Journal of Statistics Applications & Probability
An International Journal

http://dx.doi.org/10.18576/jsap/150317

The Impact of AI-Driven Learning Technologies on Academic Motivation of Students with Learning Disabilities

Nadia Ghalia[1,], Sawsan Kara[2], Ahlam Darawsheh [3], Mawaheb kheir Mustafa[2] and Hiyam Abu Reya[4]*

[1] The Academic Arab College for Education in Haifa, Israel
[2] An Educator Ministry of Education, Dalyat El Karmel, Israel
[3] Department of Education and Arabic Language Lecturer, Kay College, Beer Sheva, Israel
[4] An educator Ministry of Education, Sakhnin, Israel

Received: 2 Mar. 2026, Revised: 2 Apr. 2026, Accepted: 22 Apr. 2026.
Published online: 1 May 2026.

Abstract: In this paper, we investigate the statistical analysis of AI-driven learning technologies and their impact on the academic motivation of students with learning disabilities using a semi-experimental design with experimental and control groups. The sample consisted of 48 students with learning disabilities selected from inclusive schools in the Upper Galilee, who were randomly assigned to an experimental group (25 students) and a control group (23 students). The results showed that the AI-driven learning environment had a positive and statistically significant impact on students' academic motivation. In light of the findings, the study presents several recommendations.

Keywords: AI-Driven learning technologies, Academic Motivation, Students with Learning Disabilities, Upper Galilee, Inclusive Schools.

1. Introduction

AI-driven learning technologies are reshaping the way students engage with academic content by offering personalized, interactive, and learner-centered experiences. These tools support motivation by providing instant feedback, adjusting to individual learning speeds, and encouraging active participation. Students often feel more motivated and confident when they can clearly see their progress and receive targeted support in areas where they struggle. For this reason, it is important for educators and institutions to understand how AI affects students' motivation and self-belief so that these tools can be applied effectively [1].

Another key benefit of AI-based learning tools is their ability to accommodate different learning styles. Students differ in how they learn best: some prefer reading, others learn more effectively through videos, while some benefit from hands-on activities. AI systems can recognize these differences and provide learning materials that align with individual preferences. This personalized approach helps students feel more comfortable and confident. As they are learning in ways that suit they best. As a result, students are more likely to remain engaged and sustain interest in their studies. Personalized learning can be particularly helpful for students who struggle with traditional teaching methods. For instance, if a student finds reading difficult, AI tools may present information through interactive activities or videos, making concepts easier to understand. Such support can reduce frustration and increase motivation [2].

AI has become an important part of education. AI learning tools are computer programs that help students learn based on their individual needs. These tools can change the pace of lessons depending on how well a student understands the topic. If a student learns quickly, the lesson moves faster. If the student has difficulty, the tool slows down and explains the content more clearly. AI learning tools also give immediate feedback, so students know right away whether their answers are correct or not. This quick feedback helps students stay motivated and continue learning [3]. Motivation means the desire to learn and improve. When students feel capable and interested, they are more willing to learn. Because AI tools are interactive and engaging, they make learning more enjoyable and meaningful, encouraging students to stay focused and eager to learn more [4].

One way this motivation can be strengthened is through the use of AI-based learning tools, which offer continuous and constructive feedback on students' progress. For example, many AI systems highlight students' strengths while also identifying areas for improvement in a supportive and non-threatening manner. This type of feedback helps learners develop trust in their own abilities and gain greater independence in their achievements and are motivated to work harder independent [5].

However, the influence of AI learning tools on student motivation largely depends on how these tools are designed and implemented. If the tools are too difficult or poorly matched to a student's learning level, they may cause frustration instead of motivation. Such frustration can reduce interest in learning and negatively affect students' confidence. In addition to design

*Corresponding author e-mail: Nadiahgalie@arabcol.ac.il

© 2026 NSP
Natural Sciences Publishing Cor.

factors, the role of teachers and schools in introducing and supporting the use of AI tools is essential. When educators clearly explain the benefits of these tools and guide students in using them effectively, learners are more likely to develop positive attitudes toward AI- supported learning. Supportive teachers who encourage the use of AI and demonstrate its value can increase students' willingness to engage with these technologies [6].

Despite these advantages, AI learning tools cannot replace teachers and should instead function alongside them. Educators play a crucial role in motivating students, understanding their emotional needs, and providing support that technology alone cannot offer. At the same time, AI tools can assist teachers by handling routine tasks such as grading or providing practice activities, allowing educators to focus more on personalized interaction with students. When AI tools are used effectively in combination with teacher support, the learning environment becomes more responsive to students' needs, fostering higher levels of motivation and academic confidence [7, 8,9].

2. Literature Review

In recent years, AI-based learning tools have become increasingly integrated into education, prompting extensive research into their impact on learning outcomes. These tools support personalized learning by adapting content, pace, and feedback to individual student needs, which can enhance engagement and comprehension [10, 11].

Personalization is particularly important because students learn at different speeds and in different ways. When learning experiences feel tailored, students often report increased motivation and stronger involvement in the learning process. However, special education literature cautions that the effectiveness of AI tools depends heavily on proper implementation and adequate guidance during their use [12].

Teacher's involvement is constantly identified as a key factor in the successful use of AI learning tools. Teachers help students understand how to use these technologies effectively and provide emotional and instructional support [13]. Research shows that when educators actively integrate AI into teaching strategies, students tend to demonstrate higher motivation and confidence [14, 15]. In contrast, a lack of teacher guidance can result in confusion and decreased engagement. Ongoing research continues to examine optimal ways for teachers to collaborate with AI systems to improve learning outcomes and student well-being [16].

Zhang [8] confirmed that AI learning tools can enhance student motivation by adapting instructional content to individual skill levels and learning speeds [17]. Immediate feedback helps students identify and correct mistakes quickly, encouraging continued learning. Interactive features such as gamified quizzes and educational games can also make learning more engaging [18, 19]. However, motivation is influenced not only by technology but also by the quality of design and support provided. Tools that are too complex or confusing may discourage students [20].

