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Implementation of quantum learning in english language teaching for sports students

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ABSTRACT

This study provides closer insight into how Quantum Learning may be applied in teaching English to first-semester students in the Universitas Negeri Makassar Physical Education, Health, and Recreation Program. Given its emphasis on active participation, experiential learning, and the creation of a positive learning environment, Quantum Learning is considered a possible means of raising student motivation and participation in language acquisition. The survey consisted of 50 students and utilized a quasi-experimental design to measure the changes in student motivation and participation. Pretest and post-test questionnaires, classroom observations, and follow-up interviews were used to measure the changes. The findings showed a noticeable improvement: student motivation increased by 26.4% and participation increased by 32.0%. Class observations revealed that the students were more active and assertive, especially when discussing in groups, playing games, and conducting experiments. Some students even said that they felt less stressed when communicating in English and that learning was more fun compared to previous classes. But all was not well. One of the most significant challenges was the gap in the level of English proficiency among students. This necessitated teachers to adjust their style so that everyone could maintain pace. Differentiated instructions and adapted support are essential for making learning accessible. Finally, the observations are that Quantum Learning can prove to be a successful method for developing English classes and making them more interactive and student-centric, especially in the sphere of sports education. More research could examine its long-term effects, explore how it can be paired with technology, or examine how it contributes to other language skills, such as writing and listening.

Keywords: English Learning, Quantum Learning, Motivation, Participation.

1. INTRODUCTION

English has also become a required tool for students who aim to pursue sports careers, particularly in the reading of scientific texts, understanding international vocabulary, and professional or competitive communication. According to Penjak (2024), English for Specific Purposes (ESP) for sports is a significant aspect in helping both students and experts deal with academic demands and industry practices more effectively. English is spoken in a great deal of the world's sports materials, ranging from technical handbooks and academic papers to competition rules, establishing it as the dominant language of the global sports world. Furthermore, as possibilities for a career in sports extend across frontiers such as trainers, players, or researchers, English proficiency presents an unmistakable professional advantage. Despite their importance, many sports students face challenges in learning English. Some struggle with low motivation, often because they see the subject as disconnected from their primary field of study. In many cases, English is taught using traditional methods that are monotonous and lack relevance to real-world sports contexts, making it harder for students to stay engaged. As a result, classroom participation tends to be low, and students miss opportunities to apply English in practical, industry-related situations. Suraya et al. (2021) note that motivation to learn English among sports students is shaped by several factors, such as the academic atmosphere, the approach used in teaching, and how clearly students see the role of English within their chosen field.

To overcome these challenges, English learning for sports students must be more interactive and aligned with their specific characteristics and learning needs. As Syandri (2023) pointed out, English for Specific Purposes (ESP) should be designed to address both the academic goals and future professional demands of learners. One promising approach is Quantum Learning, which blends active learning strategies, an engaging classroom atmosphere, and flexible techniques to cater to different learning styles. Aravantinos et al. (2024) indicated that the use of AI-based approaches in educational settings shows high potential, whereas studies are required to ensure their smooth integration. Through this method, English instruction can become more dynamic and relevant, allowing students not only to grasp the material more easily, but also to feel genuinely motivated to use English in everyday conversations and in their future roles within the sports industry. Quantum Learning is a teaching style that entails active learning processes, a caring classroom environment, and real-world applications to ensure student participation and understanding. As Manik et al. (2025) noted, Quantum Teaching and Quantum Learning are both designed to create more meaningful learning experiences through active student engagement, a caring classroom environment, and the linking of academic content to the real world. Contrary to the view of learning as information transmission only, this model views it as an integrative process governed by emotional, social, and environmental factors. If students feel safe, guided, and encouraged in class, they are likely to learn the course material better and be willing to participate throughout the learning process.

This approach also encourages the use of multiple interactive learning techniques, including group discussions, simulations, educational games, and the integration of visual media and technology. Lavidas et al. (2024) argued that the adoption of artificial intelligence-based educational applications is influenced by perceived ease of use, perceived usefulness, and individuals' attitudes toward technology. These techniques allow students to learn beyond the understanding of theoretical concepts they begin by applying what they have learned in meaningful ways related to their own lives. As Insyiroh et al. (2025) observed, Quantum Learning plays an important role in fostering student literacy by offering a more inspiring, fun, and stimulating classroom setting. In the process of teaching English to sports students, this method offers a useful way of linking language instruction with typical physical activity and routines. Such linkages render learning more relevant and enjoyable for students, boosting their learning motivation.

