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Assessment of Blended Learning's Impact on Students' Academic Growth and Critical Thinking Abilities in the Context of English Education in the Srikakulam

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Abstract
The purpose of this research is to determine how students in the sixth grade at English schools in the India fare in terms of academic achievement and the growth of their critical thinking skills via the use of a blended learning approach. Sixth class from Narayana Private School in Srikakulam city make up the research sample. Twenty-five students were assigned to the blended learning group and twenty-three students were assigned to the control group. The aims of the study were attained via the use of a semi-experimental research design and two instruments, a validated and reliable accomplishment test and a reflective thinking scale. The post-test accomplishment scores of the two groups were statistically different, with the experimental group doing better on average. Furthermore, the experimental group's mean score on the reflective thinking scale was much higher than the control group's, as shown by the findings. The research concluded that integrated learning was an effective strategy for imparting English knowledge.
Keywords*:* experimental group , accomplishment scores

1. Introduction

Today, we live in an age of rapid scientific progress and technical innovation, which has spawned a plethora of new technological advancements and changes in the educational landscape. However, there is a growing need to find new methods and approaches to teaching English education in order to keep up with these contemporary challenges, to employ unconventional patterns and methods that are far from stagnation and indoctrination, to foster critical thinking and research skills, and to transform the student into an engaged, inquisitive, and passionate learner.

Given the rapid pace of technological advancement in the field of education and the India 2021 vision, which seeks to develop and enhance the educational system in an interactive environment, the Indian Ministry of Education has been eager to shape its curricula in accordance with quality educational standards and outcomes and to equip schools with cutting-edge educational technologies and resources. This affords the educator the freedom to include these sources and modify them in a variety of ways, broadening students' access to information and fostering the growth of their critical thinking and research skills.

During the late 1990s, blended learning quickly became one of the most popular kinds of digital education. Some academics see it as a replacement for e-learning altogether, although it is really a sort of e-learning that evolved into networked programmes (Milheim, W.D. (2006).). Blended learning, as defined by Graham (2004) and Milheim (2006), is a kind of education that mixes traditional classroom instruction with online learning in an integrated paradigm that takes use of the best tools for both.

By strengthening students' commitment to and mastery of the available learning programmes, blended learning plays a crucial role in fostering students' interest in, and enthusiasm for, acquiring knowledge of and proficiency in the field of English education. According to Makhdoom et al. (2013), when a classroom's in-person instruction is supplemented with online learning opportunities, everyone benefits. As a result of the flexibility that blended learning affords, students may view the same lessons several times in a variety of time frames outside of class (Eryilmaz, 2015). Learners may pick and choose when and where they study, and they can go through courses at their own pace, based on their own aptitudes and schedules (Voci & Young, 2001). Since we cannot abandon or

disregard the existing educational system, which blended learning works to enhance in light of the technological advancements of the present, it is widely acknowledged as one of the most effective forms of education that makes use of contemporary technology (Medina, 2018; Spring & Graham, 2017).

The ability to think reflectively is also associated with stronger cognitive abilities. Indeed, it is essential in fostering students' aptitude and guiding them to solve issues logically rather than arbitrarily; in directing thought to certain objectives as this entails studying the numerous components of a given scenario; and in seeking internal links (Afifi, 2018).

English education in the India provides a forum for students to exercise and hone their critical thinking skills, since both the subject matter and the process of learning are intimately connected with reflective thought. This is clear from the many passages in the Mahabarat and Ramayan, as well as the many activities and instances that invite thought and reflection on the language of the vast cosmos. Because of its significance, reflective thinking has been the subject of several research efforts that seek to understand it better and identify effective ways to foster its growth. Numerous research, including those by (Lim & Angelique, 2011), affirm the significance of teaching and mastering its abilities across a range of pedagogical approaches.

Furthermore, a large body of research across several fields supports the use of blended learning in the classroom. The findings of numerous studies, including those by (Kintu & Zhu) (2016), demonstrate its efficacy in fostering the acquisition of a wide range of competencies and practical knowledge, as well as in elevating the status of the classroom instructor. The success of pupils and the maturation of their capacity for introspective thought are both influenced by the pervasive presence of technology in today's classrooms. The purpose of this research is unique among similar studies, since it aims to demonstrate the impact of blended learning on students' success and the growth of reflective thinking in the context of English education among a group of sixth-grade students in the India.

Factors Contributing to the Study's Problem:

Education has evolved and changed in response to advances in information and communication technology, which have facilitated the development of an interactive system between students and teachers and the emergence of novel instructional approaches that make use of technical instruments and a wide range of efficient media.