Teacher guidance remains essential to help students use AI tools effectively and maintain engagement. Therefore, AI tools can promote motivation when combined with appropriate instructional support and thoughtful design [21].

The concept of motivation identifies why students feel encouraged to participate in the educational process and persist even during the hard times. Motivation has an important role in the educational process that utilizes AI because nowadays students deal with machines rather than human instructors which means that a student can be motivate using AI tools with immediate feedback, gradual guidance and scaling [22] [23].

In the same vein, AI tools such as Chat GPT offer strong means to deliver an important learning experience in special education, especially for students with learning disabilities [24]. These tools help student in improving their academic achievement by offering multimodal learning content (text, audio, and visuals), enhancing comprehension, and promoting motivation [25]. Motivation help student to improve their learning outcomes, and fosters students' desire to actively participate in the learning process [26]. Creating supportive and interactive learning environments that employ advanced tools such as AI can further enhance this motivation [27].

3. Previous Studies

Using a sample of (60) university students, Arslanova et al. [28] examined the impact of AI on student motivation and cognitive skills in higher education. To achieve the objective of the study, a questionnaire was employed. The results showed that there is a positive significant correlation between AI technologies and student motivation on the one hand, and between AI technologies and cognitive skills on the other hand.

Azizah et al. [29] examined the impact of Artificial Intelligence on students' learning motivation in the digital era. The researchers employed a qualitative descriptive method by reviewing (10) previous studies. The findings indicated that the use of AI has positive effects on student learning motivation, learning efficiency, material understanding and autonomy.

Moreover, Duisenova and Zhorabekova [30] investigated the influence of gamification and artificial intelligence (AI) on the

© 2026 NSP
Natural Sciences Publishing Cor.

motivation and efficacy of primary school students in acquiring English language skills. The study sample consisted of (398) male and female students. To achieve the objective of the study, a mixed-methods research approach was adopted. The results showed that the use of gamification and AI in acquiring English language skills has a positive impact on motivation and efficacy of primary school students.

Pertiwi et al. [31] evaluated the Impact of Artificial Intelligence-Based Learning Methods on students' motivation and academic achievement. The researchers employed a quantitative research paradigm by reviewing (11) previous studies that examined the impact of integrating AI in educational settings. The findings revealed that the use of AI in educational settings has a positive impact on students' motivation, their academic achievement and learning experiences.

In another study, Alkenani et al. [32] investigated the effectiveness of an educational support strategy utilizing artificial intelligence (Chat GPT) in enhancing motivation among students with learning disabilities. The study sample included (40) male and female students divided into two study groups (Experimental, Control). To achieve the objective of the study, a quasi-experimental approach was employed. The results showed that there were statistically significant differences, in favor of the experimental group students, between the posttest means scores on the motivation scale which indicates that Chat GPT-Driven educational support training program on enhancing motivation among students with learning disabilities.

In the same vein, ElSayad and Mamdouh [33] examined the extent to which AI-powered Chatbots can fulfill students' basic psychological needs (namely, perceived autonomy, competence, and relatedness) and how fulfilling these needs impacts their motivation (including attitude and self-managed learning) and learning outcomes. The study sample included (312) students. This study showed that perceived autonomy and competence have significant positive effects on students' attitudes and self-managed learning, while perceived relatedness effects only self-managed learning. Moreover, both attitude and self-managed learning directly influence performance impact and experience satisfaction. In addition, attitude and self-managed learning serve as mediating mechanisms through which perceived autonomy and competence indirectly shape students' perceptions of performance and satisfaction.

Moreover, Hussain et al. [23] examined the effects of AI-based learning tools on the academic self-concept and the motivation of students at the university. The study sample consisted of (250) students. To achieve the objectives of the study, a quantitative paradigm was employed. The results showed that there is positive correlation between the usage of AI-based learning tools and student motivation.

4. Problem of the Study

Despite the growing integration of AI-based learning tools in schools and higher education institutions, many students continue to struggle with low motivation and limited confidence in their academic abilities. Ai learning tools are expected to enhance students' motivation and confidence by offering personalized learning experiences and providing immediate feedback. However, there is still limited understanding of how effective these tools are in improving students' motivation in real educational settings[34].

Furthermore, the effectiveness of AI-based learning tools may depend significantly on how they are introduced and supported by teachers. Without proper guidance, students may not use these tools effectively or fully benefit from their features. Unfortunately, the role of teachers in supporting and facilitating the use of AI tools is often overlooked in studies examining the implementation of educational technology. As a result, schools and educators may struggle to utilize AI- learning tools in the most effective manner. If these issues are not addressed, students' difficulties related to motivation and academic confidence are likely to persist.

Employing AI as a learning tool has been ignored in special education literature as one way to increase learning motivation which is an important personal variable affecting the academic achievement of special education students, especially students with learning disabilities who can benefit from this important advanced tool to commemorate their achievement in the different school subjects. As the researchers are special education teachers working with student with learning disabilities in resourserooms, they notice that employing AI in resource rooms present different advantages for this group of students sense it is well known that students nowadays heavily depend on technology as a main source of information which indicate that they prefer to acquire information using technological tools, a topic that is not examined properly in special education literature.

5. Questions of the study

1. What is the impact an AI Based Training Program on Academic Motivation of Students with learning disabilities?
2. Are there statistically significant differences between the mean scores of Students with learning disabilities on academic motivation scale between the posttest and delayed test?

© 2026 NSP
Natural Sciences Publishing Cor.

6. Significance of the Study

The significance of this study stem from the fact that it enhances the understanding of how AI-based learning tools influence students' motivation and their perception of their academic abilities. By identifying the effects of these tools, educators and educational institutions can adopt more effective strategies for integrating AI into teaching practices, making learning more engaging and less stressful for students, especially students with learning disabilities. Increased motivation and confidence can encourage students to invest greater effort in their academic work and improve overall performances.