Implementing Quantum Learning methods in English instruction in sports programs introduces a new way of increasing motivation and academic success. Through the integration of active learning methods, visual representations, and real applications of English, this approach takes English learning above memorization and rote drills. Rather, it helps learners connect the application of language to situations they are most likely to encounter in their careers. Dariyanto et al. (2022), English education must be tailored for sport students so that their unique academic and vocational needs are met to make it realistic as well as effective. With experiences such as simulations, classroom discussions with interaction, and

learning via movement, students are not just physically engaged but also mentally engaged, hence making the process of learning more active and effective. An active class environment not only makes learning fun but also ensures ease of use of the English language. In the long term, this enhances their confidence levels and helps them speak more comfortably in English.

Through this, Quantum Learning enhances the overall learning process while simultaneously preparing students with effective English skills that are directly applicable to their future working roles in the sports industry. As Maulidi (2022) points out, Quantum Learning is an effective teaching strategy that boosts student motivation by establishing an interactive, fun, and exciting environment. Within English instruction for sports students, implementing Quantum Learning entails using instructional strategies that are not only interactive but also contextual and experiential. The emphasis is on establishing a positive, encouraging classroom culture in which students become engaged in work and use English in contexts that reflect the pragmatics of sports and physical education. As emphasized by Lestari and Widiastuty (2023), good curriculum planning for English language teaching must consider students' personal needs, learning environments, and instructional practices that support comprehension and engagement.

One potential practical use of this method is to start each class with "Prime Time 1," a stimulating opening period meant to spark students' interest and prepare their minds to learn. Teachers may use inspiring clips of top-class athletes, motivational speeches from legendary coaches, or simple warm-up games in English to make the class lively and interesting. At the material receipt stage, Quantum Learning promotes experiential learning tasks, such as discussion forums, role-playing as players or coaches, and decoding actual match instructions written in English. One feasible approach to get students registered is to challenge them to decode training signals from international sports clips and then explain the cues in their own words in English. This not only improves their language skills, but also strengthens their understanding of actual sporting contexts. According to Risan et al. (2022), English learning is much more meaningful if it is grounded in authentic conditions that are connected with learners' professional interests in sports. Apart from real applications, employing game-based websites such as Wordwall and Kahoot can also enhance learning vocabulary in a more fun and engaging manner, especially when focusing on sports-specific terms and expressions. Visual learning materials, such as mind maps and concept diagrams, are also effective because they allow students to learn more conveniently about the structure of the language while solidifying key ideas used in sports communication.

Towards the end of the lesson, often called Prime Time 2 students are given space to reflect upon what they have learned. This can occur in individual learning journals or small group discussions, in which they are able to share ideas and experiences in a manner that truly matters. Recognizing students' work and achievements at this level is also a central component of the Quantum Learning approach, as it helps boost their motivation and gives them a feeling of accomplishment. By incorporating this reflection, learning English goes beyond the activity it would be in a typical classroom becomes an experiential, practical experience that speaks to students' own goals in life. For sport students In particular, this method reinforces their skills of communicating fluently in the workplace as well as improving the learning process. The success of using Quantum Learning in sports students' English education is influenced by several supportive and limiting factors that exist along the way in the learning process. The most powerful factor contributing to its success is a high degree of student participation. Since Quantum Learning is centered around active involvement and pleasant experiences, it is second in nature to the study habits of sports students, who prefer active, interactive activities over passive lectures. In experiential learning tasks, such as role-plays and simulations of real sports scenarios, students learn English more meaningfully and can more easily apply what they have learned into their future working environments. Syahputra et al. (2023) highlight the point that the interactive and stimulating environment provided by Quantum Learning is accountable for improving understanding as well as retention.