Building skills, increasing experiences, expanding knowledge, and attaining sustainability in lifelong education rely heavily on the appealing educational environment that integrates educational technology and programmes ideally adapted to the curriculum. Researchers with backgrounds in education saw that, in light of the present situation brought on by the Coronavirus (COVID-19), which necessitated reliance on blended learning and distant learning, it was necessary to adopt approaches based on educational technology in teaching English education.

Researchers in India, were motivated to examine the impact of blended learning on sixth-graders' success and the growth of reflective thinking in the context of English education for a number of reasons. These include the researchers' desire to stay abreast of educational developments, the emphasis placed by education experts and specialists on the importance of teaching reflective thinking, the positive effect these have on overcoming the problems and methods of traditional education, and the paucity of previous studies that dealt with this subject.

The Research Hypotheses:

Specifically, the research aimed to determine whether or not:

1. There are no significant variations in the learning outcomes of sixth-grade pupils in the India in the area of English education at the 0.05 level of statistical significance (blended learning, the usual method).
2. Students in the sixth grade of English education in the India show no statistically significant differences in the development of reflective thinking at the level of significance (0.05) in relation to the teaching style (blended learning, the usual method)

Purposes of the Research:

The purpose of this research was to examine the impact of blended learning on students' performance and the growth of their capacity for critical thinking while they studied English education in the sixth grade.

The Value of the Research:

There are two main reasons why this research is significant:

First: the theoretical importance:
Given the paucity of studies that have dealt with this topic, the significance of this study lies in the fact that it represents an addition to the enrichment of the educational literature and library concerning the effect of using blended learning on achievement and the development of reflective thinking. In addition, this research may serve as a springboard for future studies that examine the same or related topics across a range of educational levels and other relevant factors..

Second: the practical importance:
The research may help those responsible for establishing English education curriculum by suggesting ways to include blended learning tactics and approaches into the design of educational activities and contexts. Teachers in English education may use the study's methods, findings, and factors to better support their students' academic growth and critical reflection.

Meanings of the Research Terms and Explicit Descriptions of the Research Methods:
The following are the most pivotal research terminology and their respective meanings for the procedures involved:
Blended learning: The term "blended learning" describes a teaching method that combines traditional classroom instruction with digital resources (Cheung & Hew, 2011). Lessons for the second unit in English education, created and delivered using a hybrid approach that brings together in-classroom instruction with online resources for students in sixth grade, with the goal of raising both academic performance and critical thinking.
Academic achievement: Literally, it means how much a pupil learns about the subjects included in the second unit of the sixth grade English education textbook. The pupils' performance is evaluated based on their results on a custom-made accomplishment exam.
Reflective thinking: Sixth graders' procedural knowledge is described as their capacity to engage with educational circumstances via the mental processes they use to solve issues and make rational judgments. In this case, we're using students' scores on a specially developed reflective thinking scale on English education as a proxy for this kind of learning.

Limits of the Study:
These are the restrictions on the study:

- There was a restriction placed on where the research could be conducted, thus only sixth graders from Narayana Private School in Srikakulam City, India, participated.
- Timeframe: January–April of the 2019–2020 school academic year.
- Study instruments (the achievement exam and the reflective thinking scale) serve as objective boundaries.
- Students in the year of 2019-2020 pursuing English education at the sixth-grade level were randomly assigned to one of two groups (experimental or control).

Research Methodology:
Given the nature of the research and the goals we set out to accomplish, we decided to use a semi-experimental approach, which entails dividing participants into two groups with equal characteristics: the experimental group and the control group. The study's setup is shown in the following diagram:
EG: O1 O2X O1 O2CG: O1 O2 O1 O2
The letters "EG" and "CG" stand for the experimental group and the control group, respectively; "O1" and "O2" stand for the achievement test and the reflective thinking scale, respectively; and "X" stands for the therapy itself.

Participants in the Research and their Group:
Students enrolled in sixth grade at government and private schools in Srikakulam that are affiliated with the Andhra Pradesh Educational Board in the India during the academic year were included in the study population, as reported by the Department of School Education in 2019 for students registered in the city of Srikakulam (2019-2020).
Sixty-eight, sixth graders from Narayana Private School in Srikakulam, India, took part in the study. The Board of School Education is associated with this institution. Careful consideration was given to the selection of

participants due to the abundance of conducive conditions for the study. The school's sixty ninth graders were randomly divided into two groups: twenty-five pupils who were taught via blended learning, and twenty-three kids who completed their education in the traditional method.

The Two Tools of the study:
Two methods were used to accomplish the study's goals.

First: the achievement test
The planned accomplishment exam had twenty-five paragraphs with four options, one of which was the right response to each question. The researchers took into consideration linguistic clarity and accuracy, a class period of (45 minutes), and the full range of behavioural goals to be tested, as reflected by the study unit content and the requirements table, while creating the test paragraphs.