In addition, this study highlights the critical role of special education teachers' support and guidance in ensuring the effective use of AI learning tools. When teachers are adequately trained and actively assist their students in using these technologies, learning outcomes are more likely to improve. The findings of this research may therefore help schools improve teacher training programs related to educational technology integration. Overall, this study contributes to the advancement of education by promoting student confidence, motivation, and effective engagement with AI-based learning tools, which can ultimately lead to better academic achievement.

7. Objectives of the Study

The Objectives of this study are as follows:

- To examine the impact of AI-based learning tools on student motivation.
- To identify whether the acquired academic variable representing by learning motivation maintains after the completion of the training program.

8. Definition of Terms

Artificial Intelligence (AI): A technology that enables computers and machines to simulate the natural intelligence of human [34].

In this study, AI is an advanced technological tool that uses cognitive processes similar to those employed by human when working on solving problems.

AI Based Training Program: a set of training sessions based on AI containing group of activities and procedures targeting improving levels of academic motivation among students with learning disabilities.

Motivation: The internal and external factors that motivate an individual to take actions, set goals, and persist in goal-directed behavior [35].

In this study, motivation is an inner emotion stimulated students with learning disabilities to put their fullest effort in the learning experience presenting to them in AI based training program.

Students of Learning Disabilities: A disorder in the brain that involves neurological differences in the brain structure of the individuals suffering from learning disabilities [36], [39].

In this study, Students encountering some difficulties in learning different school subjects and is included in public schools with average students or being referred to resource rooms to be given specific learning tasks.

9. Limitations of the Study

The limitations of this study can be presented in the followings:

- The sample of the study was confined to students with learning disabilities, thus the results cannot be generalized to average students.
- The study was conducted in Upper Galilee inclusive schools, and this means that the results obtained in this study cannot be generalized to other geographic regions.
- The study was conducted in the first semester of the school year 2025/2026 and this limits the generalization of the results to other periods.

10. Method

The study employed a semi-experimental research paradigm based on randomly assigning the study sample into two study groups represented by the experimental group and the control group. This research design targets identifying the effect of one educational tool such as a training program, virtual reality in learning environment on promoting a positive variable or reducing a negative one.

© 2026 NSP
Natural Sciences Publishing Cor.

This research paradigm intends to make a comparison between the effect of a specific research tool (in education, a teaching strategy; in counseling, therapeutic strategy; …etc.), so that at the end of the employment of this research, the tool can affirm or refute the advantages of using the intended research tool [37].

11. Study Sample

The study sample consisted of (48) students with learning disabilities selected from Upper Galilee inclusive schools. The students were randomly assigned into two groups, the first representing the experimental and included (25) students with learning disabilities, while the second representing the control group included (23) students with learning disabilities.

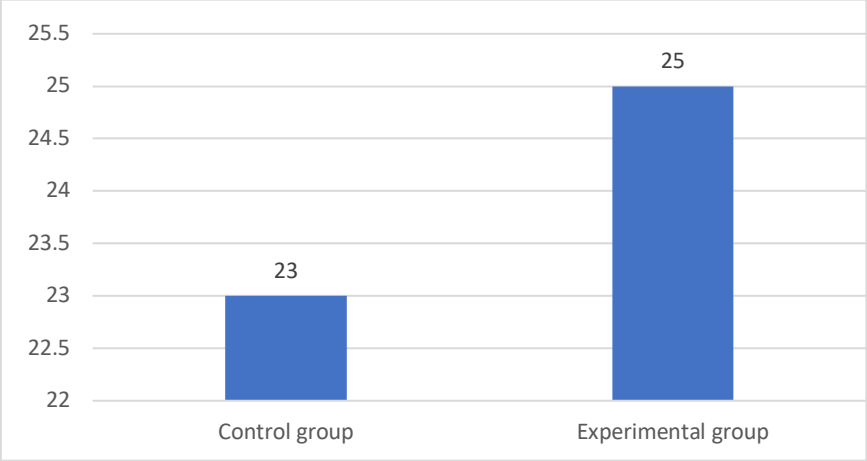

Fig. 1: Disturbing of the study sample according to the groups (Experimental, Control).

The sample consisted of (48) students with learning disabilities, divided into two groups: a control group with (23) students with learning disabilities (47.9%) and an experimental group with (25) students with learning disabilities (52.1%). This distribution indicates a relatively balanced allocation between the groups, which helps ensure comparability for the purpose of evaluating the effect of the AI-driven technologies. Although the groups are not perfectly equal in size, the slight difference is minimal and unlikely to substantially affect the reliability of the results. Overall, the sample provides a reasonable basis for examining the impact of the intervention while maintaining a near-even representation across conditions.

Table 1: Correlation between the item and the whole score for The Impact of an AI Based Training Program on Academic Motivation of Students of Learning Disabilities

Item no	Corr.
1	0.85
2	0.52
3	0.57
4	0.67
5	0.81
6	0.52
7	0.83
8	0.69
9	0.61
10	0.74
11	0.83
12	0.54
13	0.39
14	0.39
15	0.46
16	0.72

The results presented in Table (2) indicate that the item–total correlation coefficients for the scale measuring the impact of an AI-driven technologies on the academic motivation of students with learning disabilities range from (0.39) to (0.85). Most items show moderate to high positive correlations with the total score, suggesting that they are consistent with the overall construct being measured and contribute meaningfully to the scale. Items with particularly high correlations (e.g., items 1, 5, 7, and 11) demonstrate strong alignment with the total score, reflecting good internal consistency. Although a few items

© 2026 NSP
Natural Sciences Publishing Cor.

