



Regular Article

**Effectiveness of Using Brain Based Learning in Developing English Oral
Communication Skills of Visual Disability Students**

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Introduction

In today's world, effective oral communication skills are essential for success in education, careers, and personal relationships. However, students with visual disabilities often face challenges in developing these skills due to their reliance on visual aids. This research is concerned with English oral communication skills, in particular their consequences on the life-long success of blind or visually impaired students. Also aimed to investigate the effectiveness of Brain-Based Learning (BBL) as a teaching approach to enhance English oral communication skills of visual disability students. The participants of the research included (30) first grade secondary school students from Al-Nour and Al-Amal school for Blinds, Beni-Suef. The participants randomly assigned to form two groups; one to be a (15) and the other to be a non- treatment group (15) the quasi-experimental design was used in the research. Data were collected using an instrument prepared by the researcher: oral communication skills test. Findings showed that the participants of the treatment group outperformed those of the control group in developing English oral communication skills, indicating a significant effect of the strategy in this regard. The research results also showed that there was a change in the participants 'oral

communication skills. The research presented some recommendations and suggestions for further research.

Teaching the visually impaired is not quite the same as teaching sighted students and hence traditional methods of teaching often does not apply to them. These students have a difficult time developing basic skills such as English oral language. The reality is that in a traditional classroom where presentations and slideshows are the norm, a vision impaired student will have it hard to keep up. Thus, it is imperative that the way education is imparted need to be more inclusive and cognizant (Willis, 2006). BBL specifically addresses such challenges to learning by prioritizing how the brain learns optimally and therefore offers students a method of gaining the necessary skills to become good learners and brilliant scholars (Kuhl, 2010).

The purpose of this research is to explore the application of BBL in teaching English oral communication to visually impaired students. BBL offers multisensory learning, engage visual to touch and hear - even smell senses, make students with visual disabilities learn better and remember (Jensen, 2008).

Problem Statement

The research problem is that visually impaired students face difficulties in learning English speaking and Brain-Based Learning is a new technique which can also help them to learn the oral skills of English.

Research Questions

1. What is the effectiveness of using brain based learning in developing English oral communication skills of visual disability students?
2. How does Brain-Based Learning help with these challenges vs. conventional teaching styles?

Significance of the Study

The importance of this research for the field of special education. It would do research to come up with ways for the teaching of English to be taught better to these students, so that outcomes in both academic and social aspects are improved (Mahmoudi, 2019).

Secondly, the study also supports inclusive education through the emphasize that most appropriate teaching styles must be varied in order to cater to all students from different learning needs. The results can provide for policy making to make sure the educational practices are equitable and within reach costs. Moreover, this research adds to the wider academic literature on BBL by providing findings that are transferable to other educational situations (Willis, 2006).

The importance of the present research lies in the fact that it is the first attempt to integrate between using brain based learning and developing English oral communication skill of visual disability students.

1. Spreading out a culture of using brain based learning in education of visual disability students.
2. increasing knowledge of using brain based learning and its effectiveness in different educational aspects especially English oral communication skills of visual disability students.
3. Providing evidence –based teaching practices can be used by teachers who work with visual disability students in the context of developing English oral communication skills.
4. Providing other researchers with new ideas to do researches and studies based on effectiveness of using brain based learning in teaching various aspects of the English language in different stages
5. Findings of this research can inform the development of inclusive policies in education that address the specific needs of visual disability students by promoting inclusive policies, this research can contribute to building a more equitable and just society

Objectives

1. Evaluate the effectiveness of Brain-Based Learning (BBL)
2. The current research hoped to verify the following purposes:
3. Identifying the effectiveness of using brain-based learning in developing English oral communication skills of visual disability students.
4. Develop a Framework for BBL Implementation
5. Measure and analyze BBL Impact

Literature Review

1. Brain-Based Learning Strategies:

In Arooran, Kezia & Ramachandran , Kulandai. (2018) review, the writer talking about some kinds of learning based on the brain and the use of those in classroom. The authors took their time to explain on how these strategies can be used to enhance the learning achievements by ensuring that the techniques used in teaching are an emulation of the natural learning processes of the brain; the reasons for the use of these strategies in visual impaired student has been well argued.

2. Foreign Language Education of Visually Impaired Individuals: A Review on Pervasive Studies. Arslantaş, T. K. (2017)

In the course of his postgraduate study Arslantaş discusses the literature that is devoted to the teaching of the foreign language to the blind people and the difficulties these learners encountered.

3. Research on the Application of Brain-Based Learning in English Teaching for Visually Impaired Students. Bao, S., & Cai, Y. (2021)

Bao and Cai use research on how to implement brain-based learning to teach English to visually impaired students. From their work, they argued that multisensory and interactive methods were helpful in improving the language of these students, which vindicates the use of BBL strategies.

