arafa, 2006, p. 7). This necessitates the development of their linguistic self and linking it to creativity, aiming to produce an innovative learner with a new vision that drives the nation toward a more refined civilization. Such a creative linguistic self is accompanied by scientific and literary excellence, as well as feelings of happiness and satisfaction.

Due to this crucial role, numerous studies have recommended the importance of fostering the linguistic self in its various dimensions among learners, as it enhances their proficiency in different language skills and increases their motivation to perform tasks. Among these studies are those by Wael Salah (2020), Suleiman Hammouda (2017), and Nizar Mansour & Adnan Al-Abed (2016).



Similarly, studies emphasizing the importance of nurturing the creative self include those by Helmy Mohamed (2020), Mohamed Abdelaziz (2020), and Abdel Moneim Ahmed et al. (2017). These studies indicated that linguistic and creative self-efficacy plays a prominent role in students' academic excellence, as well as in the balanced growth of their social and emotional personalities. Moreover, it influences their academic achievement, task mastery, skill development, academic attainment, and innovative abilities.

Given that, "gifted students are essentially a group of learners who possess high cognitive abilities and strong motivation for learning. They are inherently prepared to accept many challenges not found in the standard school curriculum, which is designed for average students. This necessitates specialized programs that cater to their unique capabilities" (Ahmed Saada, 2008, p. 54), "we are dealing with students who are significantly advanced beyond the regular curriculum, meaning they urgently require a higher level of curricula and teaching methods that challenge them" (Nicholas Colangelo & Gary Davis, 2011, p. 631). The goal is to develop their creativity and excellence, as fostering innovation and paying attention to gifted students is of utmost importance (Ahmed Adnan, 2015).

## **1.2. Study Problem:**

Despite the importance of linguistic self and its connection to creativity, as well as the corresponding attention it has received—whether in terms of researchers' efforts to define its dimensions and foster its development among students—reality confirms the low level of creative linguistic self-concept among Al-Azhar secondary school students in general, and high-achieving students in particular. The researcher observed this after applying the Creative Linguistic Self-Dimensions Scale (prepared by the researcher) to (13) high-achieving third-year Al-Azhar secondary students. The results revealed that students possessed competence in creative linguistic self at a rate of (38.5%), in the sense of creative linguistic self at (30.8%), while their attitude toward creative linguistic self was only (23.1%)—all very low percentages.

The results of previous studies on linguistic self, including those by: \*Suleiman Hammouda (2017), Nizar Mansour and Adnan Al-Abed (2016), and Abdel-Moneim Ahmed (2007)\*, as well as studies on creative self, such as those by: \*Mohamed Abdel-Aziz (2020), Thanaa Abdel-Wadoud and Ghadeer Kazem (2017), and Abdel-Moneim Ahmed et al. (2017)\*, confirmed the low efficacy of linguistic and creative self among students. This negatively impacts their academic excellence, personal growth, language proficiency, and creative abilities. These studies also recommended using teaching programs and strategies to enhance linguistic and creative self-efficacy.

In light of the above, the research problem is defined as: the low levels of creative linguistic self-dimensions among high-achieving third-year Al-Azhar secondary students. To address this problem, the researcher employed artificial intelligence applications to develop these dimensions among them.



### **1.3. Study Objectives and Questions:**

The current research aimed to: develop appropriate creative linguistic self-dimensions among outstanding students in Al-Azhar secondary third grade. The research sought to answer the following questions:

- What are the appropriate creative linguistic self-dimensions for outstanding students in Al-Azhar secondary third grade?
- What is the impact of artificial intelligence applications in developing the creative linguistic self among outstanding secondary school students?

### **1.4. Study Significance:**

- **Theoretical Significance:**

The research's theoretical importance lies in adding new variables to educational literature, such as the creative linguistic self and artificial intelligence, which can benefit future educational studies.

- **Practical Significance:**

The practical significance of the research lies in the following:

- Supporting outstanding students in Al-Azhar secondary third grade by developing their creative linguistic self.
- Assisting Arabic language supervisors and teachers in developing plans to employ artificial intelligence applications for fostering students' creative linguistic self.
- Providing curriculum developers with research tools to enhance Arabic language curricula and enabling researchers to conduct further studies aimed at developing the creative linguistic self in other educational stages.

