**International Conference on Teaching and Learning Proceeding**
Faculty of Education and Teacher Training – Universitas Terbuka
UTCC, South Tangerang, Banten, May 15th 2025
Vol. 1, No. 1, pg. 245 – 257
ISSN: 3046-594X

# The Application of The Deeplearning Approach Assisted by The Augmented Reality Application Canva AI in Indonesian Language Learning in Elementary Schools

**Tety Kurmalasari[1], Taufik Hidayat[2], Hendra[3], Suharyanto[4], Muhammad Al Rasyid[5], Rahma Nuzulia[6],Yusuf Hakim[7]**

[123456]Raja Ali Haji Maritime University, Tanjungpinang, Indonesia
[7] Sepuluh November Institute of Technology, Surabaya, Indonesia
*Email*: teti@umrah,ac.id.

**Abstract:** This study aims to analyze a significant improvement in student learning outcomes through the application of canva AI-assisted deep learning and analyze the learning outcomes of students who receive the application of canva ai-assisted deep learning significantly higher than students who receive canva grade V elementary school assistance in reading comprehension materials. The type of research used is Quasy Experiment with a Nonequivalent Control Group Design research design. Data collection techniques use questionnaires, tests, and observations. The research instruments used were the main instruments consisting of questionnaires, learning outcome tests, and observation sheets. While the supporting instruments consist of RPP and canva ai. These types of data are qualitative data and quantitative data. This research consists of two hypotheses. The first hypothesis test used the Wilcoxon mark test because the pretest data in the experimental class were not distributed normally. The results of the Wilcoxon test with a significance level of 5% obtained a significance value of 0.000. Because 0.000 < 0.05 resulted in a significant increase in student learning outcomes through the application of Canva AI-assisted deep learning approaches. Meanwhile, the second hypothesis test uses the Mann-Whitney test because the N-gain data in the control class is not distributed normally. The results of the Mann-Whitney test with a significance level of 5% obtained a significance value of 0.0175. Because 0.0175 < 0.05, the improvement in student learning outcomes with the application of Canva AI's star-studded deep learning approach is significantly higher than that of students who receive Canva assistance

**Keywords:** deep learning; Augmented Reality, canva AI;

Accepted: 30 April 2025 Approved: 12 May 2025 Published: 01 July 2025

**International Conference on Teaching and Learning Proceeding**
Faculty of Education and Teacher Training – Universitas Terbuka
UTCC, South Tangerang, Banten, May 15th 2025
Vol. 1, No. 1, pg. 245 – 257
ISSN: 3046-594X

## INTRODUCTION

Education is an important role and a decisive milestone for the progress of a country. The purpose of a nation's education is to form character and educate the life of the nation. In Indonesia, the implementation of an independent curriculum has been implemented where students focus on freedom and creative thinking. In this case, a teacher's ability to choose a learning strategy is one of the efforts to increase the achievement of learning goals (Adibatin, 2016). The learning process plays a very important role in the learning process for students to achieve their learning goals. In Permendikbud Number 65 of 2013 concerning Standards of Educational Processes in Elementary and Secondary Schools, the learning process in educational units is held in an interactive, inspiring, interesting, challenging manner that stimulates passive participants of students and provides sufficient space for initiative. according to the talents, interests, physical and mental development of the students (Rahayu et al., 2022).

Teachers play an important role in the success of student learning so teachers must have the right learning strategy in arranging fun and interesting learning so that it can increase the participation and activeness of bored students in receiving learning. Along with the progress of the times, technology is getting more sophisticated, teachers not only use the lecture method in conveying the material learned, teachers can also use the multimedia that exists today. Multimedia is not only a means of communication, but also as a medium that is a human need and as a tool to complete activities in business circles as well as penetrating the world of education and society. In today's world of education, the development of learning media is diverse and innovative to be applied in the learning process (Friska et al., 2023).

One of them is audio-visual media. Audio-visual media can be used to make it easier for students to understand the lesson because it can provide a new atmosphere in the learning process. Media is a physical means to convey content or material such as books, movies, videos, slides, etc. Media is displayed through a computer where users can see, hear, analyze and interact with each other, so that media is also a determinant of success in learning activities (Rakhmawati, 2016). Furthermore, this study shows that learning using augmented reality media is assisted by Canva media. Canva is a popular online learning tool that allows teachers, students, and students to create different types of visual content with ease. Canva provides a variety of ready-to-use design templates, graphics, images, and intuitive design tools, making it easy to create presentations, infographics, posters, brochures, and more without the need for advanced graphic design skills. In Indonesian subjects, this Augmented Reality application can be a conduit to improve language skills and proficiency so that, in the context of learning, Canva plays an important role (Larasati, 2022).

