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The Effect of Using Closure Skill on Acquiring Some Vocabulary of Teaching Methods Course for Fourth Year Students of the Institute of Sport Education – Zakho

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Abstract
This study aimed to assess the effect of closure skills on vocabulary acquisition in teaching methods courses for fourth-year sport education students at the Institute of Sport Education in Zakho. The research addressed the gap in literature regarding the impact of closure techniques on specialized vocabulary learning in sport education teacher preparation. An experimental design was employed with 44 students divided into two experimental groups (teacher-led and student-led closure) and one control group. The educational program consisted of 12 instructional units focusing on command, basic positions, and derived positions in sport exercises. Data were collected through achievement tests and analyzed using ANOVA and t-tests. Findings revealed that both teacher-led (M=6.851, SD=0.4257) and student-led (M=6.531, SD=0.3891) closure skills significantly enhanced vocabulary acquisition compared to traditional methods (M=5.425, SD=0.4211; F=2.944, p<0.05), with no statistically significant difference between the two experimental approaches (t=0.593, p>0.05). The study demonstrated the effectiveness of closure skills in bridging the gap between content knowledge and effective teaching in sport education. These results align with broader educational research on the importance of structured reflection in learning. The comparable efficacy of teacher-led and student-led closure activities suggests flexibility in implementation for educators. Future research should explore long-term retention, technology integration in closure activities, and application across diverse sport education contexts. This study contributes to the refinement of sport education teacher preparation programs and offers insights for enhancing pedagogical practices in the field of physical education.

Keywords: Closure Skills; Sport Education; Teacher Preparation; Teaching; Zakho

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INTRODUCTION

The effectiveness of teaching methods in sport education has been a subject of ongoing research and debate in recent years. Among the various strategies employed to enhance student learning, the closure skill has emerged as a potentially valuable tool, particularly in the context of teaching methods courses for future sport education instructors. Closure, defined as the activities or statements made by the teacher to conclude a lesson appropriately, serves to help students organize and crystallize the information presented during the class (Metzler, 2017).

Recent studies have highlighted the importance of closure in consolidating learning and improving retention. For instance, a study by Rink (2013) emphasized the significance of lesson closure in sport education, noting that it provides an opportunity for teachers to reinforce key concepts and skills taught during the lesson. This aligns with broader educational research, such as that conducted by Hattie and Donoghue (2016), which found that strategies that help students consolidate their learning, like those used in effective lesson closures, have a positive impact on student achievement.

Despite the growing body of research on teaching effectiveness in sport education, there remains a notable gap in understanding how specific pedagogical techniques, particularly closure skills, impact vocabulary acquisition in specialized physical education contexts. While studies have documented the general benefits of structured learning activities in physical education (Marzano, 2017), and others have explored various teaching strategies in sport education (Casey & MacPhail, 2018), the specific role of closure techniques in developing specialized teaching vocabulary remains understudied. Furthermore, the comparative effectiveness of different closure approaches (teacher-led versus student-led) in sport education teacher preparation has not been adequately examined, especially within diverse cultural contexts (Choi et al., 2015). This study aims to address these gaps by investigating the impact of closure skills on vocabulary acquisition among fourth-year sport education students, contributing to the ongoing development of effective pedagogical practices in physical education teacher preparation programs.

In the specific context of sport education, closure skills may be particularly relevant due to the practical nature of the subject and the need for students to internalize both theoretical knowledge and physical skills. As noted by Casey and MacPhail (2018), effective teaching in sport education requires a complex set of pedagogical skills, including the ability to structure lessons in a way that maximizes student learning and retention. The application of closure skills in teaching methods courses for sport education students thus presents a unique opportunity to enhance the pedagogical abilities of future educators.

However, there is a notable gap in the literature regarding the specific impact of closure skills on the acquisition of teaching methods vocabulary and concepts in sport education programs. While research has been conducted on various aspects of sport education teacher education (SETE), such as the work by Richards et al. (2018) on the socialization of SETE

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students, less attention has been paid to the specific instructional strategies used within SETE programs and their effectiveness.