### **1.5. Study Terminology:**

- **Artificial Intelligence Applications:**

Operationally, in this research, artificial intelligence applications refer to: educational artificial applications that contribute to transforming ordinary literary texts prescribed for Al-Azhar secondary third-grade students into interactive texts. These allow students a high degree of interaction and participation while incorporating audio and visual media that bring literary events and phenomena to life. They are delivered via smartphones, tablets, or computers.

- **Creative Linguistic Self:**

Operationally, the creative linguistic self refers to: the beliefs of an outstanding Al-Azhar secondary third-grade student regarding their ability to use language creatively and express their mental perceptions of imaginative elements in a structured literary style characterized by



fluency, flexibility, and originality. It also includes their self-assessment of competence and self-awareness in linguistic practice, whether related to reading, writing, or speaking. This is measured by the student's score on the creative linguistic self-scale designed for this purpose.

- **Outstanding Students:**

Operationally, in this research, an outstanding student is defined as: a third-grade Al-Azhar secondary student who possesses a high level of intellectual abilities compared to their peers, enabling them to self-learn. Their academic performance is notably high, with an average score of no less than 85% in all subjects for the academic year 2020-2021.

### 1.6. Study Limitations:

The current study adhered to the following limitations:

- Some dimensions of the creative linguistic self-targeted for development among outstanding Al-Azhar secondary third-grade students, as defined by the prepared list of dimensions for this purpose.
- Some artificial intelligence applications, including (smart chatbots – chatbots – augmented reality).
- **Research sample:** The sample consisted of outstanding Al-Azhar secondary third-grade students. This group was selected because these students possess a level of linguistic and cognitive development that enables them to consolidate acquired experiences, build, and enhance their skills, which is a fundamental pillar for university-level research. The university stage is a critical transitional phase for students intellectually, psychologically, and socially, and any deficiencies at this stage can negatively impact the student's linguistic abilities in their life.
- The study was applied at Elmansoura Secondary Institute (boys), affiliated with the East Elmansoura Educational Administration of Al-Azhar in El-Dakahlia Governorate, during the first semester of the academic year 2024.

### 1.7. Study Methodology:

The current study followed a quasi-experimental approach, using a single-group experimental design with pre- and post-test applications of the research tools. This was done to verify the effect of the independent variable on the dependent variable, as this design was suitable for the study's variables.

## 2. Theoretical Framework of the Study:

### 2.1. Artificial Intelligence:

The use of technology in education has a positive impact on teaching and learning processes, making them easier to access within seconds and saving significant time and effort in delivering



information to students. One of the most prominent features of our current era is the massive flow of knowledge and information, the diversity and speed of accessing it, and the technological advancements in modern communication technology. This has influenced many sectors, most notably the education sector (Ashwaq Dahman, 2020, p. 298).

Given this reality, the focus on artificial intelligence (AI), understanding it, and identifying its types, objectives, and characteristics has become of great importance. Therefore, AI is addressed through the following:

### **2.1.1. The Concept of Artificial Intelligence:**

The definition of AI has evolved to its current state due to several reasons, most notably the availability of larger amounts of data, enabling AI applications that did not exist before. Additionally, cloud computing has facilitated data storage on the internet, reducing costs and increasing the speed of processing large amounts of data through AI-enhanced systems (M. Verma, 2018).

AI refers to programs that enable computers to perform all mental processes, particularly those involving higher-order thinking, such as decision-making, problem-solving, and divergent thinking. This is achieved by simulating the human mind (Issam Mohamed, 2022, p. 118).

### **2.1.2. Types and Fields of Artificial Intelligence:**

Magdy Salah (2021, p. 110) states that AI can be classified into four types based on its functions:

- **Reactive Machines AI:** The simplest type of AI, lacking the ability to learn from experiences or improve future tasks. It only deals with present inputs to produce the best possible output, such as IBM's Deep Blue and Google's AlphaGo.
- **Limited Memory AI:** Capable of storing past data for a limited time, such as self-driving systems.
- **Theory of Mind AI:** AI that can understand human emotions and interact with people, though no practical applications exist yet.
- **Self-Aware AI:** Refers to future aspirations where machines possess self-awareness and emotions, surpassing human intelligence. This type does not currently exist.