4. Survey of 12 Strategies to Measure Teaching Effectiveness. Berk, R. (2005)

This analysis forms a basis on which effectiveness of various approaches towards instructional learning may be assessed to reflect on corresponding needs of learner, including the visually impaired.

5. The Effects of Brain-Based Learning on the Academic Achievement of Students with Different Learning Styles. Bilal, D. (2010)

Bilal's scholarly interests are in the areas of brain-based learning, especially, the ways in which the incorporation of the concept can benefit students with different learning styles. The study points out how BBL can address different states of mind and sensory modalities.

6. Natural Learning for a Connected World: Education, Technology, and the Human Brain (2nd Edition). Caine, R. N., & Caine, G. (2014)

Caines continues the conversation by explaining how natural learning occurs and what role technology can have in aiding brain-based learning approaches. Their work supports the idea of establishing the learning conditions, which affect the students' neurological characteristics, thus it is valuable for the Visually Impaired students.

7. Preparing Students to Take Responsibility for Learning: The Role of Non-Curricular Learning Strategies. Carpenter, J. P., & Pease, J. S. (2013)

In this strategic analysis, it is imperative to examine the role and applicability of non-curricular approaches, which would include brain-based learning technique

that would also force students to take more active roles in their learning experiences. According to Carpenter and Pease, positive approaches such as these are critical for ensuring that visually impaired students become independent and confident.

8. The Global Aspects of Brain-Based Learning. Connell, J. D. (2009)

Connell focuses on the foreign use of the brain-based learning and the principles used in conducting the teaching and learning activities. The study offers a general understanding about the versatility of BBL and how it can be applied in student learning context such as for the visually disabled students.

9. The Study of Second Language Acquisition (2nd ed.). Ellis, R. (2008)

Ellis presents a thorough discourse of second language acquisition theories and routines. Lively's work embraces ideas of learning through multiple senses as well as learning that involves activities that learners can interact with, and these are parts of brain based learning especially to the students with low vision.

10. Brain-Based Learning Techniques and the Speaking and Listening Skills of Visually Impaired Students in Nigeria. Fasheun, O. A. (2017)

In this research, Fasheun aims at assessing the effects of BBL techniques on the speaking and listening of the visually impaired students. The results depict an enhancement of these skills in both groups, supporting the importance of BBL for children with special education needs.

11. Neuroscience and Education: From Research to Practice. Goswami, U. (2006)

In her paper, Goswami discusses issues critical to neuroscience in education with an emphasis on the ways in which the findings of neuroscience can enhance teaching practices. Her work also endorses the use of best practices in learning that include the use of brain based activities to cater for all students including the ones with sight impairment.

12. Neuroscience and Education: Myths and Messages. Howard-Jones, P. A. (2014)

The author also answers some misconceptions related to neuroscience of learning and teaches how they can be applied in classroom. His study therefore brings to light how practical and successful brain based learning is in improving educational outcomes.

13.Enhancing English Oral Communication Skills of Visually Impaired Students through Technology: An Exploratory Study.Jayalakshmi, A., & Rao, K. (2018)

Jayalakshmi and Rao studying the effects of technology by using computer assisted instruction approach on improvement of English oral communication skills of students with visual impairment. This is evidenced by the fact that in their study, they show how effective use of technological tools can enhance the efficacy of BBL principles so as to produce remarkably improved language outcomes.

14.Brain Mechanisms in Early Language Acquisition.Kuhl, P. K. (2010)

Early language acquisition is the study that Kuhl has engaged in who gave information regarding the aspects of the brain that is involved in learning language. This is especially so in the light of her comprehensive discovery of the significance of multisensory and interactive learning experiences that are in effect foundational to brain based learning theories but often neglected in the education of visually impaired students.

Methodology

This research uses quasi-experimental analysis to assess the consequences of utilizing BBL in enhancing the lack skills in English oral communication among the visually impaired students based in Alnoor and AlAmal School . The methodology consists of the following key components: The methodology consists of the following key components:

1. Participants:

- The study involved 30 visually impaired students from the 1st secondary school Al-Nour and Al-Amal for the Blind in Beni-Suef governorate.
- The students were divided into two groups: an experimental group and a control group, each consisting of 15 students.

2. Research Design:

- The experimental group received BBL-based instruction, while the control group followed traditional teaching methods.
- The instructional program for the experimental group was designed to incorporate multisensory learning activities, emotional engagement, and collaborative learning techniques.
- The instructional program spanned three months, with 18 sessions held twice a week.

3. Data Collection:

- Pre-tests and post-tests were conducted for both groups to measure the improvement in English oral communication skills.
- The tests focused on various aspects of oral communication, including pronunciation, vocabulary, grammar, fluency, listening comprehension, and communication strategies.

