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Measuring the Impact of Growing Self-Awareness Among 10th Grade Female Students Using Artificial Intelligence on Their Academic Achievement

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Abstract:

This study explored the impact of raising self-awareness among 10th-grade female students at Hussan Secondary Girls School in Bethlehem, using pre and posttest, semi-structured interviews, observation, and new Artificial Intelligence (AI)-powered digital coloring applications, for example; Pigment and Recolor. Across one school year, the study used a mixed-methods design to fully explore how the development of self-awareness using these instruments affects students' emotional control, motivation, and consequently, their academic performance in English language proficiency. Self- awareness is one of the most crucial skills in the social emotional learning style as it concerns with the person's feelings, emotions, strengths and weaknesses and try to improve one's knowledge of them. In Palestine, especially, adolescents' girls face many social and psychological challenges due to political conditions, cultural pressures and technological revolutions. This research filled this gap through integrating AI applications in order to let students freely express their emotions and handle difficult situations. The results revealed a significant improvement in students' emotional literacy and a notable academic achievement. The analysis of the quotative data have shown that the students' level in English language skills went up dramatically from 53% to 77%, with an increase of 24% in reading comprehension, writing, listening, speaking, grammar and vocabulary. Moreover, the qualitative information reflections from observations and interviews stated that self-confidence, stress management and better concentration were the outcomes of that intervention, which consequently highlighted a notable academic success. The findings show a great impact of utilizing SEL as a mechanism through the educational system, and the crucial effect of AI digital apps for supporting the academic improvement. Also, this study offers a genuine model for educators and school leaders seeking to apply SEL in the schooling system.

Keywords: *Self-Awareness; Social and Emotional Learning style; Artificial Intelligence; Academic Success.*

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قياس أثر تعزيز الوعي الذاتي لدى طالبات الصف العاشر باستخدام الذكاء الاصطناعي على تحصيلهن الأكاديمي

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ملخص:

استكشفت هذه الدراسة أثر تعزيز الوعي الذاتي لدى طالبات الصف العاشر في مدرسة حوسان الثانوية للبنات في بيت لحم، باستخدام اختبارين قبلي وبعدي، ومقابلات شبه منظمة، والملاحظة، وتطبيقات التلوين الرقمية المدعومة بالذكاء الاصطناعي، مثل تطبيق "بيغمنت (Pigment)" و"ريكلور (Recolor)" اعتمدت الدراسة على منهج البحث المختلط خلال عام دراسي كامل، بهدف تحليل كيفية تأثير تطوير الوعي الذاتي من خلال هذه الأدوات على ضبط الانفعالات لدى الطالبات، وتحفيزهن، وبالتالي على أدائهن الأكاديمي في مهارات اللغة الإنجليزية. ويُعد الوعي الذاتي من أهم المهارات ضمن إطار التعلم الاجتماعي العاطفي، حيث يركّز على مشاعر الفرد، وانفعالاته، ونقاط قوته وضعفه، ويسعى إلى تحسين إدراكه لهذه الجوانب. وفي السياق الفلسطيني، تواجه الفتيات المراهقات الكثير من التحديات الاجتماعية والنفسية نتيجة للظروف السياسية، والضغوط الثقافية، والثورات التكنولوجية. وقد جاءت هذه الدراسة لسد هذه الفجوة من خلال دمج تطبيقات الذكاء الاصطناعي التي تتيح للطالبات التعبير الحر عن مشاعرهن والتعامل مع المواقف الصعبة. وقد أظهرت النتائج تحسنًا ملحوظًا في الوعي العاطفي لدى الطالبات، إلى جانب تقدم أكاديمي بارز. حيث بيّن تحليل البيانات الكمية ارتفاع مستوى الطالبات في مهارات اللغة الإنجليزية من (53%) إلى (77%)، أي بزيادة بلغت (24%) في مجالات الفهم القرائي، والكتابة، والاستماع، والتحدث، والقواعد، والمفردات. أما البيانات النوعية المستخلصة من الملاحظات والمقابلات، فقد أشارت إلى أن نتائج هذا التدخل شملت تعزيز الثقة بالنفس، وتحسين القدرة على إدارة التوتر، وزيادة التركيز، مما أدى بدوره إلى نجاح أكاديمي ملحوظ. وتُبرز هذه النتائج الأثر الكبير لاستخدام أسلوب التعلم الاجتماعي العاطفي (SEL) كآلية ضمن النظام التعليمي، والدور الحاسم لتطبيقات الذكاء الاصطناعي في دعم التطور الأكاديمي. كما تقدّم هذه الدراسة أنموذجًا عمليًا حقيقيًا للمربين وقادة المدارس الراغبين في تطبيق هذا النهج ضمن النظام المدرسي.