### **2.1.3. Applications of Artificial Intelligence:**

There are numerous AI applications, all falling under what is called the "AI family," which refers to a variety of current and emerging applications in different scientific and theoretical fields. This family is open-ended, welcoming innovations and previously unknown uses of AI technology (Khaled Abou Bakr, 2017, p. 85).



In the educational context, AI applications refer to programs and tools that provide students with guidance and assistance during learning to achieve mastery. These applications can generate appropriate responses based on the student's academic level, track their navigation paths, and monitor their progress within the learning environment (Shaimaa Ahmed & Iman Mohamed, 2020, p. 473).

Some AI applications beneficial for teaching literary texts to develop creative linguistic self-expression include (Mervat Hamed et al., 2021, pp. 5-6; Eid Abdel Wahed, 2020, p. 41; E. Southgate et al., 2019, p. 18; Almohammadi et al., 2017):

- **Smart Content:** Companies create intelligent content platforms that include lessons, practice exercises, and real-time assessments. For example, Netex Learning allows teachers to design digital curricula and multimedia-integrated content.
- **Augmented Reality (AR):** Simulated environments that mimic reality, enabling users to interact with digitally generated components through computers or smart devices (e.g., smartphones, VR glasses).
- **Intelligent Chatbots (Chatbots):** Also known as "bots," these are smart applications that analyze incoming messages and respond based on a pre-stored database, enhancing educational efficiency and student engagement.

AI applications have received significant attention in previous research, including: Noha Abdel Hakim's (2022) study on the effectiveness of an AI-based learning environment in enhancing achievement, decision-making skills, and attitudes toward technology among female students at King Khalid University, based on Kolb's model. Mervat Hamed et al.'s (2021) study on the effectiveness of an enrichment program based on AI applications in improving achievement among Al-Azhar secondary school students. Gamal Ali's (2020) and Abdel Razek Mokhtar's (2020) studies highlighting the importance of AI systems in developing educational processes and Arabic language learning. Andreas & Michael's (2019) study on the implications and future prospects of AI in the workforce.

## 2.2. Creative Linguistic Self-Expression:

To understand the concept of creative linguistic self-expression, we will examine definitions of **linguistic self** and **creative self**, as they are closely related to **creative linguistic self-expression**.

- **Linguistic Self:** Refers to a student's self-concept regarding their feelings, enjoyment, and engagement in learning Arabic language skills, their awareness of their success or failure, and their ability to self-assess their language skills accurately and confidently. This indicates the clarity of their self-concept in Arabic language learning (Wael Salah, 2020, pp. 504-505).



- **Creative Self:** Refers to a student's confidence in their knowledge, skills, and abilities to produce creative thinking accompanied by creative performance (Helmy Mohamed, 2020, p. 188).

By combining these two concepts, the current research defines **creative linguistic self-expression** as:

*"A third-year Al-Azhar high school gifted student's beliefs in their ability to use language creatively, express imaginative ideas in a structured literary style characterized by fluency, flexibility, and originality, and their self-assessment of their linguistic competence based on reading, writing, or speaking situations. This is measured by the student's score on a specially designed scale".*

### **2.2.1. The Importance of Developing Creative Linguistic Self-Expression:**

A student's success in achieving self-expression—particularly creative linguistic self-expression—brings comfort, joy, and relief from anxiety and stress, leading to psychological and emotional well-being. A self-actualized student appreciates their abilities, sets achievable goals, strives for success, and feels satisfied with their efforts (Ali Hussein & Suhad Fahem, 2021, p. 16).

The linguistic self-concept is a crucial variable in education, as it enhances a learner's confidence in their language abilities, making them more engaged in Arabic language learning and improving academic achievement (Nizar Mansour & Adnan Al-Abed, 2016, p. 1051).

Ahmed Mohamed (2014, p. 479) highlights that developing creative self-expression strengthens a learner's belief in their ability to generate diverse, original ideas and perceive things from unique perspectives. Regarding creative performance, it reflects persistence, patience, and the use of appropriate methods to achieve goals.