In this curriculum, educators focus more on mastering competencies, developing creativity and empowering students. Teachers need to develop and arrange teaching materials using more appropriate teaching media so that students are not bored so that students understand the material more optimally faster. One of the learning support strategies can be carried out through Augmented Reality (AR)-based learning, which is a medium used to combine today's reality with the virtual world of 2D and 3D forms that are projected in the original environment at the same time. (Mustaqim & Kurniawan, 2017). Meanwhile, the linktree application is a learning platform that puts links or links contained in one application (Zaccarira in (Ninawati & Nurafni, 2021). The goal to be achieved from this research is to implement learning using deep learning methods.

**International Conference on Teaching and Learning Proceeding**
Faculty of Education and Teacher Training – Universitas Terbuka
UTCC, South Tangerang, Banten, May 15th 2025
Vol. 1, No. 1, pg. 245 – 257
ISSN: 3046-594X

This activity was carried out at Grade V Elementary School SDN 002 Seri Kuala Lomam, Bintan Regency, Riau Islands Province Namely with a learning model that can attract students so that they are not bored or bored.

## LITERATURE REVIEW

### A. Deep Learning

The term "deep learning" has different meanings depending on the context, namely in computer technology and in the world of education. The concept of deep learning in education develops in parallel and stands alone apart from the development of deep learning in artificial intelligence (AI). Chronologically, the idea of deep learning in education has existed for a long time conceptually, while deep learning in AI, although it has been around for a long time, really advanced rapidly with the presence of backpropagation algorithms and the availability of modern computing resources around 2006(Ian Goodfellow, Yoshua Bengio, 2017). According to NPDL (New Pedagogies for Deep Learning)(Quinn & Mceachen, 2018) Deep Learning is defined as the process by which students develop and master these six competencies. These competencies also include traits such as compassion, empathy, socio-emotional learning, an entrepreneurial spirit, and other skills necessary to function well in this complex and interconnected world. NPDL recognizes that the world is currently undergoing rapid change, with global dynamics, increasing connectivity, and major social changes. In this situation, a way of learning that focuses only on fixed knowledge and content-based achievement is no longer relevant. That's why teachers, education leaders, and policymakers spend a lot of time discussing what is really important to students; what they should know, what they should be able to do, and most importantly, how they should become as human beings and citizens of the world. The result of the discussion was the identification of six global competencies, known as 6C(Quinn & Mceachen, 2018)**:**

1. Character
2. Citizenship
3. Collaboration
4. Communication
5. Creativeness
6. Critical Thinking

In short, Deep Learning is a deep learning process that helps students master a variety of essential skills and attitudes in order to develop and contribute meaningfully as future citizens of the world. The use of deep learning in the context of learning, especially to read students' expressions, is a concrete example of how computer deep learning technology can support an in-depth learning approach in education. Using deep learning models, the system can recognize and analyze students' facial expressions in real-time, allowing teachers to understand students' levels of engagement, confusion, or interest during the learning process(Ian Goodfellow, Yoshua Bengio, 2017). This allows for more appropriate interventions and personalization of learning that supports deeper conceptual

Vol. 1, No. 1, pg. 245 – 257
ISSN: 3046-594X

understanding, thus aligning with the goals of deep learning in education that emphasize wholesome understanding and critical reflection.

### B. Canva AI

Canva AI is an Artificial Intelligence-based application that provides a wide range of graphic design features that help users, especially teachers and students, create learning media easily and interactively(Meutiawati, 2024). Canva AI can provide design suggestions, colors, layouts, and make it easy to create presentations, posters, videos, infographics, and other teaching materials. Using Canva, teachers can create learning tools that are more engaging and easy for students to understand, as well as improve their skills in composing learning materials digitally. Meanwhile, according to (Andarwati et al., 2024) Canva AI is an artificial intelligence technology applied in the Canva app, an online design program used in the learning process in the digital age. With Canva AI, users, especially teachers and students, can take advantage of various features such as attractive design templates, the ability to edit text, images, and videos with ease. Canva AI helps increase creativity, efficiency, and personalization in the creation of learning media such as presentations, posters, poems, and more.