Another critical component is the positive and supportive classroom atmosphere that Quantum Learning helps to build. By recognizing students' efforts and achievements, this method builds confidence in the use of English. Ulfawati et al. (2024) emphasize that the process is designed to optimize the learning process through the integration of interaction, enjoyment, and application. Technology and multimedia tools, such as English-language sports videos, learning apps, and gamified platforms, also facilitate the

learning process, making it more engaging and meaningful. The role of supportive instructors and institutions that encourage innovation in teaching further strengthens the successful implementation of this approach. Although Quantum Learning has great potential in enhancing English instruction for sports students, its implementation is not without concern. One of the shared problems is that not all students are as sensitive to English having a key role in their professional life, and this could contribute to low motivation despite the fact that this way of teaching needs to be interactive and participatory. The disconnection between perceived usefulness and course activities can diminish the overall efficiency of the method. Infrastructure bottlenecks are also a challenge. The unavailability of simple facilities such as language labs, restricted access to multimedia facilities, or unavailability of quality Internet connectivity can hold back the seamless integration of technology-enabled components of Quantum Learning. These limitations can even exclude teachers from taking maximum advantage of interactive and media-intensive materials that are at the core of the strategy.

Instructionally, the change called for by Quantum Learning is difficult for instructors who are accustomed to more traditional lecture-based instruction. Not only does this type require creativeness and adaptability, it also requires the skill of making lesson plans that accommodate students' learning modalities. The planning and delivery of this kind of lesson can be time-consuming and mentally draining, particularly for new teachers. Furthermore, not all students are kinetic or active learners. Style differences in learning imply that some students would be out of place in extremely kinetic classrooms, where they would thrive in more structured, conventional styles. Time was another consideration. Developing an energizing classroom environment and receiving rich student participation requires more time than is typically allotted in standard class periods.

To respond to these challenges, certain strategic measures must be considered. One significant step is to facilitate students' comprehension of the day-to-day usage of English in their prospective profession in the sports sector. This can be achieved by presenting real-life examples where language is involved, such as foreign coaches, referees, or reading scientific articles. In addition, the establishment of appropriate facilities, such as multimedia materials and consistent Internet connections in classrooms, is also necessary to deploy the interactive components of Quantum Learning appropriately. Opportunities for professional development of educators are also critical. Lecturers need both support and training to adapt to more student-centered and innovative modes of instruction. Uğraş et al. (2024) held that the use of ChatGPT in elementary education has great potential to promote sustainable practice by enhancing students' motivation and strengthening technology-supported education. With thoughtful preparation and institutional support, Quantum Learning can be a highly effective method for improving English instruction in sports education programmes. Hendriyani (2021) notes that instructional design for English for Specific Purposes (ESP) should be closely connected to learners' academic and working environments. In this case, Quantum Learning fits well because it offers a stimulating classroom environment as well as a highly relevant environment for students' future working lives.

Feedback from students in sports departments has been mostly positive towards the use of Quantum Learning in English studies. The majority of the students communicated that the method is more vibrant and fun to learn from, especially when compared to traditional teaching methods, which are more stereotyped and repetitive. The use of games, simulation, and physical exercise helps students to understand and recall new information better, thereby making learning more meaningful and memorable. In addition to merely increasing motivation, Quantum Learning also plays a significant role in building student confidence in applying English. Instead of relying on passive learning, students are actively involved in practical exercises, such as role-playing scenarios that can range from being sports players or coaches to participating in discussions related to sports. An active learning environment creates a more relaxed learning environment in which students can freely express themselves without fear of making mistakes.

However, it is also necessary to note that not all students adapt to this system at the same speed. Students who are more familiar with the conventional lecture-style method of learning may find it difficult to switch to an activity-based model. Similarly, students with lower levels of English proficiency may not be comfortable with questions that require spontaneous answers and speaking. Such issues are valid and

need to be sensitively addressed by teachers. Although the long-term effectiveness of Quantum Learning depends on wise utilization and blending with flexible instructor directions, it promises to yield enhanced active learners better equipped with knowledge of English to apply effectively in real life. Papadakis et al. (2023) added that the collaboration of cloud computing and augmented reality has the greatest potential to redesign learning efficiency in the current learning environment. Ultimately, Quantum Learning provides a new trend in making English education more relevant, feasible, and liberating for students seeking careers in the sports industry.