For gifted high school students, developing creative linguistic self-expression can improve their expectations in Arabic language studies. Schools and teachers play a vital role in nurturing this aspect, as students with strong linguistic self-concepts can better control their learning experiences, set life goals, and overcome challenges.

### **2.2.2. Dimensions of Creative Linguistic Self-Expression:**

The researcher found limited previous studies addressing the dimensions of creative linguistic self-expression. To the best of the researcher's knowledge, no studies have treated it as an independent or dependent variable.

By reviewing literature on linguistic self (e.g., Abdel Moneim Ahmed, 2007; Nizar Mansour & Adnan Al-Abed, 2016; Suleiman Hammouda, 2017; Wael Salah, 2020) and creative self (e.g., Ahmed Mohamed, 2014; Abbott, 2010), the study derives the following dimensions of creative linguistic self-expression:



- **Competence in Creative Linguistic Self-Expression:** Measures a gifted student's confidence in successfully performing creative linguistic tasks.
- **Self-Awareness in Creative Linguistic Expression:** Reflects the student's awareness of their ability to perform linguistic tasks with enjoyment or difficulty.
- **Attitude toward Creative Linguistic Self-Expression:** Assesses the student's willingness to evaluate their performance positively or negatively.

This study aligns with previous research in these core dimensions (competence, self-awareness, and attitude) but differs by focusing on linguistic self-concept at a creative level, tailored for gifted students. It also stands out as the first to examine creative linguistic self-expression as a research variable.

### 3. The study experimental procedures:

#### 3.1. Preparing The study Tools and Materials:

##### 3.1.1. Developing a List of Dimensions for Creative Linguistic Self:

To achieve the research objective, it was necessary to prepare a list of dimensions for the creative linguistic self-suitable for outstanding Al-Azhar secondary third-grade students. This list was developed by following these steps:

**a. Defining the Purpose of the List:** The goal was to identify the dimensions of the creative linguistic self-appropriate for outstanding Al-Azhar secondary third-grade students (the research group).

**b. Sources for Developing the List:** A review of educational literature and previous studies addressing the concept of linguistic self and its dimensions, including studies by: Wael Salah (2020), Wageeh El-Morsi and Asmaa Mughayeb (2019), and Suleiman Hammouda (2017). Additionally, studies on the concept of creative self and its dimensions were consulted, such as those by: Yousra Shaaban (2021), Helmy Mohamed (2020), and Ahmed Mohamed (2014). The opinions of specialists in psychology, curriculum and teaching methods, and Arabic language teachers at the secondary level were also considered.

**c. Formulating and Refining the Preliminary List:** The researcher ensured that all sub-dimensions of the list were derived from the creative aspects of literary imagination, namely: (fluency, flexibility, and originality). Based on these aspects and in alignment with them, the main and sub-dimensions of the list were formulated. The main dimensions were: (Competence in the Creative Linguistic Self, Sense of Creative Linguistic Self, and Attitude toward the Creative Linguistic Self). Several sub-dimensions emerged from these main dimensions.

The list was then presented to a panel of (39) arbitrators, including specialists in Arabic language curricula and teaching methods, as well as Arabic language supervisors and teachers. The aim was to finalize the list, incorporating their feedback regarding modifications,



deletions, and additions. After collecting the arbitrators' responses, the relative weights of their agreement on the main and sub-dimensions were calculated using Cooper's formula:

$$\text{Agreement Percentage} = \frac{\text{Number of Agreeing Arbitrators}}{\text{Number of Agreeing Arbitrators} + \text{Number of Disagreeing Arbitrators}} \times 100$$

**d. Final Version of the List:** Based on the arbitrators' modifications and the relative weights of the dimensions, the final list included (27) sub-dimensions distributed across (three) main dimensions: Competence in the Creative Linguistic Self, Sense of Creative Linguistic Self, and Attitude Toward the Creative Linguistic Self. The following table (1) illustrates the final version of the list with relative weights.