(items 13 and 14) show relatively lower correlations, they still fall within an acceptable range, indicating that they remain relevant to the construct. Overall, these findings support the validity and internal coherence of the instrument used to assess academic motivation in the context of AI-driven technologies.

AI-Driven Learning Environment

The researchers employed AI-Driven learning material in school subjects, Science and Mathematics, and designed lessons based on the employment of AI technology as the main tool for introducing the learning material to students with learning disabilities. For example, in one science lesson covering the parts of human body to students with learning disabilities, the researchers asked AI via Chat GPT to design a lesson addressing parts of the human body. As a result, Chat GPT presented some holograms of the different parts of human body with commentaries about the function of each part. In one mathematics lesson, the researchers used long division as one of the most important mathematical problems students with learning disabilities faced challenges when working on them. Using Chat GPT, long division lesson was presented to students with learning disabilities explaining in detail each step of this mathematical problem while guiding students from one step to another. The majority of students were very pleased when they work in AI-Driven environment since they felt that they controlled the pace of their learning.

12. Results

What is the impact an AI-driven technologies on Academic Motivation of Students with Learning Disabilities?

To answer this question, descriptive statistics were computed for the impact of AI Based Training Program on Academic Motivation of Students of Learning Disabilities, for control and experimental group as shown in the following table:

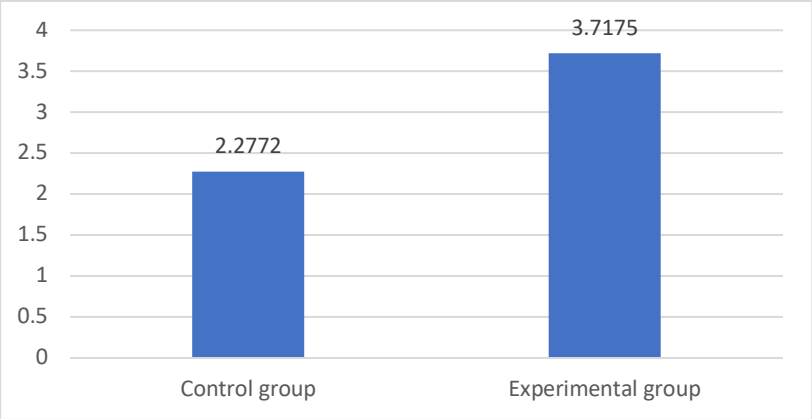

Fig. 2: Descriptive statistics for control and experimental group

To address the impact of an AI-based training program on the academic motivation of students with learning disabilities, descriptive statistics were calculated for both the control and experimental groups. As shown in the table, the control group (N = 23) had a mean score of (2.2772) with a standard deviation of (0.61896), while the experimental group (N = 25), which received the AI-based training, had a notably higher mean of (3.7175) with a standard deviation of (0.92282). To study the impact an AI-driven technologies on academic motivation of students of learning disabilities, the researchers computed Univariate analysis and eta as shown in the following table:

Table 2: Univariate analysis and eta for the impact an AI Based Training Program on Academic Motivation of Students of Learning Disabilities

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	24.851(a)	1	24.851	39.601	.000	.463
Intercept	430.485	1	430.485	685.989	.000	.937
test	24.851	1	24.851	39.601	.000	.463
Error	28.867	46	.628			
Total	493.629	48				
Corrected Total	53.718	47				

a R Squared = .463 (Adjusted R Squared = .451)

The results of the univariate analysis, as shown in Table (4), indicate a significant effect of the AI-driven technologies on the

© 2026 NSP
Natural Sciences Publishing Cor.

academic motivation of students with learning disabilities. The model yielded an F-value of (39.601) with a p-value of (.000), demonstrating a statistically significant difference between the groups. The Partial Eta Squared value of (.463) indicates a large effect size, suggesting that approximately (46.3%) of the variance in academic motivation can be attributed to the intervention. The high intercept F-value ***(f = 685.989, p = .000)*** reflects the overall variability in the dependent variable, while the corrected model R Squared of .463 (adjusted R Squared = .451) confirms that the model explains a substantial proportion of the variance in academic motivation. Overall, these findings provide strong evidences that the AI-driven technologies have a significant and meaningful impact on enhancing academic motivation among students with learning disabilities, these results can be illustrated in the fowling figure.

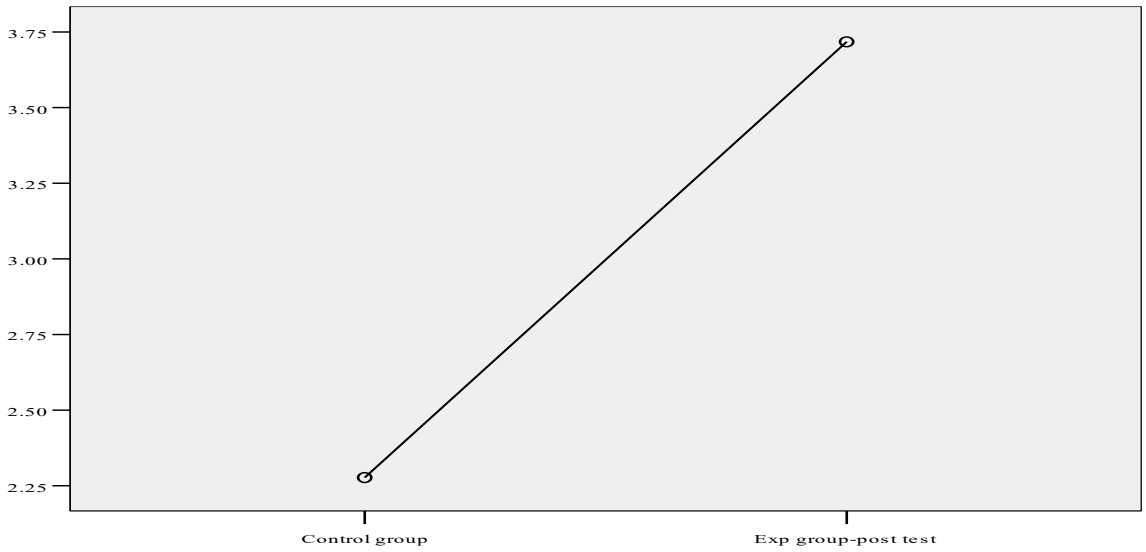

Fig. 3: Estimated Marginal Means of Academic Motivation

Are there statistically significant differences between the mean scores of Students with Learning Disabilities on academic motivation scale between the posttest and delayed test?