الكلمات المفتاحية: *الوعي الذاتي؛ التعلّم الاجتماعي والعاطفي؛ الذكاء الاصطناعي؛ التحصيل الأكاديمي.*

1. Introduction

Education is being reshaped to include students' emotional and social development along with academic content. Social and Emotional Learning (SEL) contains of five skills: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. Among them, self-awareness — being aware of one's feelings, strengths, weaknesses, and behaviors — precedes academic success and personal growth.

In Palestine, students are subjected to heightened psychological stimuli due to political conditions and social problems. For adolescent girls, emotional development is magnified due to gender roles and cultural expectations. Despite that, SEL programs remain underdeveloped in the majority of Palestinian schools. The usage of Artificial Intelligence (AI) in education opens up new prospects for individualized learning, including emotional learning. AI tools like Pigment and Recolor enable students to express emotions through digital coloring, coupled with observation and interview to cultivate self-awareness. This study is interested in applying AI-supported methods for enhancing self-awareness among 10th-grade female students in Hussan Secondary Girls School in Bethlehem to determine the impact on their academic performance.

1.1 Research Significance

This study provides a real model for improving pupils' self-knowledge in Hussan Secondary Girls' School through applying Specific AI tools. Although the global increase of SEL and AI methods but measuring the impact of these tools on students' self-recognition is still needed. To fill this significant gap, this study was implemented. And the academic performances were observed and measured among female students. To date, no studies explored the effect of utilizing AI means such as Pigment and Recolor alongside with strategies of SEL learning style in a similar cultural and educational atmosphere. The absence of enough studies, gives this research a unique sense of responsibility as it draws the political circumstances and limitations in educational resources. In addition, the continuous attempts of personal growth and emotional regulations.

This study gives a solid foundation for implementing SEL means beside AI applications that support emotional expression. The previous tools combined with tests, interviews and observations to fill the critical research gap. By assessing the academic achievement and emotional qualifications, the study supplies practical evidence of the efficacy of this attitude. Moreover, even though the researcher used different methods to examine this approach, the research significantly emphasized the importance of technological aspects and their role of improving the students' emotional regulation and consequently their English proficiency.

Additionally, enhancing educational growth through using various digital methods and AI manners alongside with SEL practices presents a great approach to be implemented in schools and a great way of prioritizing modern schooling exercises. Not only for improving one's' skills but also for feelings explanations. This model highlighted the optimal use of AI as a beneficial medium of learning, Exploring, and improving a ide rage of qualifications.

1.2 Statement of the Problem

Although SEL is globally recognized, Palestinian schools continue to lack systematic application of the development of self-awareness with the help of AI tools. The lack of regular programs limits students' emotional growth and academic achievement. The primary problem addressed is: To what extent can self-awareness development using AI tools help achieve improved academic performance among 10th-grade female students?

1.3 Study Objectives

– To assess baseline and post-intervention English skill levels.

- To evaluate the effectiveness of AI in improving self-awareness.
- To identify the relationship between self-awareness and academic achievement.
- To gather feedback from students on AI-assisted SEL strategies.

1.4 Research Questions

- What is the basic level of English skills for the 10th grade female students?
- How can AI tools best be utilized to develop self-awareness?
- What are the effects of increased self-awareness on academic performance?
- What are the perceptions of students towards AI- improved self-awareness learning?

2. Literature Review and Theoretical Framework

The chapter integrates basic concepts and current research on Social and Emotional Learning (SEL), self-awareness as a basic skill, AI in education applications, and the relationship between emotional competencies and academic achievement.

2.1 Social and Emotional Learning (SEL) Frameworks

Social and emotional learning way consists of five competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Malchiodi, 2012). Self-recognition includes identifying feelings, personal values which guide behavior. After analyzing a huge number of studies concerning SEL studies, scholars confirm that SEL affects positively social behaviors, mental health and academic outcomes (Durlak et al., 2011; Taylor et al., 2017).