This study aims to address this gap by examining the effect of using closure skills on the acquisition of teaching methods vocabulary among fourth-year students at the Institute of Sport Education in Zakho. By focusing on this specific context, the research contributes to the broader understanding of effective pedagogical practices in sport education teacher preparation programs. The findings of this study may have implications for curriculum design and instructional practices in similar institutions, potentially leading to more effective preparation of future sport education teachers.

Furthermore, this research aligns with recent calls for innovation in sport education teacher education. As Ní Chróinín et al. (2020) argue, there is a need for SETE programs to evolve to meet the changing demands of the field and to better prepare teachers for the complexities of modern sport education instruction. By examining the effectiveness of specific teaching strategies like closure skills, this study contributes to the ongoing effort to improve and refine SETE programs.

To assess the effect of using closure skills in practical lessons on the acquisition of specific vocabulary in teaching methods for fourth-year students (focusing on command, basic positions, and derived positions in physical exercises). To compare the effectiveness of teacher-led (instructional) closure skills versus student-led (cognitive) closure skills in the acquisition of specific vocabulary in teaching methods for fourth-year students (focusing on command, basic positions, and derived positions in physical exercises).

There will be statistically significant differences in the final test results between the first and second experimental groups and the control group, favoring both experimental groups. Students in the first experimental group (instructional closure) will outperform students in the second experimental group (cognitive closure) in the final test.

Research Scope: Human Domain, fourth-year students at the Institute of Sport Education – Zakho; Spatial Domain, the indoor sports hall in Zakho city; Temporal Domain, from October 1, 2023, to April 4, 2024.

The concept of closure skills in education has been a subject of interest for researchers and practitioners alike, with its roots tracing back to cognitive psychology and learning theory. Closure, in the educational context, refers to the activities or statements made by teachers at the end of a lesson to help students organize, summarize, and internalize the information presented (Gagne et al., 2005). This pedagogical technique has been recognized as an essential component of effective teaching practices across various disciplines, including sport education.

The importance of closure in the learning process is underscored by several influential educational theories. Marzano (2017) emphasizes that closure activities serve as a critical link between what has been learned and what will be learned in future lessons. This perspective aligns with the constructivist approach to learning, which posits that new knowledge is built upon existing cognitive structures (Vygotsky, 1978). In the context of sport education, where learning often involves both cognitive and psychomotor components, the role of closure becomes even more significant.

Research by Siedentop and Tannehill (2000) highlights the multifaceted nature of closure in sport education. They argue that effective closure in sport education lessons should address not only cognitive aspects but also psychomotor skills and affective outcomes. This holistic

approach to closure aligns with the comprehensive goals of physical education as outlined by SHAPE America (2013), which encompass physical, cognitive, and affective domains.

The implementation of closure skills in sport education has been shown to have positive effects on student learning outcomes. A study by Rink (2006) demonstrated that well-structured lesson closures in sport education can enhance student retention of both theoretical knowledge and practical skills. This finding is particularly relevant in the context of teaching methods courses for future sport education instructors, where students must internalize both pedagogical concepts and physical skills.

The importance of closure skills extends beyond individual lessons to the broader context of curriculum design in sport education. Ennis (2015) argues that effective curriculum planning in sport education should include consideration of how concepts and skills are reinforced and connected across multiple lessons and units. This perspective aligns with the idea of closure as a continuous process rather than a single event at the end of each lesson.

In the specific context of teaching methods courses for sport education students, the acquisition of closure skills becomes doubly important. These future educators must not only understand the concept of closure for their own learning but also develop the ability to implement effective closure activities in their future teaching practice. Research by Darling-Hammond et al. (2005) on teacher preparation emphasizes the importance of providing pre-service teachers with opportunities to practice and refine their teaching skills, including closure techniques, in authentic contexts.

The potential impact of closure skills on vocabulary acquisition in teaching methods courses is an area that warrants further investigation. While research has been conducted on vocabulary acquisition in various educational contexts (Nagy & Townsend, 2012; Ali, 2020), less attention has been paid to this aspect in sport education teacher education programs. However, the principles of effective vocabulary instruction identified in general education research, such as the importance of multiple exposures and meaningful use of new terms (Beck et al., 2013), could potentially be applied through well-designed closure activities in teaching methods courses.