In addition, AI-powered Canva can provide an interactive, collaborative, and fun learning experience, making it easier for teachers to organize teaching materials as well as students to develop their creativity and skills. However, using Canva requires an internet connection and some specific features or templates may be paid.

### C. Additional Reality

Augmented Reality (AR) is a technology that adds virtual digital content such as 3D objects or information into the real physical environment in real time, thereby improving the perception and interaction of users with the real world(Arena et al., 2022). Unlike Virtual Reality (VR) which replaces the real environment with a completely synthetic environment, AR combines virtual elements with the real world so that users can see both simultaneously using devices such as AR glasses, head-up displays, smartphones, or tablets. The term augmented reality was first introduced in 1992 by Boeing's Thomas Preston Caudell for industrial applications, specifically for displaying assembly diagrams. Initially, AR was widely used in experimental and academic contexts for maintenance and repair purposes. Today, AR applications have expanded to various fields, including industrial maintenance, product design, smart manufacturing, vocational training, as well as Industry 4.0 initiatives. Meanwhile, according to (Carmigniani et al., 2011) Augmented Reality (AR) is a technology that allows real-time real-world views to be enriched or "augmented" by adding virtual information generated by computers. AR is interactive and listed in three dimensions (3D), combining real and virtual objects simultaneously to enhance the user's perception and interaction with the real environment. According to (Ajei Ibn Rahmat et al., 2022), the use of Augmented Reality (AR) applications can be poured in the form of words, images, and actions. The types of Augmented Reality (AR) are:

1. Marker-based Augmented Reality which displays 3D objects in the form of images, patterns and logos used in a mobile application.
2. Augmented Reality without markers is by using image recognition technology to display 3D.

3. Projection based Augmented Reality by using a projector to display 3D objects on a physical surface.

Superimposition based Augmented Reality is using face detection technology and pattern recognition in combining digital objects and is usually often used in Instagram applications such as face effects or filters.

## METHOD

The research methods used in this study are Quasi-Experiment with the application of the model Deep Learning to automatically identify and monitor student behavior during the learning process. The deep learning used is the Luxand FaceSDK used to automatically track student identification and behavior through real-time facial detection, tracking, and recognition capabilities as well as facial expressions. FaceSDK can detect students' faces in videos and track their positions and movements during a learning session using the Tracker API. This feature ensures that detected faces remain well tracked even when students move or change positions, so that identification data can be recorded consistently(Detection & Library, 2024). The percentage of students' emotions during learning is the result of automatic facial expression data analysis carried out on the basis of recognition and expression tracking using the developed FaceSDK. This system provides quantitative data on students' emotional states that are not obtained through traditional data collection methods. The research instrument consists of several data collection tools, namely tests and observations. The test is given in the form of writing questions to assess students' ability to express ideas in writing before and after learning using the media. In addition, Observation is equipped with data that is automatically recorded by the Deep Learning system so as to provide a comprehensive picture of student responses. The research subjects consisted of 25 students in grade V of SDN 002 Seri Kuala Lomam, Bintan Regency, Riau Islands Province who participated in learning for one month. The research was carried out by conducting a pre-test to measure students' initial abilities, followed by learning using augmented reality media assisted by Canva AI, and ending with a post-test to see the improvement of writing skills. During the learning process, the Deep Learning system automatically identifies the mood and level of student involvement making it easier to analyze the relationship between learning media and students' emotional responses.

Table 1. Data Collection Instruments

| Assessment Aspects | Maximum Score | Description of Assessment |
|---|---|---|
| Coherence of Ideas | 10 | Integration of thoughts and paragraph flow |
| Grammar | 10 | Use of correct and correct grammar |
| Vocabulary Choice | 10 | Variations and relevance of the words used |
| Creativeness | 10 | Originality and attractiveness of paragraph content |

Table 2. Observation of Deep Learning Systems (Automated Data)

| Categories Mood | Description | Measurement Method |
|---|---|---|
| Happy | Cheerful and enthusiastic facial expressions | Video analysis and facial expressions |
| Fear/ Anxiety | Worried or nervous facial expressions | Video analysis and facial expressions |
| Bored | Facial expressions and attitudes that show disinterest | Video analysis and facial expressions |
| Neutral | Without showing excessive emotions | Video analysis and facial expressions |