Furthermore, students can deal with obstacles and they can understand their emotions like anxiety, fear, boredom and furcation that may affect their focus. This emotional awareness empowers them to support better social norms and effective strategies to overcome serious conditions. For example, Techniques like deep breathing, positive self- talk, seeking social support may help them to stay concentrated and avoid distractions. As a result, this fosters persistence, resilience, and consistent emotional regulation to keep motivation through the academic journey.

Unfortunately, self- awareness is highly connected with self- efficacy and perseverance. Also, the academic performance is significantly affected by psychological aspects. For instance, believing in one's own qualifications and staying motivated can help achieve various learning goals. Therefore, achieving several tasks empowers students' resilience and confidence (Pekrun et al., 2002). Students with good emotional awareness can experience academic achievements and positive emotions like enjoyment and hope, and this rises their intrinsic motivation. In contrary, low self-esteem and overwhelming may lead to difficulties of dealing negative emotions and academic performances.

Schunk and DiBenedetto (2020) explained that the intervention of motivation, self-understanding and self- efficacy support learning environment and as a result this fosters learning behaviors. In addition, pupils with powerful high awareness levels can engage easily in various metacognitive strategies like monitoring, planning, and assessing their learning rank. Fortunately, empirical studies support theoretical ones such as Brackett et al. (2011) showed that good classroom behaviors and high scores in academic tests reflected students with great emotional intelligence competencies. Pekrun et al. (2002) also highlighted that emotional regulation is crucial through learning process underscores the importance of self-discipline. Schunk and DiBenedetto (2020) demonstrated that long-term academic success highly associated with motivation, resilience and perseverance. To sum up, long lasting educational success deeply linked with psychological perspectives. For example, fostering students' emotional regulation can have a powerful effect on their cognitive abilities.

2.2 Challenges in SEL Implementation in Palestine

There are a lot of obstacles appeared through implementing social and emotional learning in Palestinian schools. Some of them came from social and political background while others from cultural aspects. Moreover, the shortage of mental health resources and professionals in the educational domain. Schools always need guides, counselors, and psychologists. For example, SEL programs need several specialists to guide students and give necessary support. Because of the limited funding and infrastructure, the implementation of SEL is restricted (Abu Rass, 2019).

Security conditions and ongoing conflicts exacerbate the challenges. The continuous exposure to violent actions and displacement increases stress level among parents and students who are in a serious development stage. These circumstances not only affect pupils' well-being but also disrupt schooling consistency. In this case, SEL programs are tremendously required to support students socially and emotionally and to make great achievements.

Regarding cultural predicators, female students in various Palestinian communities are forbidden to express their emotions like talking about their own feelings or their needs of chatting with a mental health specialist which is stigmatized as a sign of weakness. This is a problem for educators who implement social and emotional learning practices as they try to foster students' emotional awareness but family and societal pressures prevent that. Moreover, the society identifies academic success as obtaining degrees with high marks rather than aligning them with good well-being and emotional awareness.

Consequently, applying social and emotional learning programs in Palestine remains restricted and limited. Also, the integration SEL into instruction is still under examination. To date, there is no core educational curriculum that addresses teaching SEL within the educational system; instead, it relies primarily depending on isolated workshops or individual initiatives.

Dealing with the formers challenges requires various sensitive and appropriate SEL models that can distinguish between various Palestinian students' cultural backgrounds, customers and traditions. While integrating AI tools to develop students' self- awareness contribute effectively to overcome some of the previous obstacles

2.3 Artificial Intelligence in Education

Artificial Intelligence (AI) are supported with sophisticated algorithms and various mechanisms that respond to learners' emotional states in reality. These systems analyze emotional cues like facial expressions and vocal tone and they give full interpretation among students' feelings like confusion, frustration and boredom (Luckin & Holmes, 2016; Calvo & D'Mello, 2010). For meeting pupils' needs, AI has effective computational skills that are used to analyze huge database regarding pupils' requirements. Consequently, this can create better learning environment.

One of the most beneficial AI aspects is that it can provide immediate feedback, emotional training and guidance. For instance, if a student's expresses stress or fear, AI provides calming exercises, motivational messages or writing strategies to get rid of negative energy. The previous responses can widen the students' way of thinking, so can choose the best way to regulate their emotions effectively and stay motivated even in challenging tasks. Conversely, the traditional classroom classes need the whole teacher's attentions over all students at once, AI provides various platforms deals with any students round the clock and help them to better understanding themselves through their learning process.