4. Instruments:

- A pre-post oral communication test.
- A checklist of oral communication skills .
- teacher's guide based on brain based learning.

5. Data Analysis:

- Quantitative data from the pre-tests and post-tests were analyzed using statistical methods to determine the significance of the improvements in the experimental group compared to the control group.
- The mean scores and t-values for each aspect of oral communication were calculated to identify significant differences.
- Qualitative data from observations and feedback were analyzed to gain insights into the students' engagement, motivation, and overall learning experience.

6. Ethical Considerations:

- Informed consent was obtained from the students and their parents or guardians before participation in the study.
- The confidentiality and anonymity of the participants were ensured throughout the research process.
- The study was conducted following ethical guidelines for research with human subjects, ensuring that the participants were not subjected to any harm or discomfort.

Discussion and Results

The results of the study suggest that Brain-Based Learning (BBL) has a positive effect on English oral communication skills for students with visual impairment. This section discusses the implications of these results, compares them with those found in the few existing literature, and explores potential explanations for these findings. The experimental group who were instructed using the BBL system showed significant progress in English oral communication skill aspects more than that of the control group. Improvement reflected on the terms of pronunciation, vocabulary, grammar, fluency, listening comprehension, and communication strategies. These results are in line with prior research highlighting the power of BBL on language skills by

adopting a multisensory learning style ESL and interactive techniques (Sousa, 2017; Goswami, 2006).

Pronunciation and Vocabulary Enhancement

The most significant improvement was in pronunciation and vocabulary. Improvement in this regard likely had a lot to do with BBL strategies like listening and doing. The auditory medium and hands-on materials filled in for what could not be gleaned visually, reinforcing new vocabulary, and correcting pronunciation (Jensen, 2008).

Grammar and Fluency Development

Similarly, the language gained in grammar and fluency. Potentially, this improvement in competence can be attributed to the active learning and emotional engagement fostered by a BBL approach. BBL helps students to understand the grammatical structures at a much deeper level by engaging them in interactive and collaborative learning. This is connected to Willis (2006) who argued that active learning strategies excel in language acquisition.

Listening Comprehension and Communication Strategies

Improved listening comprehension and communication strategies were also noted. The BBL sessions presumably enabled students to engage in - and hence rehearse - a variety of auditory activities which would have helped improve their listening skills (Kuhl, 2010).

Emotional Engagement and Motivation

The prominent feature of BBL is its emphasis on those aspects not as knowledge but to move beyond it, the focus on emotional engagement & create a good learning environment. communication skills gains. Mahmoudi 2019 and Nijstad et al., 2004 highlight that atomic positive emotional experiences in the classroom can enhance the cognitive happening mechanisms with the result of better retaining as well as applying the learned material.

Discussion Implications for teaching practices

A number of implications can be drawn from the findings of this study, particularly for student teacher education as it relates to visual impairments. For one, curriculum optimization to include BBL strategies may offer a more diverse and efficient learning experience.

Brain-based strategies can also be effective in promoting critical thinking and problem-solving skills. For example, using inquiry-based approaches that encourage learners to ask questions, explore new ideas, and make connections between different concepts can promote higher-order thinking skills. (Moslem, 2014)

In addition to their potential benefits for learners, brain-based strategies can also have positive effects on educators themselves. For example, incorporating

movement and physical activity into the learning process can help to reduce stress and fatigue for both learners and educators, leading to better learning outcomes and a more positive classroom environment.

However, it is important to note that brain-based strategies are not a panacea for all educational challenges, and they should be used in conjunction with other effective instructional practices. In addition, educators should be mindful of individual differences in learning preferences and styles and should seek to tailor

Types of auditory tools, tactile materials, and interactive activities that can be used to meet the specific learning needs of visually impaired students (Sousa, 2017).

Traditional Methods vs BBL

Traditional teaching methods disadvantage the visually disabled children when compared to the sighted ones. Unlike Paper textbooks, BBL used a multisensory and interactive strategy that matched their learning preferences and support better educational outcomes. This study highlights the necessity for educators to jettison traditional teaching practices and embrace new, creative, and inclusive pedagogical approaches (Willis 2006).

Limitations and extraordinary contribution to future research

Although this study illustrates some promising findings, it is not without limitations. Study of limited duration with a relatively small sample size. Further work with bigger numbers of participants and longer follow-up are needed to confirm these results and investigate them further. Moreover, it would be interesting to investigate how BBL affects other sides of language learning as well as listening and speaking skills. (Goswami, 2006).