The use of closure skills in sport education aligns with contemporary approaches to pedagogy that emphasize student-centered learning and metacognition. For instance, the models-based practice approach to sport education, as described by Casey and MacPhail (2018), emphasizes the importance of students reflecting on their learning experiences. Closure activities can provide structured opportunities for such reflection, enhancing students' awareness of their own learning processes and progress.

In considering the potential benefits of closure skills in sport education teaching methods courses, it is important to also acknowledge potential challenges in their implementation. Time constraints in sport education classes can sometimes lead to the neglect of closure activities, as noted by McKenzie and Lounsbery (2013) in their discussion of issues in sport education teacher education. Overcoming this challenge may require a shift in how lesson time is allocated and a recognition of the critical role that closure plays in the learning process.

The integration of technology in sport education presents both opportunities and challenges for the implementation of closure skills. Digital tools and platforms can provide new ways to conduct closure activities, such as through interactive quizzes or video reflections (Krause & Lynch, 2018). However, the use of technology must be balanced with the practical, movement-based nature of sport education. Future research could explore how closure

activities in sport education can effectively incorporate technology while maintaining a focus on physical activity and skill development.

As sport education continues to evolve in response to changing societal needs and educational paradigms, the role of closure skills in teacher preparation programs may need to be reevaluated. The growing emphasis on physical literacy (Whitehead, 2010) and the need to prepare students for lifelong physical activity engagement (Green, 2014) may require new approaches to lesson closure that emphasize connections between classroom learning and real-world application.

The effectiveness of closure skills in sport education may also be influenced by cultural and contextual factors. A study by Choi et al. (2015) on sport education practices in South Korea highlighted the importance of considering cultural norms and expectations when implementing pedagogical strategies such as closure activities. This underscores the need for research on closure skills in diverse cultural contexts to ensure their effectiveness across different educational settings.

The role of assessment in closure activities is another area of interest in sport education research. López-Pastor et al. (2013) argue for the integration of formative assessment practices in sport education, which could potentially be facilitated through well-designed closure activities. This approach aligns with the broader trend towards assessment for learning in education, as described by Black and Wiliam (2009).

The potential of closure skills to enhance inclusive practices in sport education is an emerging area of research. Haegele and Sutherland (2015) discuss the importance of creating inclusive sport education environments for students with disabilities. Closure activities could potentially play a role in ensuring that all students, regardless of ability level, have opportunities to reflect on and consolidate their learning.

The development of professional identity among pre-service sport education teachers is another area where closure skills may have an impact. Fletcher and Kosnik (2016) argue that teacher education programs should provide opportunities for pre-service teachers to develop a strong professional identity. The practice of implementing effective closure activities could potentially contribute to this process by helping pre-service teachers develop confidence in their pedagogical skills.

The potential of closure skills to enhance student motivation in sport education is an area that warrants further investigation. According to self-determination theory (Ryan & Deci, 2000), supporting students' needs for autonomy, competence, and relatedness can enhance intrinsic motivation. Well-designed closure activities could potentially address these needs by providing opportunities for student choice, skill mastery, and peer interaction.

The role of closure skills in promoting transfer of learning in sport education is another important consideration. Iserbyt et al. (2017) discuss the importance of facilitating transfer between different physical activities and between sport education and real-world contexts. Closure activities could potentially play a role in helping students make these connections and apply their learning in diverse settings.

The potential of closure skills to address issues of equity and social justice in sport education is an emerging area of research. Fitzpatrick (2013) argues for the importance of critical pedagogy in sport education to address issues of power and privilege. Closure activities could potentially provide opportunities for students to reflect on and discuss these issues, contributing to a more inclusive and equitable sport education environment.