Studies integrating AI and Social and Emotional Learning (SEL) have shown considerable benefits in exceling students' emotional competencies. For instance, Gorman and Flatla (2018) demonstrated that teaching face to face and giving instant feedback not only developed students'

academic achievements but also increased their recognition of their states and feelings. The AI applications significantly impact pupils and help them to be emotionally and rationally competent in their learning process.

Moreover, AI tools helped teachers in difficult times, as they take his/her role of making the students calm and stay focused in overcrowded classes. Also, they can suggest modifications in classrooms environment to empower students' interactions and communication skills. This research supports the integration of AI methods through SEL learning way to foster students' concentration, emotional awareness and consequently academic success in their educational trip.

2.4 AI and Self-Awareness

Artificial Intelligence (AI) technologies have highly been recognized for their effectiveness of emotional understanding and cultivating students about themselves. AI systems are adapted to guide pupils through reflective and emotional procedures like providing immediate feedback as well as interactive experiences closer examination of one's internal feelings (Chen et al., 2020). In contrast to ancient techniques, AI- tools have the capacity to interpret hints from user's interactions, including facial expressions, selective patterns, and writing styles, to provide responses in real time that prompt students to explore and express their emotions more efficiently.

A very promising type of AI application for the development of self-awareness is digital coloring applications such as Pigment and Recolor. They enable creative and visual self-expression through the filling in of many designs with colors of one's choice, offering a silent yet emotional exploration and release. Coloring itself is therapeutic, as it has been shown to be a healing method; when combined with the adaptiveness of AI, such apps are capable of making the experience more responsive to the individual's emotional needs, thus enabling personalized emotional regulation strategies.

Pigment and recolor are examples of digital interactive coloring apps that help learners' emotional and educational growth. For example, students are able to release their feelings thought selecting a special design that express their complex states and they are able to choose or mix any colors to reflect symbolically what are difficult to explain. Also, AI tools have a wide range of lexical vocabulary that represents several colors. For example, velvet symbolizes mourning, grief and sorrow. Further, AI integration can provide coloring choices to encourage the user to make visual representation to internal emotional states. These interaction and communication between the student and the AI facilitate an effective understanding of one's feelings, promotes emotional literacy, and strengthens self-awareness.

Furthermore, AI means offer educators and pupils considerable insights into emotional development tracks. After analyzing various reflection forms, the AI tools helped to highlight areas of vulnerability and emotional strengths. Also, they give immediate feedback and enable students to modify their reactions then they provide support and guidance. As a results, students' motivation and self- recognition are increased and the academic outcomes are satisfactory.

To conclude, AI tools like Pigment and Recolor are not digital Interruptions but are ways of facilitating emotional reflection and the teaching of self-understanding. By joining technology with SEL approach, teachers can use these tools to support learners emotionally and that foster academic and personal growth.

2.5 Previous Research

Plenty of modern and contemporary studies discussed the effect of utilizing AI methods to especially enhance self- awareness in various environment. For example, Durlak et al. (2011)

conducted a study on over than 270,000 students to measure the impact of social and emotional learning style in schooling journey. The findings significantly showed an improvement on students' social intelligence which appeared on their communications skills and several interactions with others. Moreover, their level of stress reduced which was developed their concentration and consequently, they achieved various educational objectives and their academic level raised up by approximately 11%. They emphasized the significance of integrating social and emotional strategies into the academic curriculum. While Brackett et al. (2011) examined how distraction affects students' focus and academic achievement. In their study, the results revealed that students with higher self- recognition were academically successful, highlighting the basic role of self-awareness in their learning outcomes. Also, Chen et al. (2021) explained that there was a strong relationship between stress levels and learning gains, as the scholars used many AI applications like Pigment a Recolor in SEL programs to measure the effect of emotional expression on students' engagement and emotional reflection.