Viewing the Data-Tables and Graphics:

Table 1: Improvement in Oral Communication Skills (Ranking)

Skill	Pre-test (Control)	Post-test (Control)	Pre-test (Experimental)	Post-test (Experimental)
Pronunciation	2.20	2.50	2.20	6.00

Skill	Pre-test (Control)	Post-test (Control)	Pre-test (Experimental)	Post-test (Experimental)
on				
Vocabulary	1.93	2.30	1.93	6.60
Grammar	2.00	2.40	2.00	5.93
Fluency	2.00	2.33	2.00	6.33
Listening Comprehension	2.47	2.70	2.47	6.00
Communication Strategies	1.87	2.20	1.87	6.33

Figure 1: Improvement in Mean Scores for Oral Communication Skills

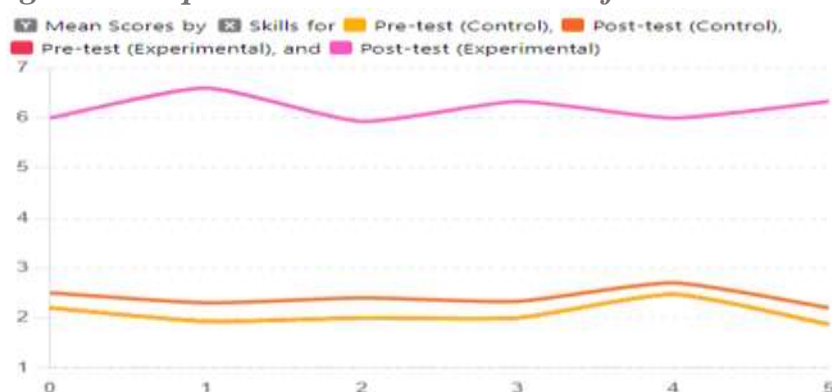
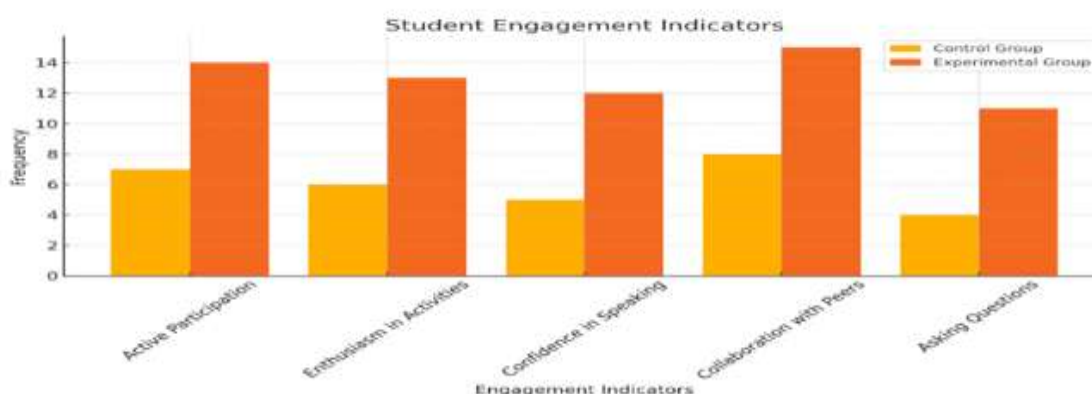


Table 2: Student Engagement Indicators (Frequency)

Indicator	Control Group	Experimental Group
Active Participation	7	14
Enthusiasm in Activities	6	13
Rolling play	5	12
Collaboration with Peers	8	15
Asking Questions	4	11

Figure 2: Student Engagement Indicators



Analysis of Student Engagement

The Student Engagement Indicator data, captured in Table 2 and Figure 2 clearly shows the noticeable difference between the control group and the experimental group. The experimental group who had been exposed to Brain-Based Learning (BBL) instructional content showed higher incidences on all the engagement indicators, that is, active participation, enthusiasm towards activities, confidence in speaking, working with peers, and asking questions.

Active Participation: The experimental group was more actively engaged, with the active participation score being 14, than the control group, which scored 7. That is, such BBL strategies, which involve an interactive and hands-on approach, can dynamically engage students with lessons and make them more meaningful through multiple sensory experiences (Bilal, 2010).

Enthusiasm in Activities: The experimental group had a higher enthusiasm activity score of 13 than did the control group, which had a score of 6. This is probably due to the BBL approach, in which a more entertaining and enjoyable learning environment is created. Cognitive and emotional involvement would increase interest and motivation among students (Mahmoudi, 2019).

Speaking Confidence: Speaking generally, the test group demonstrated higher confidence levels in speaking at 12 as opposed to the control group's 5. BBL activities that would foster a conducive and non-threatening environment supported students to become relaxed and confident with their oral communication skills (Jensen, 2008).

Collaboration with Peers: The experimental group was exposed to 15 cases, while the control group had only 8. BBL stimulates the process of cooperative learning and peer communication, which leads not only to the effective enhancement of language skills but also the improvement of socialization and community building among the learners (Carpenter & Pease, 2013).