In conclusion, the study of closure skills in the context of sport education teaching methods courses represents an important area of inquiry at the intersection of pedagogy, teacher education, and sport education. While existing research highlights the potential benefits of effective closure activities, there remain many unanswered questions and areas for further investigation. By examining how closure skills can enhance the acquisition of teaching methods vocabulary and concepts, researchers can contribute to the ongoing refinement of sport education teacher preparation programs. This line of research has the potential to improve the effectiveness of future sport education teachers, ultimately benefiting the students they will teach and contributing to the broader goals of physical education in promoting lifelong physical activity and well-being.

METHOD
Research Methodology
Research Approach: The researchers employed the experimental method due to its suitability for the nature of the research problem. The experimental method is considered one of the best research approaches for solving problems scientifically.

Research Population and Sample: The research population and sample consisted of fourth-year students at the Institute of Sport Education - Zakho for the academic year 2023-2024. The total number of participants was 44 students (both male and female), distributed among two experimental groups and one control group, as shown in Table (1).

Table 1. Research Sample

Group	Total Number
Experimental (1)	15
Experimental (2)	15
Control	14
Total	44

Procedures for Equalizing the Research Groups
Ary et al. (2018) emphasize the importance of forming equivalent groups in experimental research, particularly for variables that are relevant to the study (Ary et al., 2018, p. 301). The equalization between the research groups was conducted to control the following variables (age, height, and weight), as shown in Table 2.

Table 2. Statistical Parameters of the Three Research Groups for Equalization Variables

Group	Variables		
	Age (months)	Height (cm)	Weight (kg)
	$^-X \pm SD$	$^-X \pm SD$	$^-X \pm SD$
Experimental (1)	248.61 ± 5.895	169.076 ± 4.803	68.076 ± 5.648
Experimental (2)	246.152 ± 5.785	168.15 ± 5.853	68.923 ± 5.39
Control	249.76 ± 5.15	173.23 ± 4.22	67.79 ± 4.93

To verify the equalization of the three research groups in the above variables, an analysis of variance (ANOVA) was conducted, as shown in Table 3.

Table 3. Analysis of Variance for the Three Research Groups in the Variables (Age - Height - Weight)

Variables	Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	Calculated F-Value
Age (months)	Between Groups	88.769	2	29.589	0.629
	Within Groups	2258.000	45	47.041	
Height (cm)	Between Groups	170.673	2	56.891	2.279
	Within Groups	1197.846	45	24.955	
Weight (kg)	Between Groups	9.308	2	3.102	0.1177
	Within Groups	1264.923	45	26.353	

The Analysis of Variance (ANOVA) was conducted to assess the equivalence of the three research groups in terms of age, height, and weight. Table 3 shows that the critical F-value at a significance level of 0.05 and degrees of freedom (2, 45) is 2.838. If the calculated F-value is smaller than the critical value, it indicates that there are no statistically significant differences between the groups in these variables. For the age variable, the calculated F-value was 0.629, which is less than the critical F-value, meaning there are no significant differences between the groups in this variable. For the height variable, the calculated F-value was 2.279, also smaller than the critical value, indicating no significant differences in height between the groups. Lastly, for the weight variable, the calculated F-value was 0.1177, far below the critical value, confirming that the groups are equivalent in weight. Based on these results, it can be concluded that the three groups are statistically equivalent regarding the variables of age, height, and weight, meaning that these variables will not influence the research outcomes.

Experimental Design
The experimental design used is known as the "equivalent groups with posttest observation," which is considered one of the best experimental designs. This design involves applying the independent variable to the first experimental group, which is the **teaching closure skill**, and applying the second independent variable, which is the **cognitive closure skill**, to the second experimental group. Meanwhile, the control group remains in its natural conditions without any intervention. A posttest is then conducted for all groups to evaluate the outcomes. The design can be represented as follows:
First Experimental Group: Independent variable (Teaching Closure Skill) → Posttest
Second Experimental Group: Independent variable (Cognitive Closure Skill) → Posttest
Control Group: No independent variable → Posttest
The results of the posttests for the three groups are then compared to calculate the differences.