Moon (2006) was interested in writing strategies as a significant way of expressing one's self and get rid of negative energy. The study mentioned that gaining high academic record attached highly with emotional development and self- discipline. Her book expressed the use of tests as an effective mean of metacognitive enhancement in learning processes. Nonetheless, Abu Rass (2019) highlighted the specific psychological and emotional interests of Palestinian female students in social and emotional learning practices. And she emphasized on the needs of culturally responsive in SEL programs to improve learners' emotional expressions. Pekrun et al. (2002) clarified that students should work on their academic emotions like reducing anxiety and stress levels as that connected directly with their motivation and facilitating achieving their academic goals.

Schunk and DiBenedetto (2020) demonstrated that the key role of academic achievement is emotional awareness as it plays a crucial role in guiding students in their academic tracks and help them to stay motivated and focused. Rivers et al. (2013) also clarified that academic performance and classroom behavior highly affected from students' emotional intelligence and self- regulations. Moreover, Durlak et al. (2015) mentioned that SEL programs had positive impact on students' emotional well-being and personal goals. Further, Trentacosta and Fine (2010) found that early development of self-regulation and self-awareness skills produces better academic performance during schooling journey.

Immordino-Yang and Damasio (2007) clarified through neuroscientific evidence that in the learning procedure there is a significant link between cognitive abilities like memory and attention and emotional intelligence. Likewise, Gorman and Flatla (2018) demonstrated that AI software provided real-time feedback for students' responses and that tremendously motivated them and helped them to obtain high scores.

Ryan and Deci (2017), on the one hand, they stated that long term educational achievement directly correlated with intrinsic motivation. Moffitt et al. (2011), on the other, explained that better self-regulation in childhood leads to better social skills and educational qualifications in adulthood.

Finally, Taylor et al. (2017) confirmed that SEL integration into curriculum lead to significant academic success for learners. Together, these studies offer a comprehensive practical database of using AI means like digital coloring activities and quizzes through SEL programs and how that closely related to academic success and promotion. Additionally, emotional competencies and academic progress supported female Palestinian students' skills and achievement.

3. Methodology

3.1 Design of the Study

This study employed a mixed-methods design with the predominant focus on quantitative measurement of academic performance via tests with qualitative complementarity through the use of observations over the course of one academic year for self-awareness development and, subsequently, academic performance and interviews for documenting students' emotional and cognitive progress. The intervention consisted of a combination of AI-driven digital coloring applications (pigment and recolor).

3.2 Participants

The study sample consisted of 72 tenth-grade female students at Hussan Secondary Girls School in Bethlehem. The students were chosen by purposive selection to be representative of a typical group in terms of academic ability and socio-cultural background. All the participants volunteered to take part.

3.3 Data Collection Tools

- Academic Diagnostic Tests: In order to quantify academic achievement, pre- and post-intervention English language standardized diagnostic tests were administered. The tests assessed key English language competencies: reading comprehension, writing, listening, speaking, vocabulary, and grammar.
- AI-Based Digital Coloring Activities: weekly sessions of pigment and recolor allowed students to express their emotions and thoughts graphically, supplementing the tests, observation, interview practice, and supporting emotional regulation.
- Semi-Structured Interviews: Conducted twice—mid-year and post-intervention—with a stratified sample of 15 students to explore subjective experience and perceived impact on learning and self-awareness.
- Observation: Throughout the school year, students' behaviors were closely observed to assess the quality of their interactions with their peers and with their teachers. The observations also attempted to identify any visible reduction in aggressive behaviors.

3.4 Procedure

At the beginning of the academic year, Students completed the primary English diagnostic test to design a proficiency program that meet their needs. The same assessments technique holdup again at the end of the year to measure their progress. Throughout the year, the interviews were conducted to gather information from students about their self- awareness and how attitudes differ towards academic Works. Also, continuous observations and guidance were maintained to ensure consistency and engagement.

4. Results and Analysis

This part shows the findings of integration AI tools into SEL program in over one academic year. Both quantitative and qualitative data were analyzed. The diagnostic tests, interviews, observations and the students' responses in AI tools were gathered to measure how increasing self-awareness affects emotional regulations and consequently academic achievement.

4.1 Quantitative Results: Academic Achievement

The primary pre and posttest examined the differences in students' proficiency in English language skills; reading comprehension, writing, listening, speaking, grammar, and vocabulary. After analysis, the results indicate that there is a considerable improvement in students' English language

skills. The overall average developed from 53% to 77%, reflecting a 24% development in academic performance across six English areas.