Test of Achievement Validity
The achievement test was presented to a panel of arbitrators to ensure its reliability and validity; to ensure that it accurately reflects student achievement; to ensure that the test's questions are appropriately aligned with the test's stated learning objectives; and to revise, remove, or add any standards or indicators as necessary.

Assessment of the Test's Accuracy
The coefficient of dependability was determined using the internal consistency strategy using Coder Richardson's equation 20-, yielding a value of (0.86). For the objectives of this investigation, these values are suitable.

Second: The Scale for Evaluating Reflection
A twenty-paragraph reflective thinking scale was developed in accordance with the five reflective thinking skills after reviewing the theoretical literature on reflective thinking and gaining guidance from relevant research and studies (visual skill, skill in detecting fallacies, skill in reaching conclusions, skill in giving convincing explanations, and skill in developing suggested solutions). There were four paragraphs for each ability that assessed the sixth-graders' capacity for introspection.

Reflective Thinking Scale Validity
The reflective thinking scale was presented to a panel of arbitrators to ensure its reliability by demonstrating the significance of the validity of the paragraphs to be measured and their suitability for the levels of sixth-grade students, checking the linguistic formulation and correctness of expressions, and making any necessary adjustments.

Validity of a Measure of Reflective Thinking
Internal consistency utilising the Coder-Richardson equation 20- was used to get the reliability coefficient, which was then used to guarantee the validity of the scale (0.87). For the objectives of this investigation, these values are suitable.

Methods for carrying out the research experiment
The two research instruments were developed and their validity and reliability were guaranteed after a thorough evaluation of the theoretical literature and studies pertinent to the study's topic. The sixth graders at Narayana School in Srikakulam were selected as the research population, and from them, two groups were selected at random to serve as the experimental and control groups, respectively. Both Srikakulam and the Department of School Education and Knowledge provided the two researchers with two messages that were essential to the success of their goal. The sample participants were then subjected to the research instruments. Following data entry and statistical analysis in (SPSS), findings were obtained and discussed.

What We Learned From the Research and What It Means
First: the results related to the first hypothesis, which states that: “There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in the achievement of sixth-grade students in the subject of English education

in the India due to the teaching method (blended learning, the usual method).”
To test this hypothesis, we divided our sample of sixth graders into two groups (experimental, control) and computed the means and standard deviations of their scores on an achievement exam given before and after they had received instruction in English education (Table 1).

Sixth graders' pre- and post-measurement mean and standard deviation scores on the achievement exam related to English education are shown in Table 1. (experimental, control)

		Pre-Assessment		Post-Assessment	
Group	Count	Arithmetic Mean	Standard Deviation	Arithmetic Mean	Standard Deviation
Experimental	25	11	4.193	18.40	4.481
Control	23	10.22	3.692	12.00	4.824
Total	48	10.63	3.939	15.33	5.620

Table (1) shows that there are significant variations between the pre- and post-test group averages for sixth graders' mathematical proficiency on the achievement exam covering the topic of English education (experimental, control). After controlling for any potential confounding pre-test effects, we conducted one-way analysis of variance (one-way ANCOVA) to compare post-test scores across groups (experimental, control) on the achievement test. These findings are shown in Table form below (2).

After controlling for the influence of the pre-measurement, Table (2) displays the findings of a one-way analysis of covariance (ANCOVA) on the post-measurement scores of sixth-grade children in the topic English education on the achievement exam, broken down by group (experimental, control).

Source of variance	sum ofsquares	Degrees of freedom	Mean sum of squares	F value	Level of Significance	Squareη2
Pre-measurement	397.965	1	397.965	30.046	.000	.400
Group	401.534	1	401.534	30.315	.000	.403
Error	596.035	45	13.245			
Total	1484.667	47				

A look at Table 2 reveals that there are significant differences between groups of sixth graders on the achievement exam related to English education at the 0.05 level of significance (experimental, control). There is an effect for the group, as the F value is 0.315, which is statistically significant (p 0.000). Table (2) shows that the instructional strategy significantly impacted learning as measured by achievement test scores, as 40.3% of the variation in test scores could be attributed to factors other than chance.
This may be attributable to the increased interactivity between students, educational content and learning resources on the one hand, and between students and the teacher on the other; to the influence of peers while carrying out classroom and home activities; and to the flexibility afforded by the blended learning environment, which allows for the selection of the most appropriate method for each learning objective.
All of these things contribute to a dynamic and rewarding classroom setting, which in turn raises students' success. Table 1 displays the extracted group-specific adjusted arithmetic means and standard errors for use in determining which group benefited most from the changes (3).