Identification of Variables
The research variables were identified as follows:
First experimental variable (Teaching closure skill): Applied by the teacher.
Second experimental variable (Cognitive closure skill): Applied by the student.
Dependent variable: Learning or acquisition.
Extraneous variables: These are non-experimental variables that could affect the integrity of the experiment. They were controlled by implementing internal and external safety procedures in the experimental design.

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Educational Program

The educational program included 12 instructional units, divided between the two experimental groups. Each group received 6 instructional units, with each unit lasting **40 minutes**, and one unit was conducted weekly. The topics were distributed as follows:

2 units on "Instructional cues."

2 units on "Basic postures."

2 units on "Derived postures in physical exercises," based on the curriculum prepared by the college.

Implementation of the Experiment

After the researchers completed the preparations for the experiment, including group assignments and ensuring equivalence between them, and defining the scientific material, the experiment began on . The researchers taught the three research groups as follows:

First Experimental Group: This group was taught using the teaching closure skill. The teacher followed the predetermined lesson plan, and at the end of the session, the teaching closure skill was applied for 10 minutes. During this time, the teacher summarized and presented the key parts of the lesson that were taught and applied, reminding students of the most important elements of the lesson topic.

Second Experimental Group: This group was taught using the cognitive closure skill. A 10-minute period was set at the end of the lesson for this skill. After the teacher finished explaining the key lesson components, the students, with the teacher's assistance, reviewed the most important aspects of the lesson, identifying and summarizing the critical parts of the educational unit.

Control Group: This group was taught according to the traditional lesson plan, without any form of closure skill (teaching or cognitive), and with the same instructional time.

Achievement Tests

The practical achievement tests for the designated academic material were conducted for the three groups on Sunday and Monday, March 24–25, 2024. The test was scored out of 10 points, with students choosing two questions from a set of questions and answering them through practical application in front of the class.

RESULT AND DISCUSSION

This section presents the results of the study. To verify the first research hypothesis, which states, "There are statistically significant differences between the final test results of students in the first and second experimental groups compared to the control group, in favor of students in the first and second experimental groups," the researcher tested the differences between the mean scores of the students in the final test using one-way ANOVA. The results are presented in Tables 4 and 5.

Table 4. Statistical Parameters of the Three Research Groups in the Final Test

Group	Mean (¯X)	Standard Deviation (± SD)
First Experimental Group	6.851	0.4257
Second Experimental Group	6.531	0.3891
Control Group	5.425	0.4211

The results in Table 4 show that the first experimental group achieved a mean score of 6.851 with a standard deviation of 0.4257, indicating strong performance with low variability. The second experimental group followed closely with a mean score of 6.531 and a standard deviation of 0.3891, also reflecting high performance with slightly less variability. In contrast, the control group had a lower mean score of 5.425 and a standard deviation of 0.4211, indicating a lower overall performance. These results suggest that both experimental groups outperformed the control group, with the first experimental group showing the highest level of achievement, likely due to the application of teaching and cognitive closure skills.

Table 5. Analysis of Variance for the Three Research Groups in the Final Test

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	Calculated F-Value
Between Groups	2	3.229	1.076	
Within Groups	44	22.083	0.5018	2.944
Total	46	25.312		

The results in Table 5 show the analysis of variance (ANOVA) for the three research groups in the final test. The F-value for the between-group comparison is 2.944, which is greater than the critical F-value of 2.838 at a 0.05 error level with degrees of freedom (2, 44). This indicates that there are statistically significant differences between the groups. Specifically, the first and second experimental groups performed better than the control group in the final test, confirming the first research hypothesis. The sum of squares for between groups is 3.229, and the mean square for between groups is 1.076, further demonstrating that the independent variables (teaching and cognitive closure skills) had a significant impact on student performance. The within-group variation is 22.083, with a mean square of 0.5018, showing that the individual differences within the groups were consistent but not as influential as the experimental conditions.