Table 1: Diagnostic English Test Results (initial and final Intervention)

English Skill	initial-Intervention (%)	final-Intervention (%)	Improvement (%)
Reading Comprehension	55	78	+23
Writing	50	75	+25
Listening	52	77	+25
Speaking	53	76	+23
Vocabulary	54	78	+24
Grammar	53	76	+23
Overall Average	**53**	**77**	**+24**

The highest improvements were in writing and listening skills which they are highly affected by emotional recognition and self-confidence. Following by vocabulary with an outstanding development. Then speaking, grammar and reading comprehension ranked with slight differences from the previous skills. The results emphasized that AI tools and SEL programs affect students' academic scores effectively as that enhanced receptive and productive qualifications.

4.2 Qualitative Results: AI Activities, Interviews and Observations

Students noted that AI digital means, especially Pigment and Recolor played a key role in their life as they helped them to deal with internal conflicts and external academic stress. Artistic activities were intervened weekly to students' educational track. Through the sessions, learners were asked to creatively draw their emotions and express their personal challenges. The results were remarkable. Students had a better self-awareness of their emotional triggers, academic strengths, and areas of improvement. Digital coloring not only helped achieve emotional clarity but also helped the students learn to believe in their own abilities. Many of them were then able to regulate their stress levels and enhance their academic engagement.

4.4.1 Sample Student Responses in the Interviews:

- *"Coloring permitted me to communicate emotions that I was not able to put into words. It was soothing and made me feel calm before I started studying. I would occasionally open the app and merely choose colors that matched my mood, for instance, pale blues when I was unhappy or bright yellows when I was joyful.". After coloring, I felt like I had let something heavy fall, and it was easier for me to sit and concentrate on my lessons without feeling bogged down."*
- *"I feel more confident now to answer questions in class because I understand my emotions and don't get scared as before. I used to feel nervous all the time, thinking I would say something wrong or that others would laugh.". But now, when I feel that fear, I remember the words in my diary or the calmness after coloring. It reminds me I can do it, and it is okay to make mistakes. I now raise my hand more, and even if I don't say the right answer, I still feel good about trying.*
- *"When I was stressing out for tests, I would color in the app or write in it, and it calmed me down. I used to panic or feel like I couldn't breathe before. Now I just open my journal and write down what's bothering me, or I will color for ten minutes and listen to music. It calms down my mind, and I can think better.". I even slept better on the nights leading up to tests, and I was doing better on my exams."*
- *"the program made learning fun and helped me believe in myself more. I feel proud of my progress. i didn't expect that tests, observations, interviews and coloring could help me learn better, but it did. i enjoy writing about my day and expressing myself through colors.". it made me feel special, like my feelings and ideas are important. I used to doubt myself a lot, but now i feel stronger and more hopeful about what i can do in school and in my life."*

4.4.2 Interviews and Observations Analyses:

Both groups of interviewees firmly indicated that the application of AI tools, tests, observations, interviews had a positive effect on students' emotional awareness and regulation. Many students

stated that application of digital apps was enjoyable and secure. Because they had their personal space to freely externalize their inner world. This type of emotional release relieved their stress and anxiety, and boosted their psychological readiness to pursue academic goals. This is specifically needed in such environments filled with numerous triggers and high level of stress.

Also, learners exposed to several emotional states like anxiety and stress before exams. So, they became aware of themselves and this promote their metacognitive abilities. As a result, they were likely to increase their motivation, persistence, and concentration during classes. It's notable that motivation had a direct influence on students' engagement in classes' activities and this affected their personal growth in academic and emotional domains. A lot of students mentioned that their self- confidence and self-esteem increased significantly, for example, a students mentioned that her shyness were disappeared and she could speak in the classes. This qualitative finding is aligned with quantitative results which was clear in the diagnostic tests that there was a tremendous increase in students' performance academically and in speaking skills specifically.

In addition, most students reflected positively for the effect of AI methods and SEL practices, which both empowered them to overcome challenges and obstacles effectively.
They also tried to manage their emotions which previously represented like psychological barriers and this helped them to overcome the fear of failure and embarrassment. Therefore, the students created an active learning atmosphere. And they took some steps for effective language learning.
Additionally, students showed a more positive attitude toward learning. They described the intervention as empowering and fun. This intrinsic motivation is the base to long-term academic success. Additionally, these qualitative results validate the quantitative findings. Also, illustrating that the program's focus on self-awareness through AI-powered emotional expression and tests, observations, interviews not only enhanced emotional well-being but also resulted in measurable academic development.