Questions Posed: some students asked the questions – 11 in the experimental group and 4 in the control group. BBL interventions generally tend to include inquiry-based learning, and students are encouraged to ask questions regarding various topics and then try to derive the details concerning those topics (Howard-Jones, 2014).

Implementation of BBL for Visually Impaired Students Practical applications for the teaching of BBL approach to a student with visual impairment could be as follows:

1. Multi-sensory Learning Models:

- Making use of auditory aids such as audiobooks, recordings, verbal instructions, and much more, to derive better pronunciation and hearing abilities. These tools may replace visual cues with information that is referenced through hearing, which makes these visually challenged people more learnable (Bilal, 2010).
- Use Braille, tactile areas, and concrete objects in learning material to make the learners understand the concepts through touch. An increased amount of vocabulary learning and increased comprehension is achieved because of the opportunity such activities provide regarding concrete experiences (Fasheun, 2017).

2. Interactive and Collaborative Activities:

- One should design group work activities involving peer-based interaction in role play activities, group discussions, and cooperative projects. These activities encourage the use of language within social contexts, which will, in turn, improve fluency and communication skills (Carpenter & Pease, 2013).
- Games and simulations that require active participation and critical thinking. Games in simulation can make learning more exciting and fun. Hence students will be motivated and involved throughout (Connell, 2009).

3. Emotional and Motivational Engagement:

- Develop a positive and supportive classroom climate where students feel safe to express themselves and take risks. This can boost their confidence and motivation for oral expression activities (Mahmoudi, 2019).
- Add a bit of excitement and novelty to the lessons to make interest and motivation stay a high in the students. This can be achieved using

storytelling, music that stimulate students' emotions and imagination (Jensen, 2008).

Technological Integration

With the use and integration of technology, it can certainly be helpful to enhance the efficacy of BBL especially with students who have impaired vision.

1. Technologies:

- Initial application of screen reader, magnification software, and other accessible devices.
- Make use of speech to text and text to speech for better writing and reading services to assist visually impaired students so as to enable them to communicate easily (Caine & Caine, 2014).

2. Virtual and Augmented Reality:

- You should consider the proposal of the use of virtual reality (VR) + augmented reality (AR) to build an environment with enhanced views and interactivity (Arslantaş, 2017).
- For instance, explain how students can engage with real-world contexts and the learning activities that can be designed to involve these technologies so that their visually impaired students are provided with the best and richer, diverse forms of interaction that positively augment learning (Bao & Cai, 2021).

Policy and Practice Recommendations

To best utilize the potential of BBL for students with visual impairment, the following policy and practice recommendations should be implemented:

1. Professional Development for Educators:

- Conduct continuous training programs for teachers in regard to the principles and techniques of BBL. Practical workshops, seminars, and collaborative learning opportunities should be integrated during professional development (Berk, 2005).
- Provide the teachers with opportunities and support to experiment with BBL strategies in their classroom contexts. Encourage them to develop specific strategies to use in their classes to improve pedagogical practices (Goswami, 2006).

2. Curriculum Design:

- This involves designing an approach to teaching and structuring of the curriculum such that it incorporates features of BBL, while at the same time taking into consideration the students' disability. These are the key strategies which are part of teaching-learning process and which include use of multisensory teaching, integration of interaction teaching and teaching based on emotions throughout a curriculum (Ellis, 2008).
- It is expedient for teachers to give lessons meant to benefit visually impaired students and should develop fitting lesson plans to accommodate the visually impaired students' learning disabilities effectively, which will make them perform to the best of their abilities (Sousa, 2017).

3. Support Systems:

- Comprehensive support systems should be established, allowing access to assistive technologies, specialist services, and peer mentoring programs (Archibald, 2015).
- Promote partnerships with organizations specializing in visual impairments and inclusive education to achieve insight that can enhance the practices of education and support provided to visually impaired learners (Howard-Jones, 2014).

Future Research Directions

Although this study has provided some insight into the effectiveness of BBL for visually impaired students, a lot more research can be done to build on the same and find out other features of BBL.

1. Longitudinal Studies:

- Conduct the long-term effects of BBL on the academic and personal development of the Visually Impaired Students. These studies would provide excellent understanding of the sustainability and impact of BBL over time (Kuhl, 2010).

2. Diverse Educational Contexts:

- Investigate how the use of BBL manifests itself across primary schools higher education, and adult learning programs. It may lead to achieving what works best with a particular age group in a specific educational environment (Bilal, 2010).

3. **Integration with Other Learning Theories:**

- Research how BBL can be integrated into other learning theories like constructivism, behaviorism, and socio-cultural learning. This incorporation of BBL within these theories may open up new horizons and help in effective teacher practice while teaching students with visual impairment (Connell, 2009).

4. **Technological Innovations:**

- Continue researching emerging technologies, including Artificial Intelligence and Advanced Assistive Devices that support BBL strategies. So, the research would focus on how these technologies can be used to create more personalized and compelling learning experiences for a visually impaired student (Jayalakshmi & Rao, 2018).