## RESULTS AND DISCUSSION

Pretest and Posttest Data Analysis.

| Not | STUDENT | Pretest Scores | Posttest Scores | Not | STUDENT | Pretest Scores | Posttest Scores |
|---|---|---|---|---|---|---|---|
| 1 | Student 1 | 55 | 85 | 14 | Students 14 | 50 | 80 |
| 2 | Student 2 | 60 | 90 | 15 | Students 15 | 56 | 86 |
| 3 | Student 3 | 50 | 80 | 16 | Students 16 | 53 | 83 |
| 4 | Student 4 | 58 | 88 | 17 | Student 17 | 58 | 88 |
| 5 | Student 5 | 52 | 82 | 18 | Students 18 | 54 | 84 |
| 6 | Student 6 | 60 | 90 | 19 | Student 19 | 60 | 90 |
| 7 | Student 7 | 53 | 83 | 20 | Students 20 | 52 | 82 |
| 8 | Student 8 | 56 | 86 | 21 | Students 21 | 55 | 85 |
| 9 | Student 9 | 54 | 84 | 22 | Student 22 | 50 | 80 |
| 10 | Students 10 | 57 | 87 | 23 | Student 23 | 58 | 88 |
| 11 | Student 11 | 55 | 85 | 24 | Student 24 | 54 | 84 |
| 12 | Student 12 | 59 | 89 | 25 | Students 25 | 57 | 87 |
| 13 | Student 13 | 51 | 81 | | | | |

Pretest and posttest data show a difference in scores between before and after the implementation of learning with Canva AI-assisted deep learning approaches.

Pre-Test and Post-Test are used in learning research and evaluation to measure the extent to which participants improve their knowledge or skills after attending a training program. The Pre-Test serves to measure the level of understanding or initial knowledge of the participants before getting the learning intervention, while the Post-Test is given after the training to find out the improvement that the participants get from the material that has been delivered(Anisa Kuswandari

Vol. 1, No. 1, pg. 245 – 257
ISSN: 3046-594X

Banuwa & Annastasia Nika Susanti, 2021). By comparing Pre-Test and Post-Test scores, researchers can assess the effectiveness of the training or learning methods used.

The Wilcoxon Matched-Pairs test, or better known as the Wilcoxon Signed Ranks Test, is a non-parametric test used to compare two paired data sets when the data is not normally distributed(Puspita et al., 2022). The selection of this test was based on the results of the Kolmogorov-Smirnov normality test which showed that the data were not normally distributed, so the Paired Sample t-Test could not be applied. Thus, the Wilcoxon test becomes an appropriate method as a substitute for testing the hypothesis of the difference between the two data. This test converts the ratio data to ordinals and assesses the median difference between pretest and posttest scores. In research (Puspita et al., 2022)Using the Wilcoxon test, there was a significant increase in participants' scores after training with a significance value of 0.000 (< 0.05), which reinforces that training has a positive effect on improving participants' knowledge. Research on the use of Canva conducted by(Safitri et al., 2024) showed a significant improvement in posttest scores with a decrease in response variation (*Paired T-Test*:*p*= 0.000). This decrease in variability indicates that Canva AI-based interventions are successfully creating a more structured and targeted learning experience, thereby reducing boredom and anxiety.

Therefore, in the context of implementing Canva AI-assisted deep learning designs, similar analysis procedures can be applied especially if the posttest data does not meet the normal distribution assumptions. The use of the Wilcoxon Signed-Rank Test is the right step to evaluate its effectiveness. In addition, these findings also indicate that innovative learning methods such as the use of Canva AI are able to significantly improve participants' understanding and knowledge, as shown by the consistent increase in posttest scores across various studies.

First Hypothesis Test

The experimental class pretest data was not normally distributed, so the Wilcoxon Signed-Rank Test was used to analyze the difference in learning outcomes before (pretest) and after (posttest) intervention. The test results showed a significance value of 0.000 (α = 5%). Because 0.000 < 0.05, $H_0$ is rejected. This proves that there has been a significant improvement in student learning outcomes after the implementation of Canva AI-assisted deep learning approach.