Finally, the data show that increased self-awareness played a key role in academic growth. Students reported that emotional regulation and reflective activities reduced anxiety. Also, improved concentration, and fostered persistence in the face of difficult tasks. The digital coloring activities provided an enjoyable, low-risk outlet for emotional expression. This helped students to feel more comfortable, they interacted with others and faced learning challenges with greater confidence.

5. Discussion

The data collected from these analyses are strong highlighters that the cultivation of self-awareness through tests, observations, interviews and AI-supported tools such as pigment and recolor has a significantly positive effect on the academic performance of students. The quantitative data revealed a significant increase of 24% in all areas of the English language skills. Further, the qualitative data show a tangible difference in the emotional regulation, self-expression, and class participation of students. Students' responses in AI applications demonstrated their increasing ability to recognize emotional states and connect these with academic behaviors. Similarly, their performances during interviews and teacher observations, which appeared improvements in self-confidence, classroom interactions, and a good approach to learning. These improvements in emotional intelligence specifically self-awareness are an important element in academic success.

Among the most significant findings of this study is the ideal integration between emotional development and academic success. Those students who developed a better understanding of their emotions were better able to cope with classroom stress, stay focused in class, and strive through

challenging assignments. Emotional growth directly translated into academic performance. The link to academic engagement was also made evident in students' abilities to articulate goals, manage their reactions to mistakes, and communicate more assertively in English language activities. The AI tools supported these outcomes by allowing for a safe, personalized space for emotional release and self-discovery. This study supports previous research on the importance of SEL in the classroom. It aligns with Brackett et al. (2011), who highlighted the connection between emotional intelligence and academic success for students, and Moon (2006), who promoted the use of reflective writing to support metacognitive and emotional awareness. The results also support studies by Gorman and Flatla (2018) and Chen et al. (2020), who demonstrated that AI-supported learning can improve learning outcomes and emotional competencies. What is culturally and contextually distinctive about this research is as follows: a focus on female Palestinian students in a rural area, where the relative lack of provision of emotional support makes the case for the inclusion of SEL even more compelling.

5.1 Implications for Practice

The findings have practical applications for teachers, policymakers, and school leaders. Schools working in resource-poor environments can incorporate low-cost, technology-enabled SEL interventions to strengthen students' emotional development and academic performance. AI-driven tools such as Pigment and Recolor can be utilized even with minimal training and infrastructure.

teachers must be trained in sel practices, e.g., how to integrate tests, observations, interviews and reflection activities into daily teaching. administrators must also visualize the long-term benefit of emotional learning on academic persistence and must provide structures that would allow such integration.

5.2 Limitations

Although the findings are positive, the study has several challenges:

- The sample included only 72 female students from one school, limiting generalizability.
- The duration was limited to a single school year.
- The study was interested in English language learning and did not assess transfer to other subjects.

Future studies should include larger, more diverse samples, be conducted in male and mixed settings, and assess consequences in other school subjects.

6. Conclusion

this chapter discussed how the evolution of self-awareness under the umbrella of guided tests, observations, interviews and AI-based activities results in emotional resilience and academic success. The findings strongly suggest that when students are emotionally stable, their potential for engagement, persistence, and achievement at school improves considerably. These findings provide a foundation for replicating and expanding the program in similar school contexts.

6. Recommendations

6.1 For Teachers

1. Implement Daily SEL Practices: Teachers must implement brief self-awareness practices, such as drawing activities or emotion check-ins, into daily English lessons.

2. Use AI Tools: Teachers have to use online tools like Pigment and Recolor to enable creative emotional expression. These tools support introverted students who may struggle with verbal expression and interacting with others.

3. Develop Emotional expressions: include SEL vocabulary inti curricula to enhance students' abilities to express their emotions in English.

6.2 For School Leaders and Policymakers

1. Invest in Technology and Training: schools must be provided with sufficient AI tools and teachers should have trainings to enable them implement SEL programs.
2. Support SEL Curriculum Development: a core SEL curriculum must be created to make sure that students' have emotional capacity to handle difficult circumstances.
3. Monitor and Evaluate Progress: Schools must assess both emotional and academic progress periodically through reflective writing or journaling and AI platform.

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