To answer this question, descriptive statistics were computed for the impact of AI Based Training Program on Academic Motivation of Students of Learning Disabilities, for posttest and delayed test, as shown in the following table:

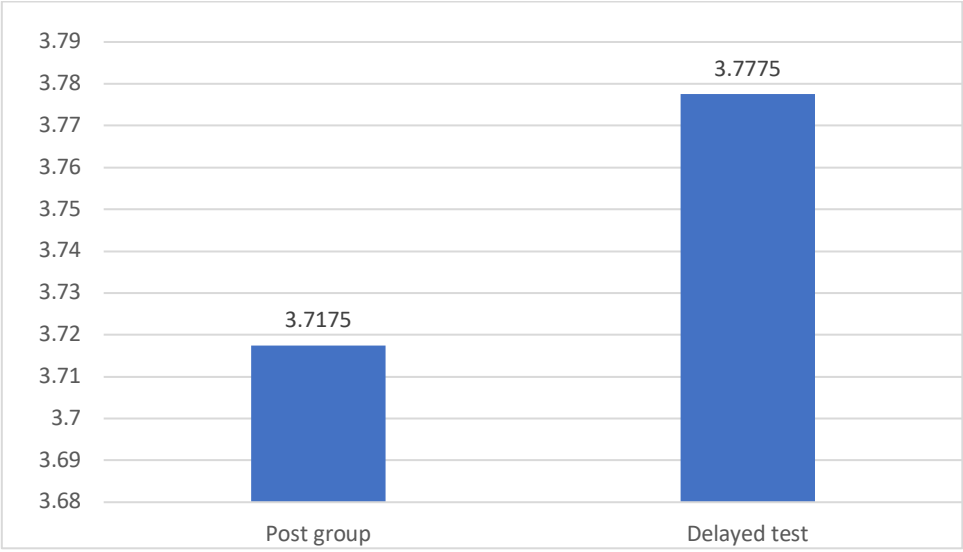

Fig. 4: Desc. Statistics for posttest and delayed test for the experimental group

© 2026 NSP
Natural Sciences Publishing Cor.

The descriptive statistics for the posttest and delayed test of academic motivation among students with learning disabilities indicate that the mean score for the posttest group (N = 25) was 3.7175 with a standard deviation of 0.92282, while the delayed test group (N = 25) had a slightly higher mean of 3.7775 with a standard deviation of 0.81412. The researcher computed univariate analysis and eta as shown in the following table:

Table 3: Univariate analysis and eta for the impact an AI Based Training Program on Academic Motivation of Students of Learning Disabilities due to test (post and delayed test)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.045(a)	1	.045	.059	.808	.001
Intercept	702.188	1	702.188	927.355	.000	.951
test	.045	1	.045	.059	.808	.001
Error	36.345	48	.757			
Total	738.578	50				
Corrected Total	36.390	49				

The Univariate analysis results shown in the table indicate that there is no statistically significant difference in academic motivation between the posttest and delayed test for students with learning disabilities. The F-value for the test effect is 0.059 with a p-value of 0.808, which is well above the conventional significance threshold ($p < 0.05$). The Partial Eta Squared value of (0.001) suggests a negligible effect size, indicating that the timing of the test (posttest versus delayed test) explains almost none of the variance in academic motivation. The high intercept F-value ***(F = 927.355, p = 0.000)*** reflects the overall variability in the scores, but the intervention's effect remained stable over time these results can be illustrated in the fowling figure.

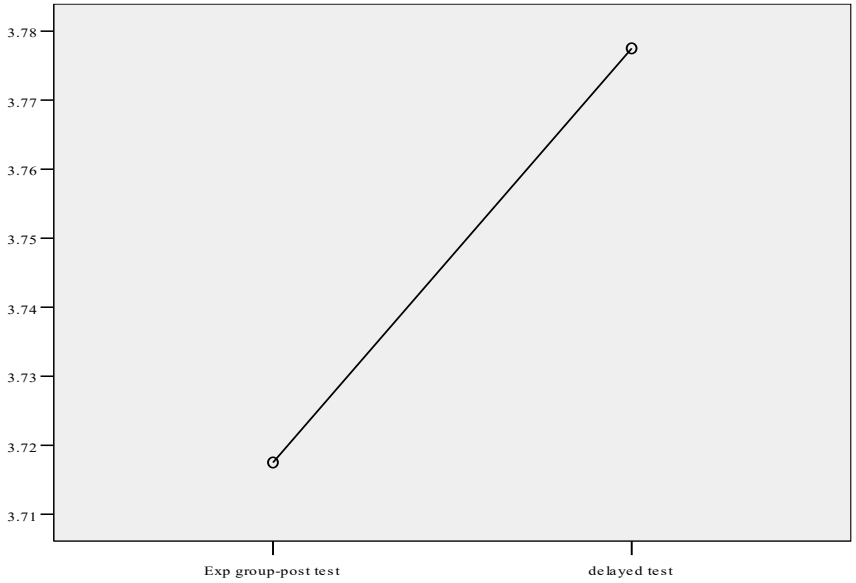

Fig. 5: Estimated Marginal Means of Academic Motivation

13. Discussion

This study examined the impact of AI-Driven learning technologies on academic motivation with students of learning disabilities and found that there is a statistically significant positive impact for AI-based training program on the academic motivation of students with learning disabilities. This result can be explained by the fact that AI-Driven learning technologies have the potential to support students learning of different school subjects since it provides them with personalized learning experiences conforming to their abilities. This is significantly important for students with learning disabilities included in public schools as they cannot keep up with average students in the same class. As known the inclusion students with learning disabilities presents several challenges to both features an average student and this dictates the needs to capitalize of advanced technologies to make the learning experience easier for this group of students.