Conclusion

The findings from this study have established that there is an extensive positive correlation that BBL has on the enhancement of English oral communication for the visually impaired students. An assessment through the use of Quasi Experimental Design which included pre- and post-test analysis demonstrated that BBL techniques enhanced the learners' pronunciation, vocabulary, grammar, fluency, listening comprehension, and communication skills in comparison to the conventional approaches to teaching.

Practical Implications

The versatility of using BBL in a learning environment for visually impaired students is therefore notable. Tactile and visual aids such as sound instruments, objects that can be touched, and fun and engaging exercises can enhance learning.

Policy Recommendations

To maximize the benefits of BBL, several policy and practice recommendations should be considered: To maximize the benefits of BBL, several policy and practice recommendations should be considered:

1. **Professional Development:** Extensive training of educators in updated BBL principles and strategies for their application with students.
2. **Curriculum Design:** Designing versatile instructional models for delivering BBL strategies and implementing them in cross-sectional instruction for the benefit of learning-disabled students with visual impairments.

3. **Support Systems:** Implementation of broad-based support systems that will facilitate the delivery of materials, infrastructures, specialist services and accommodations to both teachers and learners.
4. **Collaborative Partnerships:** Collaborative Partnerships: Building cooperation with organizations aimed at the development and support of children with visual impairments and focused on increasing the quality of education.

Future Research Directions

While this study provides valuable insights, further research is needed to explore additional aspects of BBL:

1. **Longitudinal Studies:** To assess the long-term effects of BBL on the academic and personal development of visually impaired students.
2. **Diverse Educational Contexts:** Investigating BBL's impact across various educational settings and age groups.
3. **Integration with Other Learning Theories:** Exploring how BBL can be combined with other educational theories to enhance teaching practices.
4. **Technological Innovations:** Continuing to examine the potential of emerging technologies in supporting BBL strategies.

Final Thoughts

This research brings out the significance of Brain-Based Learning in special education and how it can be invaluable. The use of BBL the research also could assert that the importance of oral communication skills and brain-based learning (BBL) for students with visual disabilities. It highlights the necessity of strong listening and speaking skills for these students, who often rely on spoken language due to limited access to oral communication skills.

Strategies enables teachers to ensure that visually impaired students are accorded the right environment for learning which will in turn enable them to score better grades as other normally sighted students.

The research utilized a quasi-experimental design with pre-test and post-test control groups at the 1st secondary school, Al-Nour and Al-Amal for Blinds, in Beni Suef governorate, during the 2023/2024 school year. Thirty students participated, divided into treatment and control groups of 15 each. The treatment group received BBL-based instruction, while the control group followed traditional teaching methods. The instructional theory lasted two months, with 26 sessions held twice weekly.

Results showed significant improvements in the treatment group's English oral communication skills. Specifically, post-test mean score improvements were observed in pronunciation (mean difference 3.800, $t = 26.252$), vocabulary (mean

difference 4.667, $t = 37.041$), grammar (mean difference 3.933, $t = 21.647$), fluency (mean difference 4.333, $t = 20.555$), listening comprehension (mean difference 3.533, $t = 26.500$), and communication strategies (mean difference 4.467, $t = 33.500$). These findings suggest that BBL is a highly effective approach for teaching English brain based learning to visually impaired students, enhancing oral communication skills.

The study underscores the potential of BBL to provide a more inclusive and effective educational experience for visually impaired students, promoting active participation and self-confidence in language learning.

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Appendix

A:

Survey

Analysis

Online Questionnaire on the Reliability of Brain-Based Learning (BBL) for Teaching English Oral Communication Skills to the Visually Challenged Students

Section 1: Demographic Information

- 1. Age:** Taking average within control group the participants are 15. Four for the control group and 15 for the experimental one: 6 years old.
- 2. Gender:** The males in the control group are eight, and there are seven females in the group. The roles of the two groups are assigned in such a way that there are nine males and six females in the experimental group.
- 3. Grade Level:** All are in secondary school.
All the respondents are in secondary schools;
- 4. Duration of Visual Impairment:** From the results, it is possible to conclude that its mean duration is 10. They spent 2 years in the control group and 10, In contrast, the subjects in experimental group were followed up after 4 years to assess the impact of the intervention.

Section 2: Self-Mastery and Learner Interactions

5. Learning Preferences:

- Auditory: 10 students in the control group and 12 in the experimental group prefer auditory learning.
- Tactile: 7 students in the control group and 10 in the experimental group prefer tactile learning.
- Kinesthetic: 5 students in the control group and 8 in the experimental group prefer kinesthetic learning.
- Other: 2 students in the control group and 1 in the experimental group have other preferences.