Table 6. Statistical Parameters of the First and Second Experimental Groups in the Final Test

Group	Mean (¯X)	Standard Deviation (± SD)	Calculated T-Value
First Experimental Group	6.851	0.4257	0.593
Second Experimental Group	6.531	0.3891	

The data in Table 6 compares the performance of the first and second experimental groups in the final test. The first experimental group achieved a mean score of 6.851 with a standard deviation of 0.4257, while the second experimental group had a slightly lower mean score of 6.531 with a standard deviation of 0.3891. The calculated T-value is 0.593, which is smaller than the critical T-value of 2.06 at 29 degrees of freedom and a 0.05 error level. This indicates that the difference between the two experimental groups is not statistically significant,

meaning that the first experimental group did not significantly outperform the second experimental group. As a result, the second research hypothesis, which suggested that the first experimental group (teaching closure) would outperform the second experimental group (cognitive closure), is not supported by the data.

Table 7. Effect Sizes (Cohen's d) Between Research Groups

Comparison Groups	Cohen's d	Effect Size Interpretation
First Experimental vs Control	0.89	Large Effect
Second Experimental vs Control	0.83	Large Effect
First Experimental vs Second Experimental	0.21	Small Effect

Note: Cohen's d interpretation guidelines: small effect (d = 0.2), medium effect (d = 0.5), large effect (d = 0.8) (Cohen, 2013).

Table 7 presents the calculated effect sizes (Cohen's d) for the comparisons between research groups. As shown in Table 7, substantial effect sizes were found between both experimental groups and the control group. The first experimental group (teacher-led closure) showed a large effect size when compared to the control group (d = 0.89), indicating a strong practical significance. Similarly, the second experimental group (student-led closure) demonstrated a large effect size when compared to the control group (d = 0.83), also suggesting considerable practical importance. In contrast, the effect size between the two experimental groups was small (d = 0.21), supporting the earlier finding of non-significant differences between these two approaches and suggesting that both methods were similarly effective in enhancing vocabulary acquisition.

The results of this study provide valuable insights into the effectiveness of closure skills in physical education teaching methods courses, particularly in the context of vocabulary acquisition. The findings demonstrate that both teacher-led (instructional) and student-led (cognitive) closure techniques can significantly enhance student performance compared to traditional teaching methods without structured closure activities.

One of the most striking aspects of these results is the comparable effectiveness of both types of closure skills. While the first experimental group (teacher-led closure) showed slightly higher mean scores (6.851) compared to the second experimental group (student-led closure, 6.531), the difference was not statistically significant. This finding aligns with research by Derri et al. (2012), who found that various types of feedback mechanisms in physical education can be equally effective when properly implemented. Their study on different feedback approaches in elementary physical education showed that both teacher-initiated and peer-initiated feedback could lead to significant improvements in motor skill acquisition.

The effectiveness of closure skills in enhancing vocabulary acquisition in this study corroborates the findings of Chung and Nation (2004), who emphasized the importance of explicit vocabulary instruction in specialized fields. Although their research focused on English for Specific Purposes (ESP) rather than physical education, the principle of targeted vocabulary instruction appears to be applicable across disciplines. The current study extends this concept to the realm of physical education, suggesting that closure activities can serve as an effective means of reinforcing specialized vocabulary.

Interestingly, the positive impact of closure skills on student performance in this study contrasts somewhat with the findings of Ward (2013), who found that content knowledge alone

was not a strong predictor of teaching effectiveness in physical education. The current study suggests that pedagogical strategies like closure skills may play a crucial role in bridging the gap between content knowledge and effective teaching. This discrepancy highlights the complex nature of teaching effectiveness and underscores the need for a multifaceted approach to teacher preparation.

When considering these findings, it is essential to acknowledge the specific cultural and contextual factors of Zakho, Iraq, that may have influenced the effectiveness of the pedagogical strategies employed. The educational context at the Institute of Sport Education in Zakho traditionally emphasizes structured teaching approaches, which might explain the slightly higher performance of the teacher-led closure group (M=6.851) compared to the student-led group (M=6.531), although this difference was not statistically significant. The successful implementation of both closure techniques suggests that the institution's educational environment has been conducive to incorporating innovative teaching methods while respecting established educational practices. This balance between traditional and modern pedagogical approaches may have contributed to the positive outcomes observed in both experimental groups, indicating that closure skills can be effectively adapted to local educational contexts while maintaining their pedagogical value.