© 2026 NSP
Natural Sciences Publishing Cor.

Furthermore, it is documented in previous literature that using AI in educational context has several advantages. For example, Belitz et al. [2] have pointed out that making use of AI technology is an effective tool having the ability to support students learning in various educational environments. The researchers further claimed that teachers can benefit from AI-Driven technologies to support students' acquisition of the targeted skills stated in the lesson plans. As the researchers are specialist in special education, they believe that students with learning disabilities are in a better place to employ AI-Driven technologies to meet their special needs, particularly in inclusive schools. They cannot keep with average students in a specific school subjects such as science and mathematics which necessitate using higher thinking skills; something the majority of them lack [36]. Additionally, the results of this study have proven that AI-Driven technologies can create invaluable opportunities for students with learning disabilities. In this respect, Pertiwi et al. [31] have confirmed that students from different groups can benefit from AI-Driven technologies in designing their own learning environment that is set to their needs and their preferred learning styles. With the suitable teacher guidance that resource room's teachers have, students with learning disabilities are able to employ AI-Driven technologies to make their virtual learning settings according to their academic abilities and skills and this will eventually have a positive effect on their academic self-efficacy which is the main source of learning motivation. In their future learning endeavor, students with learning disabilities will come to classes in inclusive public schools with higher hopes and aspirations. In this sense, they will be present in their heart and soul since they believe that they can acquire the learning content as their peers if AI-Driven technologies are appropriately used. By the assistance provided by a special education teacher, teacher in public schools can give student with learning disabilities the chance to live their fullest academic potential as these technologies can help them overcome the difficulties and challenges this group of students brings to class.

Likewise, Alkenani et al. [25] have stressed that AI technologies are a powerful tool having the ability to deliver learning experiences in special education and this is particularly true for students with learning disabilities. They can offer the learning content in various models and in the manner students with learning disabilities feel comfortable. AI technologies can make students with learning disabilities deal with the learning content in a written form or visually and even auditory. As the current study has presented the learning content into school subjects (Science and Mathematics), students with learning disabilities expressed their positive emotions well knowing that they were given the opportunities to learn science and mathematics differently (e.g. holograms, …etc.) and this improved their academic self-concept which in turn contributed in increasing their academic motivation. In the researcher's point of view, employing AI-Driven technologies is not an arbitrary decision as they acknowledge the fact that AI has become an integral part of individual's life. They took advantage of this fact and began this research quest by examining how AI-Driven technologies can be positively employed with students with learning disabilities [41]. The results of this study confirmed that this research effort is only one step in special education field and this is evident by the results confirming that AI-Driven technologies have a positive impact on learning motivation of students with learning disabilities. This opens new ventures for future researchers who can build on the current study and investigate how AI-Driven technologies maybe used to change some of the behavioral study habit of students with learning disabilities. This is significantly crucial for special education field of study, especially when working with student with learning disabilities, when knowing that this advanced technology can, and is able to, assist special education teachers manage the problems students with learning disabilities bring to learning settings [3], [40].

Affirming the important role of AI-Driven technologies, Qi et al. [4] have called educators to better use AI technologies as one of the learning tools that can assist them provide students with multimodal learning experiences; something that will increase their academic achievement, thus, develop learning motivation among students. The researches brought to surface one of the most interesting fact in education by shedding light on how teachers, especially special education ones, may and should capitalize the many opportunities AI-Driven technologies can help in improving the academic life of students.

As for the result of the second question indicated that there are no statistically significant differences between the mean scores of students with learning disabilities responses on the post and delayed test of learning motivation scale which implies the acquire skills due to the use of AI- Driven technologies have lasted for one month after the completion of the learning environment provided by the researcher. It is documented in educational psychology literature that inner variables that are increased or improved by the use of a specific training program or a technological tool are more likely to be part of the student's personality. As known, learning motivation is simply the desire to seek improvement it the way one ability to learn the content presented to him/ her in the educational context.

Bandura [38] is one of the first educational psychologists who stressed the importance of motivation for students in the different levels. He claimed that boosting inner motivation is a key factor for academic progress and achievement as the student feels that he/she is responsible of his/her own learning and this develops positive learning skills such as autonomous learning and general self-efficacy. Since the researchers in the current study were eager to work on improving students learning motivation, they make sure that the design of the learning experiences given to students with learning disabilities can meet their own needs.

Furthermore, students participating in the current study have work hard in the different stages of learning experiences

© 2026 NSP
Natural Sciences Publishing Cor.

administration to them as they showed enthusiasm while working on the learning tasks giving to them during their participation. In the same vein, the researchers provided immediate feedback to student with learning disabilities and this enabled their deep understanding of the problems they work on. The researchers were careful to select science and mathematics as the school subjects they worked on with student so the skills they acquired in the AI-Driven technologies leaning environment will have a deep impact on the way they look to learning as a lifelong experience. This was evident in their results on the delayed test of learning motivation scale. This is significant and gives evidences and proofs that to deliver an effective learning tool- represented in this study by AI-Driven technologies- can assist both teachers and students to be immersed in active learning experiences which their impact will continue for long period. The learning experiences of students with learning disabilities in the current study have become part of their academic self-concept which in turn was mirrored by their academic behaviors.

The researchers also worked on assuring students with learning disabilities participating in the current study that they are available at all times if any of them has inquires or needs help. This was a very important faction in the sustainability of the skills acquire as a result of participating in the learning environment driven by AI technologies as this increased learning motivation among students with learning disabilities. This was reflected in their academic behaviors after the participation in this active learning environment supported by the use of AI-Driven technologies.