**Table (1): Relative Weights of the Final List of Creative Linguistic Self-Dimensions**

Main Dimension	Total Skills	Performance	Percentage of Total
Competence in Creative Linguistic Self	12		44.44%
Sense of Creative Linguistic Self	8		29.63%
Attitude Toward Creative Linguistic Self	7		25.93%
<b>Total</b>	<b>27</b>		<b>100%</b>

### 3.1.2. Developing the Creative Linguistic Self-Scale:

The Creative Linguistic Self Scale was developed through the following steps:

**a. Defining the Purpose of the Scale:** The scale aimed to assess the extent to which outstanding Al-Azhar secondary third-grade students possess the dimensions of the creative linguistic self.

**b. Sources for Deriving the Scale:** Several sources were used to derive the scale's dimensions and items, including:

- The list of creative linguistic self-dimensions developed in the current research.



- Previous studies and research on constructing linguistic self-scales, such as studies by: Wael Salah (2020), Wageeh El-Morsi and Asmaa Mughayeb (2019), Suleiman Hammouda (2017), and Abdel-Moneim Ahmed (2007).

- Studies on creative self, such as those by: Mohamed Abdel-Aziz (2020), and Nizar Mansour and Adnan Al-Abed (2016).

**c. Preliminary Version of the Scale:** Based on the above steps, a preliminary version of the scale was developed, including: (an introduction, an operational definition of creative linguistic self, clarification of the scale's purpose, instructions for students, instructions for teachers, and the dimensions of creative linguistic self). The scale consisted of (27) statements distributed across three main dimensions.

**d. Refining the Scale:** To ensure the scale's face validity, its preliminary version was presented to a panel of (39) arbitrators specializing in curricula, teaching methods, and Arabic language instruction. Their feedback was used to assess the scale's appropriateness and relevance to the target group.

**e. Pilot Testing the Scale:** After making necessary modifications, the scale was administered to a pilot group (not part of the main research sample) consisting of (19) outstanding Al-Azhar secondary third-grade students at Minyat Sandoub Secondary Institute (boys) in Mansoura, affiliated with the West Mansoura Educational District. The pilot test was conducted during the 2024 academic year. Shortly after the first administration, the scale was reapplied to the same group to verify test validity, reliability, clarity of statements, discriminative power, and determine the appropriate administration time.

**f. Scoring and Finalizing the Scale:** Scoring Method: Responses were scored using a Likert scale: (Always Applies, Often Applies, Sometimes Applies, Rarely Applies, and Never Applies). Positive statements were scored (1-2-3-4-5), while negative statements were reverse-scored (1-2-3-4-5).

Subsequently, the scale was adjusted, and the student's score was scaled to range between (27–135) points. The researcher analyzed the students' responses to the scale with the aim of determining:

- **The Validity of the Creative Linguistic Self Scale:** The validity of the scale was verified by establishing:

- **Logical Validity (Expert Judgment Validity):** The validity of the scale items was confirmed after review by experts and making necessary modifications based on their opinions and observations.

- **Internal Consistency Validity (Statistical Validity):** This was assessed to ensure the reliability of the scale.



- **Discriminative Validity:** Calculated using the Mann-Whitney U test to compare the upper and lower quartiles (top 25% vs. bottom 25%). The Z value was (2.521), significant at ( $p < 0.01$ ), confirming high discriminative validity.
- **Reliability:** Calculated using Cronbach's alpha via SPSS 0.18. Reliability coefficients for the sub-dimensions ranged between (0.86–0.88), and the overall scale reliability was (0.93)—all exceeding the 0.70 threshold. Test-retest reliability using Spearman's correlation yielded a coefficient of (0.993\*\*), significant at ( $p < 0.01$ ), indicating high reliability.
- **Administration Time:** The average time required to complete the scale was (45) minutes.

**g. Final Version of the Scale:** After incorporating arbitrators' feedback and pilot test results, and confirming the scale's validity and reliability, the "*Creative Linguistic Self Scale for Outstanding Al-Azhar Secondary Third-Grade Students*" was finalized.