Quantum Learning uses an enormous range of approaches designed to accommodate a wide range of learning styles. They include simulations, interactive debates, role-playing, and the use of visual media and computer-based learning tools. According to Hasibuan (2024), this strategy enhances the overall learning process by incorporating interactivity, enjoyment, and experiential learning. Typically, the process of learning commences with the efforts of creating an interesting and welcoming atmosphere, which involves viewing inspiring videos with popular athletes or involving students through language-based games that inspire interest. Subsequently, the presentation of lessons shifts towards the exploratory mode, where the students are provoked to engage actively with the material instead of acquiring it in a passive manner. They are invited to participate in activities that are modelled in everyday situations, making learning more meaningful and applicable. Reports on the roll-out of this approach indicate that Quantum Learning has a tangible impact on increasing student motivation. Most students remarked that they look forward to attending English lessons more since the lessons are stimulating and varied, and offer an excellent contrast to routine, lecture-based teaching. The relaxed and encouraging atmosphere also contributed to boosting their confidence, particularly when speaking English.

Despite its many strengths, the implementation of Quantum Learning for English instruction has its own weaknesses. The biggest challenge is the wide range of students' English competence levels. Students with very low language levels are bogged down by activities requiring greater verbal interaction levels, and may feel demotivated or lose their confidence in being able to contribute. Another challenge lies in how prepared instructors use this method. Quantum Learning requires a shift from lecture-conventional teaching to a more flexible, creative pedagogy, a shift that could be daunting for teachers who are accustomed to traditional methods. Embracing a student-focused, activity-focused methodology not only takes time but also demands a willingness to remain open-minded and to test new approaches. Additionally, the effectiveness of Quantum Learning often hinges on access to proper facilities, such as multimedia tools, interactive classroom spaces, and reliable internet resources. Without these, the full benefits of this method may not be realized. Time was another critical factor. This approach generally requires more effort in both lesson preparation and delivery. Teachers must find a balance between maintaining the interactive spirit of the method and remaining within the constraints of the academic schedule.

Understanding the strengths and weaknesses of Quantum Learning allows educators to make informed adaptations. With adequate institutional support, better infrastructure, and special support for students who need language assistance, this approach can be a catalyst for transforming English learning in sports education courses. Measuring the impact of quantum learning on student motivation and classroom participation reveals its ability to exponentially boost engagement. In contrast to conventional methods, this generates a more active, enjoyable, and interactive learning atmosphere that automatically involves students in the learning process. Enhancing students' intrinsic motivation has one of the most powerful impacts. By establishing a positive learning environment, Quantum Learning encourages students to become active, communicative, and willing to try using a language without fear of making mistakes. For sports students, movement activities, games, and simulations of life work extremely well, as they appeal directly to their preferred physical and visual learning styles. As Hardani and Nashikhah (2023) observed, Quantum Learning is established on the premise of active involvement, a stimulating and engaging atmosphere, and the utilization of multiple senses to strengthen both motivation and comprehension.

Additionally, this technique has led to increased student involvement. Unlike traditional learning, where there is lectureship and paper activity at times, Quantum Learning engages students through

discussions, role-plays, and projects that reflect real sporting scenarios. Through this application of language for purposeful purposes, not only are there more English communication and English interaction opportunities offered to students, but their confidence and fluency are also consolidated in the long term. Papadakis et al. (2023) maintained that computer simulation and cloud-based smart technology can potentially transform education through the provision of more effective and successful open learning. However, it must be observed how well this approach works, depending on the student. Students with weaker English skills or less self-esteem will resist high-energy, fast-moving classroom activities. In some cases, these students might even lose interest in the activity if the environment turns out to be too intimidating. To respond to this, teachers should incorporate more adaptive and accommodating instructional strategies, such as providing individualized instruction or modifying activities to meet multiple learning abilities in a way that all learners benefit from the strategy.

To gain a better understanding of how this approach affects students, a combination of surveys, interviews, and classroom observations can be used. These instruments offer valuable feedback on how students respond to Quantum Learning, and where instructional methods might need to be adjusted. From this feedback, teachers can modify their methods to better support student motivation and engagement, particularly in English classes for sports students. This study focused on the application of Quantum Learning in the context of English language learning for students in sports programs. It would like to evaluate the effectiveness of the method in enhancing student engagement and motivation and identify the most crucial factors that support or hinder its implementation in typical classroom environments. By analyzing the strengths and limitations of Quantum Learning, this study aims to provide practical recommendations for how the model can be implemented in a way that will suit the unique learning styles and requirements of students in the field of sports education.