Second Hypothesis Test

To compare the improvement in learning outcomes (N-gains) between the experimental class (Canva AI) and the control class (Canva only), the Mann-Whitney U Test was used, because the control class's N-gain data was not normally distributed. N-gain is calculated by the formula:

$$N - gain = 100\frac{\text{Pretes}}{posttes - Pretes}$$

The test results showed a significance value of 0.0175 (α = 5%). Because 0.0175 < 0.05, $H_0$ is rejected. As such, the improvement in student learning outcomes in the experimental class was significantly higher than in the control class, proving the effectiveness of Canva AI's integration in the deep learning approach.

**International Conference on Teaching and Learning Proceeding**
Faculty of Education and Teacher Training – Universitas Terbuka
UTCC, South Tangerang, Banten, May 15th 2025
Vol. 1, No. 1, pg. 245 – 257
ISSN: 3046-594X

**Statistical Analysis of Student Emotion Detection Data.**

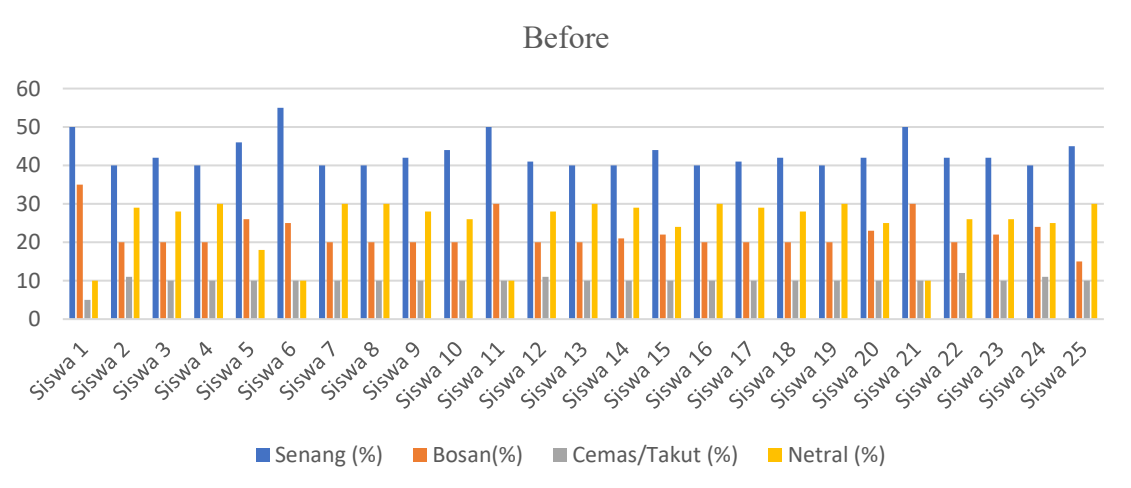
Overall, statistical analysis of students' emotional data using Luxand FaceSDK focuses on the collection of facial expression data, expression categorization, frequency and duration calculations, and statistical processing to generate in-depth insights into students' emotional states and engagement in the learning process. The parameters and quality of the data greatly determine the validity of the resulting analysis, which can ultimately help improve the effectiveness of teaching and the learning experience of students. Once the expression data is gathered, the next step is to categorize the expression based on standard labels, such as a smile that indicates a positive mood, closed eyes that can indicate drowsiness or boredom, and a neutral or serious expression. Each video frame is then labeled according to the detected expression. With this method, the system can calculate the frequency and duration of the occurrence of each expression in each student during the learning session(Detection & Library, 2024).


Figure 1: Student Emotion Detection

Statistical analysis of student emotion detection data before the implementation of Canva AI-assisted deep learning:

Vol. 1, No. 1, pg. 245 – 257
ISSN: 3046-594X

| Not | Student Name | Happy (%) | Bored (%) | Anxious/Scared (%) | Neutral (%) |
|---|---|---|---|---|---|
| 1 | Student 1 | 50 | 35 | 5 | 10 |
| 2 | Student 2 | 40 | 20 | 11 | 29 |
| 3 | Student 3 | 42 | 20 | 10 | 28 |
| 4 | Student 4 | 40 | 20 | 10 | 30 |
| 5 | Student 5 | 46 | 26 | 10 | 18 |
| 6 | Student 6 | 55 | 25 | 10 | 10 |
| 7 | Student 7 | 40 | 20 | 10 | 30 |
| 8 | Student 8 | 40 | 20 | 10 | 30 |
| 9 | Student 9 | 42 | 20 | 10 | 28 |
| 10 | Students 10 | 44 | 20 | 10 | 26 |
| 11 | Student 11 | 50 | 30 | 10 | 10 |
| 12 | Student 12 | 41 | 20 | 11 | 28 |
| 13 | Student 13 | 40 | 20 | 10 | 30 |
| 14 | Students 14 | 40 | 21 | 10 | 29 |
| 15 | Students 15 | 44 | 22 | 10 | 24 |
| 16 | Students 16 | 40 | 20 | 10 | 30 |
| 17 | Student 17 | 41 | 20 | 10 | 29 |
| 18 | Students 18 | 42 | 20 | 10 | 28 |
| 19 | Student 19 | 40 | 20 | 10 | 30 |
| 20 | Students 20 | 42 | 23 | 10 | 25 |
| 21 | Students 21 | 50 | 30 | 10 | 10 |
| 22 | Student 22 | 42 | 20 | 12 | 26 |
| 23 | Student 23 | 42 | 22 | 10 | 26 |
| 24 | Student 24 | 40 | 24 | 11 | 25 |
| 25 | Students 25 | 45 | 15 | 10 | 30 |

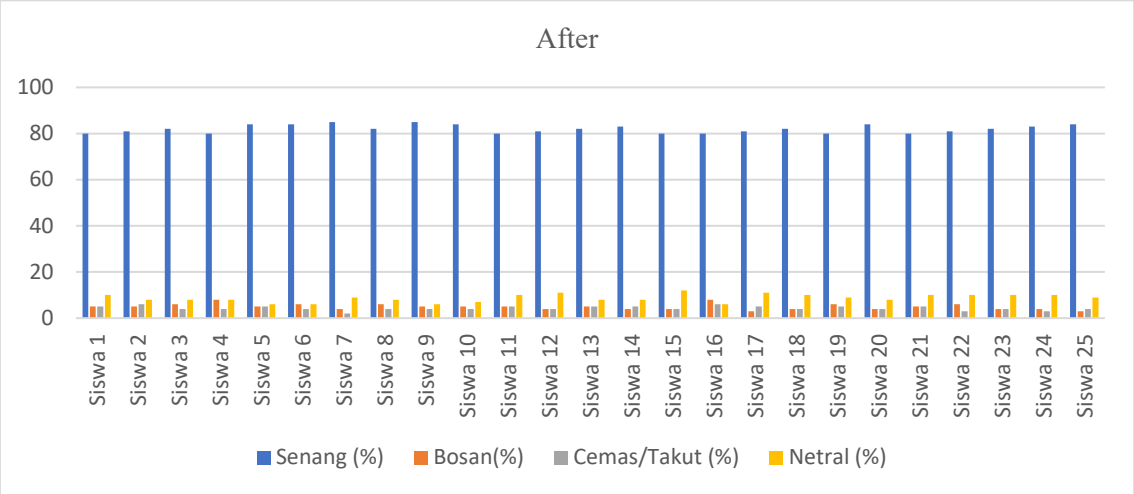


Vol. 1, No. 1, pg. 245 – 257
ISSN: 3046-594X

Statistical analysis of students' emotion detection data after the implementation of Canva AI-assisted deep learning:

| Not | Student Name | Happy (%) | Bored (%) | Anxious/Scared (%) | Neutral (%) |
|---|---|---|---|---|---|
| 1 | Student 1 | 80 | 5 | 5 | 10 |
| 2 | Student 2 | 81 | 5 | 6 | 8 |
| 3 | Student 3 | 82 | 6 | 4 | 8 |
| 4 | Student 4 | 80 | 8 | 4 | 8 |
| 5 | Student 5 | 84 | 5 | 5 | 6 |
| 6 | Student 6 | 84 | 6 | 4 | 6 |
| 7 | Student 7 | 85 | 4 | 2 | 9 |
| 8 | Student 8 | 82 | 6 | 4 | 8 |
| 9 | Student 9 | 85 | 5 | 4 | 6 |
| 10 | Students 10 | 84 | 5 | 4 | 7 |
| 11 | Student 11 | 80 | 5 | 5 | 10 |
| 12 | Student 12 | 81 | 4 | 4 | 11 |
| 13 | Student 13 | 82 | 5 | 5 | 8 |
| 14 | Students 14 | 83 | 4 | 5 | 8 |
| 15 | Students 15 | 80 | 4 | 4 | 12 |
| 16 | Students 16 | 80 | 8 | 6 | 6 |
| 17 | Student 17 | 81 | 3 | 5 | 11 |
| 18 | Students 18 | 82 | 4 | 4 | 10 |
| 19 | Student 19 | 80 | 6 | 5 | 9 |
| 20 | Students 20 | 84 | 4 | 4 | 8 |
| 21 | Students 21 | 80 | 5 | 5 | 10 |
| 22 | Student 22 | 81 | 6 | 3 | 10 |
| 23 | Student 23 | 82 | 4 | 4 | 10 |
| 24 | Student 24 | 83 | 4 | 3 | 10 |
| 25 | Students 25 | 84 | 3 | 4 | 9 |