14. Recommendations

Based on the results, the study recommends:

- Resource room's teachers should be trained to effectively employ AI-Driven technologies as part of their teaching practices since they have proven to be very effective in helping students with learning disabilities improve their learning motivation.
- Educational authorities should provide resource room's teachers with training programs addressing the positive employment of AI-Driven technologies in special education learning environment.
- Resource rooms must be equipped with the needed infrastructure facilitating the easy used of AI-Driven technologies.
- Future researches may investigate the employment of AI-Driven technologies to improve other variables such as academic self-concept, general self-efficacy, and internal locus of control.

Conflicts of Interest Statement

The authors certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript

References

[1] Kataria, K., Nain, H., & Kumar, A. (2024). A Bibliometric Analysis: Minimalism Only Gateway to Achieve Sustainability and Happiness. *Global Journal of Enterprise Information System, 16*(1), 57-69.

[2] Belitz, C., Lee, H., Nasiar, N., Fancsali, S. E., Stinar, F., Almoubayyed, H., Ritter, S., Baker, R. S., Ocumpaugh, J., & Bosch, N. (2025). *Exploring student identity in adaptive learning systems through qualitative data.* International Conference on Artificial Intelligence in Education, Italy.

[3] Chiu, T., Moorhouse, B., Chai, C., & Ismailov, M. (2024). Teacher support and student motivation to learn with Artificial Intelligence (AI) based chatbot. *Interactive Learning Environments, 32*(7), 3240-3256.

[4] Qi, Y., Liu, Z., Cao, S., Han, Y., Wang, Q., Liu, X., & Wu, H. (2023). Social value orientation modulates behavioral and neural responses to social influence. *Human brain mapping, 44*(8), 3222-3231.

[5] Johnson, L., Smith, J. and Brown, K. (2019) Feedback Mechanisms in the Age of AI: Improving Performance Evaluation. *International Journal of Human Resource Management*, 32, 521-537.

[6] Shang, Y., Wang, J., & Qi, X. (2025). *A Learner-AI-Parent Collaboration Framework for Home Learning Environment.* International Conference on Artificial Intelligence in Education.

[7] Davis, I., Abel, S., Feldman, C., & Bedford, A. (2022). *Playing tertiary tetris: Valuing the voices of casual educators in higher education.* Proceedings of the 44th Higher Education Research and Development Society of Australasia Annual Conference.

© 2026 NSP
Natural Sciences Publishing Cor.

[8] ALAwAmRAh, A , Ajmi, H, Darawsheh, N , Darawsheh, O, Urabi, O.(2024).*Analyzing Student's Perceptions about the Values of Digital Citizenship,* Journal of Statistics Applications and Probability, 2024, 13(4), pp. 1279–1288**.**

[9] Darawsheh, N. (2018). The Reality of The Challenges Faced By Graduate Students In The Faculties Of Educational Sciences In Jordanian Universities, *JIRSEA,* 16(2),132-140,(2018).

[10] Zhang, H. (2024). Psychological wellbeing in Chinese university students: Insights into the influences of academic self-concept, teacher support, and student engagement. *Frontiers in psychology,* 14: 1-15.

[11] Hatamala, H ,Darawsheh, N. (2019). The Challenges of the Application of the Productive University's Philosophy In Jordanian Universities and Ways of Developing Them from The Perspective of Academic Leaders,*Journal of Institutional Research South East Asia***,** 17(1), pp. 93–117,(2019).

[12] Kim, H. (2025). *Analyzing students' long-term motivational and emotional effects on achievement performance within and across diverse socioeconomic backgrounds.* Unpublished PhD Thesis, Pepperdine University, USA

[13] Konak, A., & Clarke, C. (2023). *Augmenting critical thinking skills in programming education through leveraging chat GPT: analysis of its opportunities and consequences.* 2023 Fall Mid Atlantic Conference: Meeting our students where they are and getting them where they need to be.

[14] Kammer, J., Evans, S., & Klein, J. (2024). Redesigning for Open Educational Practices: A Faculty Librarian Collaboration. Proceedings of the ALISE Annual Conference.

[15] Alrashdan,H , Al Ajmi, H; Alnasraween, M and Karra, S. (2022). Efficiency Determinants of Educational Wastage Programs, Journal of Education and eLearning Research, 9(2): 79-86.

[16] Wang, Y., & Kou, H. (2024). From Motivation to Satisfaction: Unveiling the Mediating Role of Affective Experience in Online Art Education. *The Asia-Pacific Education Researcher, 34*(6), 1-16.

[17] Alrashdan, H., Darawsheh, N., Almheiri, A., Aljanabi, Y., Al-Khataybeh, M., & Al-Quran, N. (2025). The Effect of Administrative Bullying on the Quality of Education. *Educational Process: International Journal, 18*, e2025515.

[18] Sánchez-García, C., Reigal, R., Hernández-Martos, J., Hernández-Mendo, A., & Morales Sánchez, V. (2024). Engagement in transformational leadership by teachers influences the levels of self-esteem, motor self-efficacy, enjoyment, and intention to be active in physical education students. *Sports, 12*(7), 1-12

[19] Alkharman , J ,. Drawsheh ,. S,. Al-Khataybeh , M,. BaniYounes , Z,. Darawsheh , N,. Alrashdan, H,. (2024). Cyber Attacks and its Implication to National Security: The Need for International Law Enforcement, Pakistan Journal of Criminology, 16(3), pp. 851–864

[20] Geddam, R., Khanpara, P., Ghiria, H., & Patel, T. (2024). In the Educational Nexus: Understanding the Sequential Influence of Big Five Personality Traits, Major Identity, and Self-Esteem on Academic Outcomes through Clustering Algorithms. *Scalable Computing: Practice and Experience, 25*(6), 4477–4492.