Table (3): The adjusted group means and standard deviations on the achievement exam (experimental, control)

Group	Modified post arithmetic mean	Standard error
Experimental	18.122	.730
Control	12.303	.761

Table (3) shows that compared to the control group, those who participated in the experimental blended learning condition had significantly better outcomes. This implies acceptance of the alternative hypothesis, which states, "There are statistically significant differences at the level (0.05) in the average grades of the students in the control and experimental groups on the post-achievement exam."

This is due to the fact that the properties of this kind of education make it possible to acquire knowledge in a wide range of settings, in ways that are both intriguing and pleasurable. Therefore, this style of learning is distinct from the conventional approaches to education that students are used to, particularly in the field of English education, and this distinction has helped to increase students' motivation to learn, to encourage them to seek out information that reinforces and enriches their studies, to foster a more thorough grasp of novel concepts, and to aid in their long-term memory.

Results like these are consistent with those found in research by (Utami, 2018), (al-Massad, 2017), (Saqaria, 2018), and (Kintu & Zhu, 2016), all of which point to the success of blended learning in terms of both academic success and the formation of optimistic worldviews.

Second: The results related to the second hypothesis, which states: “There are no statistically significant differences at the level of significance ($\alpha \leq 0.05$) in the development of reflective thinking among sixth-grade students in the subject of English education in the India due to the teaching method (blended learning, the usual method).”

Calculating the averages and standard deviations of the pre and post-test scores on the reflective thinking scale for each group (experimental, control) in sixth-grade students' studies of English education allowed us to test our hypothesis.

Averages and std. dev. for students' pre and post-test scores on the reflective thinking scale for the topic of English education, broken down by grade and assessment type (Table 4). (experimental, control)

		Pre-Measurement		Post-Measurement	
Group	Number	Arithmetic mean	Standarddeviation	Arithmetic mean	Standard deviation
Experimental	25	10.40	2.828	15.16	1.841
Control	23	9.00	2.576	9.78	1.930
Total	48	9.73	2.773	12.58	3.293

In Table 4, we can see that there are statistically significant variations between the pre- and post-test mean scores on the reflective thinking scale for each group of sixth graders studying English education (experimental, control). After controlling for variations in pre- and post-test scores, we conducted one-way analysis of covariance (one-way ANCOVA) to determine whether or not the observed differences between the experimental and control groups on the reflective thinking scale were statistically significant. The outcomes are shown in Table(5) below.

After controlling for pre-test effects, Table 5 displays the findings of a one-way analysis of covariance (ANCOVA) of students' post-test scores on the reflective thinking scale in the context of their respective groups (experimental, control).

Source of variance	Sum ofsquares	egrees of freedom	Mean sum of squares	F value	Level of significance	squareη2
Pre-measurement	43.603	1	43.603	16.396	.000	.267
Group	266.152	1	266.152	100.082	.000	.690
Error	119.670	45	2.659			
Total	509.667	47				

Table 5 reveals that there are significant variations between groups of sixth graders on the reflective thinking scale for the topic of English education at the level of significance (0.05). (experimental, control). The statistical significance of the F value is 0.000, thus we know that there is a group effect since the F value is (16.396).
The value of ETA square (2) interprets (69%) of the interpreted (predicted) variance in the dependent variable, which is the scale of reflective thinking, as shown in Table (5).
Table 1 displays the extracted group-specific adjusted arithmetic means and standard errors for use in determining which group benefited most from the changes (6).

Modified arithmetic means and standard errors on the reflective thinking scale by group are shown in Table 6. (experimental, control)

Group	Modified post arithmetic mean	Standard error
perimentalControl	14.919 10.045	.332 .346

Table (6) shows that compared to the control group, the members of the experimental group who were exposed to the integrated learning had significantly better outcomes.
Blended learning, which incorporates a variety of activities and applications conducted throughout the lesson stages to increase motivation to learn, engage students in an integrated and interactive educational process, activate their previous knowledge, and render it a starting point, is a likely explanation for these positive results. All of these elements worked together to pique students' interest, up the ante on the pleasure and suspense front, and improve the quality of their introspective musings.
Findings like these are consistent with those found in research by (Hsieh and Chen, 2012), and (Lim, & Angelique, 2012) all of which highlight the need of teaching students to think critically and reflectively.

Recommendations

- Teaching strategies based on blended learning are included in the accompanying teacher's handbook, and the necessity of incorporating blended learning into English education and other academic disciplines is emphasised throughout.
- The significance of incorporating reflective thinking into a variety of authentic educational settings throughout the curriculum development and planning stages.
- The importance of educating kids about technology and training them to utilise it in the classroom, especially when it comes to educating them about Islam and other topics.
- Educating English school teachers on how to use the many benefits of blended learning in their classrooms.

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