6. Effectiveness of Traditional Teaching Methods:

- The control group rated the effectiveness of traditional teaching methods as 2.8 on average.
- The experimental group rated the effectiveness of traditional teaching methods as 3.0 on average .

7. Effectiveness of BBL Methods:

- The control group rated the effectiveness of BBL methods as 3.5 on average.
- The experimental group rated the effectiveness of BBL methods as 4.7 on average.

Section 3: Skills Improvement 8. Improvement in Pronunciation:

- 4 students in the control group and 12 in the experimental group noticed an improvement.

9. Improvement in Vocabulary:

- 5 students in the control group and 13 in the experimental group noticed an improvement.

10.Improvement in Grammar:

- 4 students in the control group and 11 in the experimental group noticed an improvement.

11.Improvement in Fluency:

- 3 students in the control group and 12 in the experimental group noticed an improvement.

12.Improvement in Listening Comprehension:

- 6 students in the control group and 13 in the experimental group noticed an improvement.

13.Improvement in Communication Strategies:

- 3 students in the control group and 12 in the experimental group noticed an improvement.

Section 4: Engagement and Motivation 14. Engagement in Lessons: - 7 students in the control group and 14 in the experimental group felt more engaged when BBL methods were used.

15.Motivation to Participate:

- 6 students in the control group and 13 in the experimental group felt more motivated to participate in class activities when BBL methods were used.

16.Confidence in Speaking:

- The control group rated their confidence in speaking as 2.5 on average.
- The experimental group rated their confidence in speaking as 4.3 on average.

Section 5: Additional Feedback

17.Aspects of BBL Methods Found Helpful: - Students appreciated the use of multisensory tools, interactive activities, and the supportive classroom environment.

18.Challenges Faced When Using BBL Methods:

- Some students mentioned initial difficulty in adapting to new learning methods and the need for more resources and teacher training.

19.Additional Comments or Suggestions:

- Students suggested more frequent use of BBL methods and increased access to assistive technologies.

Appendix B: Data and Tables

Table 3: Demographic Information of Participants

Demographic Information	Control Group	Experimental Group
Average Age	15	15.5
Gender (M/F)	8/7	9/6
Average Duration of Visual Impairment (years)	10.2	10.4

Table 4: Learning Preferences

Learning Preferences	Control Group	Experimental Group
Auditory	10	12
Tactile	7	10
Kinesthetic	5	8
Other	2	1

Table 5: Effectiveness of Teaching Methods

Teaching Methods	Control Group	Experimental Group
Traditional Methods (Average Rating)	2.8	3.0
BBL Methods (Average Rating)	3.5	4.7

Table 6: Skills Improvement

Skills Improvement	Control Group	Experimental Group
Pronunciation	4	12
Vocabulary	5	13
Grammar	4	11
Fluency	3	12
Listening Comprehension	6	13
Communication Strategies	3	12

Table 7: Engagement and Motivation

Engagement and Motivation	Control Group	Experimental Group
More Engaged	7	14
More Motivated	6	13
Confidence in Speaking (Average Rating)	2.5	4.3

A ppendix C: Graphs and Charts:

Figure ۳: Learning Preferences

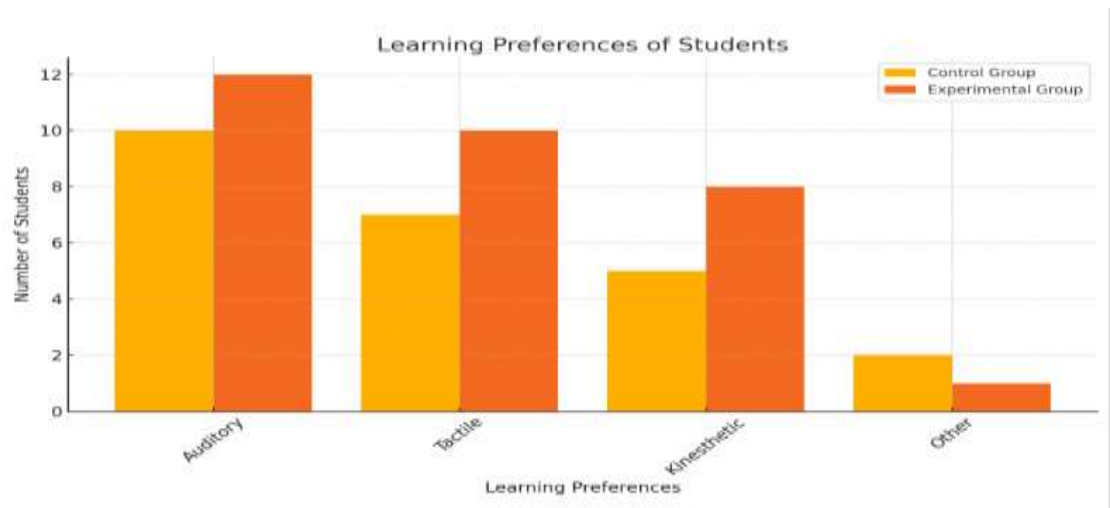


Figure ۴: Effectiveness of Teaching Methods

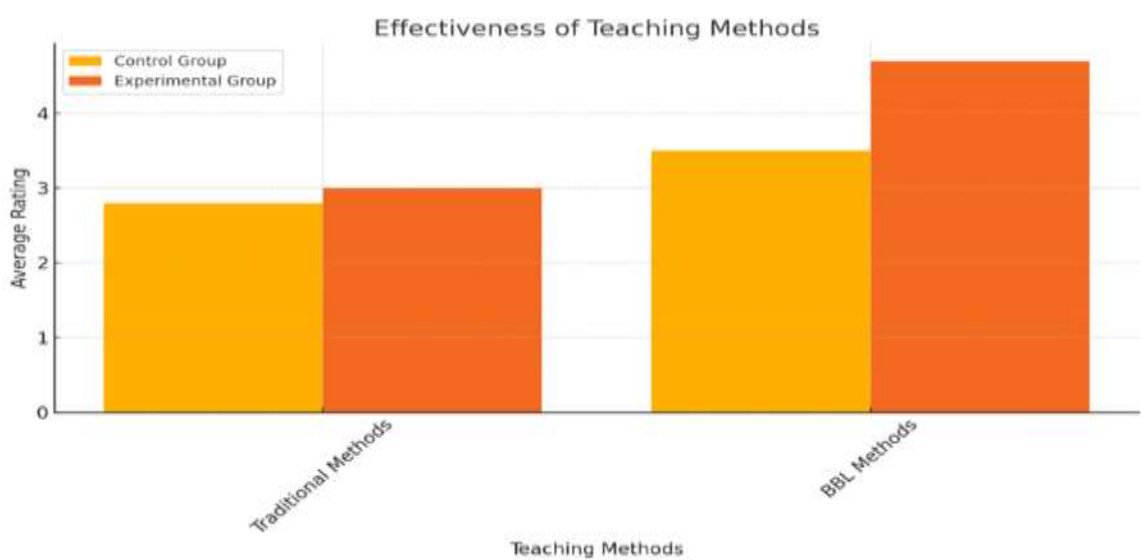


Figure ۵: Skills Improvement

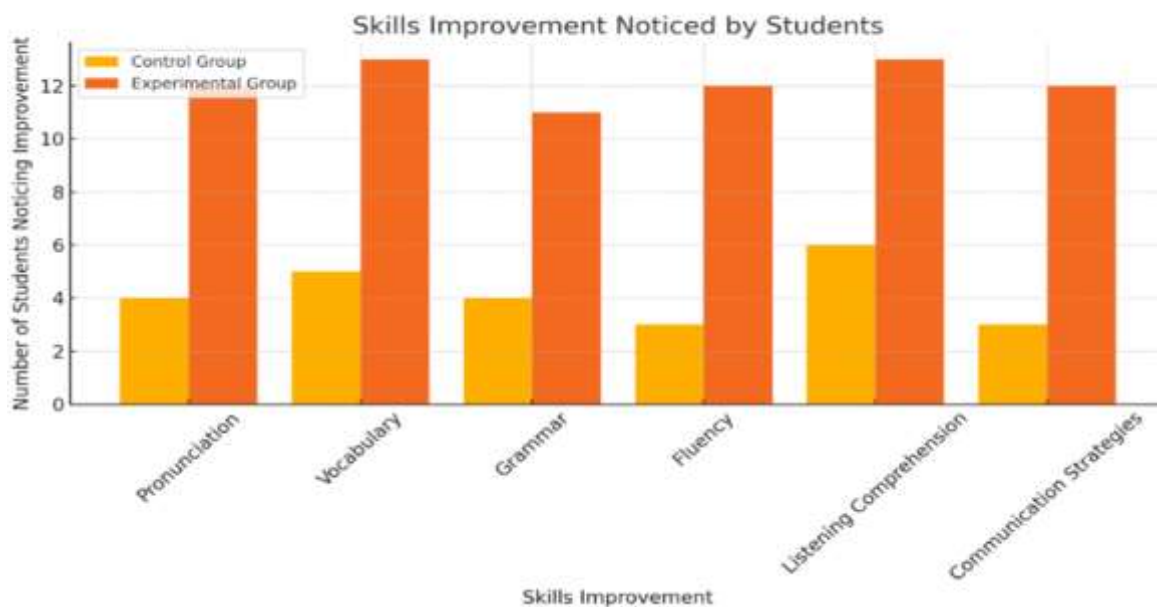


Figure 7: Engagement and Motivation