2. METHOD

The research applied a pretest-posttest design quantitatively with a population covering first-semester students in the Physical Education, Health, and Community Study Program at Universitas Negeri Makassar. This design was adapted to measure the effectiveness of introducing Quantum Learning as part of English teaching and its influence on student participation and motivation during classroom activities. Information was gathered using a Likert-scale questionnaire administered both before and after the implementation of the Quantum Learning approach. This allowed the researchers to evaluate shifts in student motivation and participation throughout the learning process. To offer more qualitative data, observations were conducted in classrooms to record how the students responded to the pedagogies currently employed. Students' participation, interaction, and overall classroom atmosphere were noted by the observers during the sessions. Purposefully sampled students also provided richer insights through semi-structured interviews about their learning experiences. The interviews attempted to uncover both facilitative and limiting factors that influenced the effectiveness of Quantum Learning in this particular educational environment. Quantitative data obtained from the surveys were used for descriptive statistical analysis to track the changes in participation and motivation. Qualitative data from the interviews and observations were examined using thematic analysis to identify significant patterns and recurring themes. By combining both qualitative and quantitative approaches, this study seeks to present a complete image of how Quantum Learning influences the teaching of the English language in sports-related study courses, referencing both benefits and potential shortcomings.

2.1. Sample

Fifty first-semester students of the Physical Education, Health, and Community Study Program of Universitas Negeri Makassar participated in the research. This number was considered sufficient to obtain credible data for determining the impact of Quantum Learning on English teaching. First-semester students were chosen specifically because they are still in the early stages of adjustment to academic English and, thus, are more open to new and experimental approaches to teaching, such as Quantum Learning. Their transition period offers a special window of opportunity to observe changes in motivation and classroom participation as they begin to develop basic language

skills.In addition, the range of English proficiency levels of the participants gave the study a broader perspective on how Quantum Learning operates in different skill groups. The range allowed the research to explore whether the method is as much beneficial to students of higher proficiency as it is to students who are still struggling with the application of the language at the basic level. With 50 students, the study aimed not only to obtain solid quantitative data that would be amenable to statistical analysis, but also to gain qualitative insights of depth from students' lived experiences. Collectively, this sample provides a sound basis for discovering how Quantum Learning might be used to augment English instruction in a sports-oriented academic environment.

2.2. Measurements

Data collection in the study employed a number of methods, spretests and posttests, Likert-scale questionnaires, classroom observations, and semi-structured interviews to collect both quantitative and qualitative data. The pretests and posttests measured the quantitative improvement in students' participation and motivation before and after the Quantum Learning application. One of the major tools for data gathering was a 10-point Likert-scale questionnaire with statements as indicators of students' enthusiasm for learning, confidence in the use of English, and participation during classes. To determine students' prompt reactions to the Quantum Learning approach, classroom observation was conducted during the course of teaching. These observations paid close attention to student engagement, the dynamics between students and instructors, and the overall atmosphere during lessons. The selected students were interviewed using semi-structured techniques to deepen the results. These talks sought to investigate their personal experiences, stressing both the supporting and limiting elements that formed the efficacy of Quantum Learning in English classes. Descriptive statistics of the quantitative data collected from the surveys revealed general patterns in student motivation and involvement. Concurrently, the interview and observational qualitative data were thematically analyzed to help the researcher identify patterns that recurred and provide deep insight into how the students experienced and reacted to the Quantum Learning approach.

2.3. Data Analysis

The data analysis in this paper offers a well-rounded knowledge of the efficacy of Quantum Learning in English instruction for sports students by using both quantitative and qualitative approaches. Descriptive statistical methods were used to examine quantitative data from the pretests and posttests. The main emphasis was to identify changes in students' motivation and participation levels following the application of Quantum Learning. To track engagement trends and assess the degree of improvement, the mean scores and percentage distributions from the Likert-scale questionnaire were computed. A comparison between the pre-test and post-test outcomes provided a clearer understanding of how the approach affected students' participation in English learning activities. Thematic analysis examined the data collected from semi-structured interviews and classroom observations on a qualitative front. Emphasizing both their advantages and the challenges they encountered, this approach sought to reveal consistent trends in student responses to the Quantum Learning model. Key themes, such as increased classroom participation, learning difficulties, and successful teaching strategies, were methodically coded and categorized from observational notes and interview transcripts. The study offers a more complete and complex picture of how Quantum Learning influences student motivation and involvement by combining these two types of analysis. Furthermore, this mixed-method strategy helps identify important elements that either enable or impede the successful application of the approach in a higher education setting.