ISSN 2407-0769
e-ISSN 2549-4694




Emotion data (happy, bored, anxious/afraid, neutral) were tested for normality with Shapiro-Wilk, then analyzed using the Paired T-Test. The results show:

1. A significant increase in the emotion of "Happy" was 38.12% (from 44.04% to 82.16%) with $p < 0.001$.
2. Decrease in negative emotions:
   a. Bored: down 17.08% (from 22.08% to 5.00%), $p < 0.001$.
   b. Anxious/Afraid: down 5.60% (from 9.96% to 4.36%), $p < 0.001$.
   c. Neutral: down 15.44% (from 23.92% to 8.48%), $p < 0.001$.

Decreased variability (standard deviation) in all post-intervention emotion categories e.g., "Bored" emotion dropped from 4.94 to 1.41 indicating the consistency of students' positive responses. This indicates that Canva AI's AI-based approach not only improves learning outcomes but also creates a more fun, interactive, and low-anxiety learning environment. Study on AI-assisted Canva at MIN Sidoarjo(Salsabila et al., 2024) Prove increased motivation to learn ($p$= 0.001) and interpersonal communication. An interactive learning environment through Canva's visual design can reduce the distraction of negative emotions, resulting in a more stable student response. So it's safe to say that Canva AI's integration in the deep learning approach is very effective. This is in line with the findings of several journals that affirm the importance of utilizing AI-based technology and digital media in increasing learning effectiveness.

According to (Andarwati et al., 2024), the use of artificial intelligence in the form of Canva provides valuable support for teachers to achieve educational goals effectively. AI helps in analyzing student data, optimizing teaching strategies, providing recommendations, and offering personalized learning, so as to improve learning outcomes and ensure that every student has an optimal learning experience. A study at Mayang Dharma Wanita Kindergarten showed that 90-100% of students were in the "Undeveloped" (BB) emotional category in terms of cooperation and emotion regulation before the learning methodology intervention(Aprilia & Suryana, 2022). This indicates the need for innovative approaches like Canva AI to stimulate emotional development.

ISSN 2407-0769
e-ISSN 2549-4694

In addition, the research (Salsabila et al., 2024) and (Meutiawati, 2024)also shows that the use of the Canva app as a learning medium not only increases students' interest in learning but also makes a significant contribution to the quality of learning design, especially in the context of informatics learning and procedural text writing.

## CONCLUSION

This study proves that the application of Canva AI-assisted deep learning approach significantly improves the learning outcomes of grade V elementary students in reading comprehension materials. Based on the design *of the Quasy Experiment* with *the Nonequivalent Control Group Design model*, pretest-posttest data were analyzed using the Wilcoxon Signed-Rank Test ($p = 0.000$), showing a significant improvement in learning outcomes after the intervention. Meanwhile, the comparison of N-gain between the experimental class (Canva AI) and the control class (conventional Canva) through the Mann-Whitney U Test ($p = 0.0175$) confirmed that the improvement in learning outcomes in the experimental class was statistically higher. Students' emotional analysis using the Paired T-Test also recorded significant changes: the "Happy" emotion increased by 38.12%, while negative emotions such as "Bored", "Anxious/Afraid", and "Neutral" decreased by 17.08%, 5.60%, and 15.44% respectively ($p < 0.001$). These findings confirm that Canva AI integration not only optimizes students' cognitive achievement but also creates a more interactive, fun, and anxiety-free learning environment. Thus, this approach can be recommended as an effective innovation in 21st century learning, especially for mastery of complex materials such as reading comprehension.