[21] Johnson, A. P., & Hamblin, T. (2022). Do words matter? : Using inquiry and the politics of naming to promote critical global citizenship education. *Social Studies Research and Practice, 17*(1), 50-63.

[22] Darawsheh, N, Alrashdan, H, Alzawaideh, M, Thaer Ajouly, Almheiri, A, Aldarmaki, I .(2024). Administrative Empowerment Among Academic Leaders And its Relationship to the Quality of Work Life of Faculty Member, *Journal of Ecohumanism***,** 3(7), 5172–5184

[23] Hussain, S., Zia, M., Zaki, N., & Iqba, M. (2025). The Impact of AI-Based Learning Tools on Student Motivation and Academic Self-Concept. *The Critical Review of Social Sciences Studies, 3*(3), 1570 – 1584.

[24] Darawsheh, N; Al-Khataybeh, M; Alrashdan, H; Drawsheh, S; Abu Grarh, A; and abu dogush, M .(2024) "Coexistence skills among mothers of children with multiple disabilities in the northern region of Jordan (IRBID)," ***Journal of Statistics Applications & Probability***: 13(2), 665-680.

[25] Alkenani1,R., Sharadgah, M., Al Momani, R., Hamadneh, B., Alseraa, M., & Elngar, A. (2025). Evaluating the effectiveness of ChatGPT-driven educational support in improving motivation among students with learning disabilities. *Appl. Math. Inf. Sci., 19* (6), 1383-1395.

[26] Alrashdan, H; Darawsheh, N; Aabed, S; Bsoul, M; Ganayem, S; and Mhameed, M. (2023). Analyzing University Administration's Impact on Faculty Digital Self-Learning, ***Journal of Statistics Applications and Probability***, 12, 1591–1601

© 2026 NSP
Natural Sciences Publishing Cor.

[27] Alkharman , Jamal ,. Drawsheh ,. Sonia,. Al-Khataybeh , Majid,. BaniYounes , Zein,. Darawsheh , N,. Alrashdan, H,. .(2024). Cyber Attacks and its Implication to National Security: The Need for International Law Enforcement, Pakistan Journal of Criminology, 16(3), pp. 851–864

[28] Arslanova, K., Amangeldiyev, A. & Aitpayev, A. (2024). The impact of AI on student motivation and cognitive skills in higher education. *Международный научный журнал «ВЕСТНИК НАУКИ», 11*(2), 1034-1052.

[29] Azizah, N., Roudloh, I., & Hidayani, S. (2024). The impact of Artificial Intelligence on students' learning motivation in the digital era. *Jurnal Intelek Insan Cendikia, 2* (12), 19421- 19427.

[30] Duisenova, M., & Zhorabekova, A. (2024). The efficacy of gamification and Artificial Intelligence in enhancing the motivation and efficacy of primary school kids in learning English. *Известия. серии «Педагогические науки», 73* (2), 1-15.

[31] Pertiwi, R., Kulsum, L., & Hanifah, I. (2024). Evaluating the impact of Artificial Intelligence-Based learning methods on students' motivation and academic achievement. *International Journal of Post Axial: Futuristic Teaching and Learning, 2* (1), 49-58.

[32] Alrashdan, H; Darawsheh, N; Aabed, S; Bsoul, M; Ganayem, S; and Mhameed, M. (2023). Analyzing University Administration's Impact on Faculty Digital Self-Learning, Journal of Statistics Applications and Probability, 12, 1591–1601.

[33] ElSayad, G., & Mamdouh, H. (2025). AI-driven learning: evaluating the role of chatbots in enhancing student motivation and learning outcomes. *Journal of Applied Research in Higher Education, 17* (1), 1–13.

[34] Hooda, M., Rana, C., Dahiya, O., Rizwan, A., & Hossain, M. (2022). Artificial Intelligence for assessment and feedback to enhance student success in higher education. *Mathematical Problems in Engineering, 2022* (1), 1-19.

[35] Darawsheh, N , Alrashdan, H , Al-Khataybeh, M , Al Ajmi, H , almheiri, A , Shaglof,A , Aldarmaki, I , BaniYounes, Z and Aidi,R .(2026). The Degree of Impact of Organizational Intelligence Obstacles in the Digital Age, Journal of Statistics Applications & Probability, *An International Journal*, 14(6), 985-995.

[36] Almheiri, A, Albastaki, Z and Alrashdan,H. (2025). AI- Based Tutoring Systems in Education: A Systematic Literature Review on Personalized Learning, Intelligent Agents, and Learning Analytics, *IGI Global Scientific Publishing, Chapter 7*, P 185-210.

[37] Capili, B., & Anastas, J. (2025). An Introduction to the Quasi-Experimental Design (Nonrandomized Design). *Am J Nurs., 124*(11): 50–52.

[38] Bandhu, D., Mohan, M., Nittala, N., & Jadhav, P. (2024). Theories of motivation: A comprehensive analysis of human behavior drivers. *Acta Psychologica,* 244: 1-16.

[39] Harahsheh,A, , Alzboun,M , Hamadneh ,M , Dawoud,T and Alrashdan, H.(2023). Perception of E-Learning's Role in Shaping Post-Pandemic University Education: Evaluating Its Positive and Negative Effects on Returning to Traditional class, *Information Sciences Letters An International Journal,* 12(10), 2575-2598

[40] Darawsheh,. N.; Alkailanee, K.; Alquran, N.; AL-Dawuod, T.; Nawafleh, M.; and Jaradat, H.. Almomany. H. Alrashdan. E. Almomany (2023). Leading with Love and Its Relationship to Faculty Members' Job Loyalty in Jordanian Universities, *Information Sciences Letters*, 12(8), pp. 2511–2520.

© 2026 NSP
Natural Sciences Publishing Cor.