3. RESULTS

The results of this study demonstrate that incorporating Quantum Learning into English instruction improves motivation and classroom engagement for students enrolled in Universitas Negeri Makassar's Physical Education, Health, and Recreation Study Program. Student engagement significantly improved following the implementation of the method according to an analysis of the pre-test and post-test results. The average motivation score was 65.4 before the intervention, but after using Quantum Learning, it rose

to 82.7. Students' enthusiasm for and confidence in using English during lessons also increased, as evidenced by their participation scores, which increased from an average of 60.8-80.3.

These findings were supported by observations in the classroom, which showed a more lively and engaged environment. Pupils were notably more willing to participate in discussions, respond to inquiries, and perform practical exercises based on the Quantum Learning paradigm. Strategies such as educational games, cooperative group projects, and simulations worked especially well at drawing students and promoting a deeper level of engagement with the material. Further insights gathered from semi-structured interviews echoed these observations. Many students expressed that the Quantum Learning approach made them feel more comfortable learning English. They reported an increase in self-confidence when speaking in front of others and found lesson materials easier to understand than those used in traditional teaching formats. However, this study identified several challenges. Variations in language proficiency among students and the need for a broader range of instructional techniques are notable concerns, especially when addressing diverse learning preferences. In summary, this study demonstrates how well Quantum Learning works to increase motivation and engagement in learning English. Together with the results of the observations and interviews, the test score improvements indicated that the approach created a more stimulating and encouraging learning environment. To meet the needs of various students and guarantee the approach's continued success, constant modifications and adaptive techniques are necessary.

Table 1. Pretest and Posttest Results of Students' Motivation and Participation

Variable	Pretest (Average Score)	Standard Deviation	Posttest (Average Score)	Standard Deviation	Increase (%)
Motivation	65,4	4,892	82,7	4,849	26,4%
Participation	60,8	5,532	80,3	4,766	32,0%

Following the adoption of the Quantum Learning approach, students' motivation and engagement significantly increased according to the data in the table. While classroom participation increased by 32.0%, student motivation also increased by 26.4%. These findings suggest that, especially in the context of the sports department, Quantum Learning significantly improves students' engagement with English language instruction. The approach's focus on experiential and interactive learning techniques seems to foster a more stimulating and encouraging classroom learning environment. Consequently, students are inspired to participate more actively in their education, which makes learning more fulfilling and pleasurable. An inferential statistical test with a paired t-test was conducted to determine the effectiveness of the intervention. The results indicated a difference between the post-test and pre-test scores on the participation variable ($t(49) = 21.94$, $p < 0.001$) and the motivation variable ($t(49) = 22.37$, $p < 0.001$). Mean motivation scores shifted from 65.4 on the pretest to 82.7 on the posttest, and participation scores shifted from 60.8 to 80.3. The change was not only statistically significant, but also practically significant. This is in addition to an estimate of the effect size in terms of Cohen's d, which yielded values of 3.10 for motivation and 3.16 for participation. According to Cohen's (1988) criteria, the values are within the very large effects category, indicating that the intervention had a true impact on increasing students' motivation and participation levels in learning processes. These results suggest that, following the intervention, the students showed greater active engagement and increased intrinsic motivation towards learning activities.

Table 2. Student Participation Observation Results in Learning

Observed Aspects	After Quantum Learning	After Quantum Learning	Changes
Student Interaction with Lecturer	Low	High	Increased
Participation in Class Discussions	Less Active	More Active	Increased
Enthusiasm in Completing Tasks	Moderate	Very Enthusiastic	Increased
Confidence in Speaking	Low	Improved	Increased

Observations in the classroom showed that, following the adoption of the Quantum Learning

approach, students were noticeably more engaged and confident in their ability to communicate. The approach's focus on developing a fun and engaging learning environment worked well to raise the students' general level of engagement. Students seemed more at ease speaking English in class and participated in activities more readily.