## BIBLIOGRAPHY

Adibatin, A. (2016). The nation's character education is based on the pakem learning strategy through the game of rings on the thumb. *Scholaria : Journal of Education and Culture*, *6*(1), 1. https://doi.org/10.24246/j.scholaria.2016.v6.i1.p1-18

Ajei Ibnu Rahmat, Desi Andreswari, & Yudi Setiawan. (2022). Design of Augmented Reality Application for Historical Object Collection Books as Interactive Information Media and Promotional Media (Case Study: Bengkulu State Museum). *Electrician*, *16*(1), 81–93. https://doi.org/10.23960/elc.v16n1.2229

Andarwati, R., Widodo, G. A., & Darmanto, E. (2024). Implementation of artificial intelligence in the form of canva in the learning process in the digital era. *Journal of Science*, *13*(01), 190–200. http://seaninstitute.org/infor/index.php/pendidikan/article/view/2134%0Ahttps://seaninstitute.org/infor/index.php/pendidikan/article/download/2134/1905

Anisa Kuswandari Banuwa, & Annastasia Nika Susanti. (2021). Evaluation of Pre-Test and Post-Test Scores of New SIGA Technical Training Participants at Lampung Province BKKBN Representatives. *Widyaiswara Scientific Journal*, *1*(2), 77–85. https://doi.org/10.35912/jiw.v1i2.1266

Arena, F., Collotta, M., Pau, G., & Termine, F. (2022). An Overview of Augmented

ISSN 2407-0769
e-ISSN 2549-4694

Reality. *Computers*, *11*(2). https://doi.org/10.3390/computers11020028

Carmigniani, J., Furht, B., Anisetti, M., Ceravolo, P., Damiani, E., & Ivkovic, M. (2011). Augmented reality technologies, systems and applications. *Multimedia Tools and Applications*, *51*(1), 341–377. https://doi.org/10.1007/s11042-010-0660-6

Detection, F., & Library, R. (2024). *Luxand FaceSDK.* 1–154.

Friska, J., Pramuaniati, I., & Mahriyuni. (2023). Effectiveness of using Canva Application to Improve Learning Outcomes of Tenth Grades Students. *Journal of Educational Research and Development*, *7*(3), 421–427. https://doi.org/10.23887/jppp.v7i3.67879

Ian Goodfellow, Yoshua Bengio, A. C. (2017). Deep Learning. *MIT Press*, *521*(7553), 785. https://doi.org/10.1016/B978-0-12-391420-0.09987-X

Larasati, M. (2022). Empowering Student'S Creative Writing Ability By Using Canva. *Journal of English Education Program (JEEP)*, *9*(2), 101. https://doi.org/10.25157/(jeep).v9i2.8548

Meutiawati, I. (2024). *COMPETENCY : Journal of Education and Learning EFFECTIVENESS OF USE ARTIFICIAL INTELLIGENCE IN THE FORM OF CANVA IN DESIGNING TEACHER LEARNING. 4*(September).

Mustaqim, I., & Kurniawan, N. (2017). Development of Augmented Reality as a Learning Media for the Introduction of Pneumatic Components in Vocational Schools. *Journal of Technology and Vocational Education*, *14*(2), 136–144. https://doi.org/10.23887/jptk-undiksha.v14i2.10443

Ninawati, M., & Nurafni. (2021). The Effectiveness of the Application of Linktree and Wordwall Applications on the Intrinsic Motivation of Grade V Elementary School Students. *Journal of Elementary School Thought and Development (JP2SD), 9*.

Puspita, D. A., Utari, N. M. A. W., & Ningtyas, M. P. (2022). Use of the Wilcoxon Signed Rank Test to Analyze Differences in Profit Persistence, Accounting Conservatism and Profitability Before and During the COVID-19 Pandemic. *MEA Scientific Journal (Management, Economics, and Accounting), 6*(1), 867–883.

Quinn, M. F. J., & Mceachen, J. (2018). *Deep learning Engage the world change the world*.

Rahayu, R., Rita Rosita, Yayu Sri Rahayuningsih, Hernawan, A. H., & Prihantini. (2022). Implementation of the Independent Learning Curriculum at Restu Driving Schools. *Indonesian Journal of Education Research*, *1*(1), 01–06. https://doi.org/10.31004/jpion.v1i1.1

Rakhmawati, I. (2016). *The development of the media as a means of da'wah*. *That is why we need to be vigilant, and we need to be vigil*