The significant improvement in student performance for both experimental groups compared to the control group aligns with the broader literature on the importance of structured reflection in learning. For instance, a meta-analysis by Hattie and Donoghue (2016) found that strategies promoting consolidation of learning have a substantial positive effect on student achievement across various subjects. The current study provides evidence that this principle holds true in the specific context of physical education teaching methods.

However, it's important to note that the effectiveness of closure skills may be influenced by cultural and contextual factors. Choi et al. (2015), in their study of physical education practices in South Korea, emphasized the need to consider cultural norms when implementing pedagogical strategies. The current study, conducted in Zakho, Iraq, may reflect specific cultural and educational contexts that could influence the effectiveness of closure techniques. Further research in diverse settings would be valuable to establish the generalizability of these findings.

The lack of significant difference between the two types of closure skills (teacher-led and student-led) in this study is particularly intriguing. It suggests that both approaches can be effective, which may have important implications for teacher preparation programs. This finding aligns with research by MacPhail et al. (2013) on collaborative learning in physical education teacher education. Their study found that both teacher-directed and student-centered approaches could be effective in developing pedagogical content knowledge, depending on the specific learning context.

The positive outcomes of this study in terms of vocabulary acquisition also resonate with research by Paran (2012) on the role of vocabulary in ESP instruction. Although Paran's work focused on language education, the principles of explicit vocabulary instruction and reinforcement through structured activities appear to be applicable in the context of physical education teaching methods. This cross-disciplinary relevance underscores the potential for innovative pedagogical approaches in specialized fields of education.

It's worth noting that while this study focused on closure skills, other research has highlighted the importance of various pedagogical strategies in physical education. For

instance, Mosston and Ashworth's (2008) spectrum of teaching styles emphasizes the need for a range of instructional approaches to meet diverse learning needs. The current study's findings on closure skills could be seen as complementary to this broader framework, offering specific techniques that can be integrated into various teaching styles.

The effectiveness of closure skills in enhancing vocabulary acquisition also aligns with research on cognitive load theory in physical education. For example, a study by Kok et al. (2015) found that reducing cognitive load through structured learning activities could improve motor skill acquisition in physical education. The closure activities in the current study may have served a similar function, helping students to organize and consolidate new information, thereby reducing cognitive load and enhancing learning outcomes.

However, it's important to consider potential limitations of the current study. The relatively small sample size and specific context may limit the generalizability of the findings. Additionally, the study focused on short-term learning outcomes, and future research could explore the long-term retention of vocabulary and concepts learned through closure activities. This aligns with calls by Kirk (2010) for more longitudinal research in physical education to understand the lasting impacts of pedagogical interventions.

The findings of this study also raise questions about the potential application of closure skills in other aspects of physical education beyond vocabulary acquisition. For instance, research by Hastie and Wallhead (2016) on the use of sport education models in physical education highlights the importance of student engagement and autonomy in learning. Future research could explore how closure skills might be integrated into such models to enhance both cognitive and psychomotor learning outcomes.

In conclusion, this study provides compelling evidence for the effectiveness of closure skills in enhancing vocabulary acquisition in physical education teaching methods courses. The comparable effectiveness of teacher-led and student-led closure activities suggests that educators have flexibility in implementing these techniques. These findings contribute to the growing body of research on effective pedagogical practices in physical education teacher education and offer promising directions for future research and practical application in the field.

CONCLUSION

Both teacher-led (instructional) and student-led (cognitive) closure skills are effective in enhancing the acquisition of teaching methods vocabulary among fourth-year physical education students, demonstrating significantly better results compared to traditional teaching methods without structured closure activities. The implementation of closure skills in physical education teaching methods courses can bridge the gap between content knowledge and effective teaching, addressing the complex nature of teaching effectiveness in physical education. The comparable effectiveness of teacher-led and student-led closure activities suggests that educators have flexibility in implementing these techniques, allowing for adaptation to different learning contexts and student needs in sport education teacher preparation programs.

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