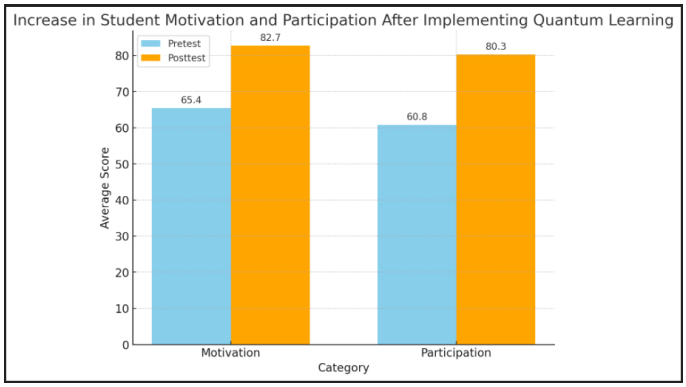

Figure 1. Increase in Student Motivation and Participation After the Implementation of Quantum Learning

4. DISCUSSION AND IMPLICATIONS

The results of this study show that students' motivation and participation in class have significantly improved since Quantum Learning was introduced in the English instruction of students in the Department of Physical Education, Health, and Recreation at Universitas Negeri Makassar. The significant gains in pre-test and post-test scores show that this approach creates a more dynamic, interesting, and productive learning environment. Given that sports students are more likely to thrive in experiential and hands-on learning environments, the increase in motivation suggests that Quantum Learning helps lessen the sense of monotony frequently associated with English language instruction. This approach encourages greater student involvement and sustains active engagement throughout the learning process by integrating real-life scenarios, collaborative discussions, and enjoyable classroom activities. These results support the notion that more profound student involvement and improved retention can be achieved in emotionally stimulating, supportive learning environments. Increased participation also indicates that Quantum Learning helps to build students' confidence in using English. Activities that ease students' fear of making mistakes and encourage more frequent verbal interactions include role-play, group simulations, and game-based exercises. These results corroborate previous research showing that experiential learning improves speaking skills and expands contextual awareness.

However, in addition to the benefits of this approach, several other challenges have been noted. One of the biggest differences is in students' proficiency levels in English. The engagement of these learners can also be limited, as they have more difficulties with verbal tasks due to their low language proficiency level. In response to these demands, teachers may need to implement adaptive strategies against which students can be classified based on patterns of behavior over student performances, a wider range of techniques used to facilitate student learning, and scaffolding used to better support students whose developmental needs are lower than the class average. The results of this study suggest that Quantum Learning is a promising approach to English instruction in sports education contexts. However, its success depends on thoughtful adaptation to accommodate learners' diverse needs. Educators should be encouraged to design more flexible and inclusive teaching strategies to ensure that all students can benefit equally from this method. Future research could explore larger and more varied sample groups, conduct comparative studies with other instructional models, and investigate how the integration of Quantum Learning with digital tools may further enhance learning outcomes. In addition, examining the psychological factors that influence student engagement and success may provide valuable insights for refining experiential student-centered pedagogies.

4.1. Limitations

One major limitation of this study is that it did not include a control group. With no class of students being instructed in the conventional way or compared, it becomes difficult to attribute the gains in motivation and interest observed solely to the implementation of the Quantum Learning model. Instructor effects, newness of approach, and spontaneous maturation over time are possible explanations for favorable outcomes. The absence of a comparative baseline undermined the internal validity of the study. In future studies, it is suggested to use a quasi-experimental design with a control group to more strongly test the unique effects of Quantum Learning and more effectively isolate causal relationships.

5. CONCLUSION

This study verifies that the application of Quantum Learning in English language instruction for Universitas Negeri Makassar students studying in the Department of Physical Education, Health, and Recreation is a good and significant force, especially for improving student motivation and participation. Both the pre-test and post-test clearly show improvements on both fronts, which proves that this method leads to the formation of a more dynamic and engaging learning environment. By emphasizing an engaging, experience-based classroom, Quantum Learning invites students to actively participate, thus stimulating their enthusiasm for learning English. It also builds confidence, particularly in speaking skills, an essential skill for students entering the sports career field. However, it is important to note some limitations of this study. This study was conducted in a fairly limited environment, relating to a specific group of students within one institution. Furthermore, the study employed a quasi-experimental design, the limitations of which may limit the degree to which conclusions can be generalized. Variations in students' levels of English proficiency were also an issue that was, to some degree, addressed through adaptive teaching methods but may have affected the overall outcomes. In light of these limitations, it is advisable for future research to be more rigorously experimental with, for instance, control groups to enhance the validation of results. Even richer insights may come from more extensive research by studying a broader population of students in more representative institutions, with greater reference to broader international literature. Moreover, future research should examine the long-term effectiveness of Quantum Learning, its integration with computer-based technologies, and its application to other English-language skills, particularly reading, writing, and listening.

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