### 2.3. Procedural Steps of the Study:

After completing the preparation of my research tool and obtaining the necessary administrative approvals to conduct the research experiment, the study was implemented, and its procedural steps were as follows:

a. **Selecting the research group:** The experiment was applied to a group of gifted students in the third year of Al-Azhar secondary school, consisting of (30) male students at Al-Mansoura Secondary Institute (Boys), affiliated with the East Al-Mansoura Educational Administration of Al-Azhar in Dakahlia Governorate. The research participants were identified using some of the criteria agreed upon in studies and research on the identification of gifted students, which include: (referring to academic test results and selecting those with achievement rates of 85% or higher, teacher nominations for gifted students, and administering Raven's Progressive Matrices test to students who scored 85% or higher).

b. **Applying the Creative Linguistic Self-Scale to the research group:** The pre-test of the Creative Linguistic Self-Scale was administered on Wednesday 21 February 2024, to assess the students' (research group) level in the targeted dimensions of creative linguistic self. Following the completion of the pre-test, the researcher began teaching literary texts using artificial intelligence applications to the gifted students in the third year of Al-Azhar secondary school (the research group) from Saturday 24 February 2024, to Wednesday 27 March 2024.

After completing the instruction of the subjects, the post-test of the Creative Linguistic Self-Scale was administered on Sunday 31 March 2024, to compare the students' results in the pre- and post-tests. The papers were corrected, and scores were recorded in tables in preparation for appropriate statistical processing using the "SPSS" software (Statistical Package for Social Sciences) for data analysis.



## 4. The study results and their interpretations:

### 4.1. Study results:

First, to answer the first research question, which states: "What are the dimensions of the creative linguistic self-suitable for outstanding Al-Azhar secondary school students?"

The modifications suggested by the reviewers were implemented in the list of dimensions of the creative linguistic self, ensuring: the scientific validity of the dimensions, their appropriateness for students, and the coherence of the dimensions with one another, linguistic formulation, deletions, and additions. Consequently, the final version of the list was established, consisting of three main dimensions and 27 sub-dimensions.

Second, to answer the second research question, which states: "What is the impact of artificial intelligence applications on developing the dimensions of the creative linguistic self-suitable for outstanding Al-Azhar secondary school students?"

The final version of the creative linguistic self scale was developed, the research group was selected, the scale was applied, and the data were statistically analyzed by calculating the arithmetic mean and standard deviation of the research group's scores in the scale, as well as the (t) value and its significance for the research group's scores in the pre- and post-applications of the creative linguistic self-scale. The following Table (2) presents the results of the pre- and post-applications of the creative linguistic self-scale (n = 30).

**Table (2): Results of the Pre- and Post-Applications of the Creative Linguistic Self Scale (n = 30)**

Main Dimension	Application	Arithmetic Mean	Standard Deviation	Degrees of Freedom	"t" Value	Significance Level
Competence in the Creative Linguistic Self	Pre-test	23.67	3.708	29	54.393	Significant at (0.01)
	Post-test	55.60	1.589			



Main Dimension	Application	Arithmetic Mean	Standard Deviation	Degrees of Freedom	"t" Value	Significance Level
<b>Sensation of the Creative Linguistic Self</b>	Pre-test	15.47	3.501	29	32.038	Significant at (0.01)
	Post-test	36.90	1.062			
<b>Attitude Toward the Creative Linguistic Self</b>	Pre-test	13.23	1.736	29	41.440	Significant at (0.01)
	Post-test	32.37	1.159			
<b>Creative Linguistic Self Scale as a Whole</b>	Pre-test	52.37	6.441	29	62.478	Significant at (0.01)
	Post-test	124.87	2.569			

The table above shows a difference between the mean total scores of the research group students in the creative linguistic self-scale as a whole for the pre- and post-applications, in favor of the post-application. The mean in the pre-application of the creative linguistic self-scale as a whole was (52.37), while it was (124.87) in the post-application, with a mean difference of (72.50) in favor of the post-application. The table also shows a statistically significant difference between the mean scores of the research group students in the pre- and post-applications of the creative linguistic self-scale as a whole, in favor of the post-application.



at the (0.01) level. The calculated "t" value was (62.478), which is significant at that level. This indicates a clear improvement in the dimensions of the creative linguistic self as a whole among the research group after using artificial intelligence applications.

The table also reveals the following:

- **Competence in the Creative Linguistic Self:** The mean scores of the research group students in the pre-application were (23.67), while the mean in the post-application was (55.60), with a mean difference of (31.93). The calculated "t" value for this dimension was (54.393), which is significant at the (0.01) level.
- **Sensation of the Creative Linguistic Self:** The mean scores in the pre-application were (15.47), while the mean in the post-application was (36.90), with a mean difference of (21.43). The calculated "t" value was (32.038), which is significant at the (0.01) level.
- **Attitude Toward the Creative Linguistic Self:** The mean scores in the pre-application were (13.23), while the mean in the post-application was (32.37), with a mean difference of (19.14). The calculated "t" value was (41.440), which is significant at the (0.01) level.

By calculating the "t" value and its significance, it is evident that there is a statistically significant difference between the mean scores of the research group students in the pre- and post-applications, in favor of the post-application. This indicates a noticeable improvement in the dimensions of the creative linguistic self among the research group of secondary school students after using artificial intelligence applications.

By calculating the effect sizes of artificial intelligence applications and their significance regarding the dimensions of the creative linguistic self, the effect sizes for the main dimensions (competence in the creative linguistic self, sensation of the creative linguistic self, attitude toward the creative linguistic self) were (0.99, 0.97, 0.98), respectively, all of which are highly significant. The effect size for the creative linguistic self-scale as a whole was (0.99), which is highly significant. This indicates that artificial intelligence applications have a substantial impact on developing the creative linguistic self among the research group students.

The above results can be interpreted as follows: The diversity of artificial intelligence applications used in teaching text topics, as well as linguistic tools and activities, stimulated students' attention and provided them with the opportunity for individual interaction with the content according to each student's abilities, potential, and readiness. This made them responsible for their own learning, enabling them to express their understanding of texts in their own way, use various learning resources, communicate, and work in teams through AI-based communication tools, and manage discussions and dialogues among themselves, with interactive chatbots, and with the teacher (online teacher). This helped them use the language efficiently, achieve learning enjoyment, and enhance their positive attitude toward themselves—all of which are dimensions of the creative linguistic self.



The current research findings align with previous studies and research that emphasized the importance of developing the dimensions of the linguistic and creative self among learners and that they can be enhanced through appropriate modern teaching programs and strategies. These studies include those by Wael Salah (2020), Mohamed Abdel Aziz (2020), Wajih Al-Morsi and Yasmine Mughib (2019), Suleiman Hamouda (2017), Nizar Mansour and Adnan Al-Abed (2016), and Abbott (2010).

The results also align with previous studies and research that highlighted the impact of artificial intelligence applications in the educational process in general and in developing cognitive and performance aspects of various skills in particular. These studies sought to enhance these aspects among learners at different educational stages, including studies by Haider Nasser (2022), Noha Abdel Hakim (2022), Ashwaq Dahman (2020), and Verm (2018).

#### **4.2. Study Recommendations:**

In light of the research findings, the following recommendations can be made:

- Paying attention to identifying the dimensions of the creative linguistic self-suitable for each grade level so that Arabic language teachers can incorporate these dimensions into their objectives when teaching Arabic and work on developing them among their students.
- Focusing on developing the dimensions of the creative linguistic self among learners at different educational stages due to the importance of these dimensions in their lives.
- Incorporating artificial intelligence activities into Arabic language curricula to stimulate learners' thinking and effectively develop their linguistic skills.
- Utilizing the tools of the current research when teaching students and training them on the dimensions of the creative linguistic self, as well as when evaluating their performance in these dimensions.

#### **4.3. Study Proposals:**

To complement the current research, the researcher proposes the following:

- Conducting a similar study to examine the impact of artificial intelligence applications on other student groups, at different educational stages, and with other variables.
- Conducting a similar study to explore the impact of artificial intelligence applications on developing creative reading skills and literary self among outstanding secondary school students.
- Conducting a study to evaluate the literature and texts curriculum in Al-Azhar secondary schools in light of the dimensions of the creative linguistic self.
- Conducting a study to evaluate the performance of Arabic language teachers in using artificial intelligence applications.



## 5. Acknowledgment:

The authors extend their appreciation to the Deanship of Scientific Research at King Faisal University for funding this research work through the project number **KFU251952**

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# Power System Technology

ISSN:1000-3673

*Received: 06-11-2024*

*Revised: 15-12-2024*

*Accepted: 05-01-2025*

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