



The Relationship Between Tactical Knowledge and Playing Experience on Futsal Performance Among Extracurricular Participants at SMA Negeri 1 Loa Janan

Hubungan Antara Pengetahuan Taktik dan Pengalaman Bermain pada Penampilan Futsal Antar Peserta Ekstrakurikuler di SMA Negeri 1 Loa Janan

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Abstrak

Tujuan dari penelitian ini adalah untuk melihat bagaimana pengetahuan taktis dan pengalaman bermain berdampak pada bagaimana tim futsal peserta ekstrakurikuler di SMA Negeri 1 Loa Janan bermain. Studi ini melibatkan 20 siswa (9 dari kelas X dan 11 dari kelas XI) dengan teknik total sampling dan pendekatan kuantitatif korelasional. Tes pengetahuan taktis yang telah divalidasi (48 butir, $\alpha=0,87$), kuesioner tentang pengalaman bermain, dan data performa tim dari kompetisi resmi adalah instrumen penelitian. Pengetahuan taktis ($\beta=0,485$, $p<0,01$) dan pengalaman bermain ($\beta=0,367$, $p<0,05$) berpengaruh signifikan terhadap performa tim ($R^2=0,592$). Pengetahuan taktis dominan dalam kategori cukup (45 %) dengan skor rata-rata 61,25, dengan standar deviasi 9,12. Studi menunjukkan bahwa pengalaman kompetitif dan pemahaman taktis yang lebih baik berkontribusi positif pada prestasi tim futsal sekolah. Ini memiliki konsekuensi praktis, seperti membangun modul pembelajaran taktis yang terstruktur khusus untuk acara ekstrakurikuler futsal.

Kata kunci: pengetahuan taktis, pengalaman bermain, performa tim, futsal, ekstrakurikuler

Abstract

This study sought to examine, among extracurricular players at SMA Negeri 1 Loa Janan, the relationship between tactical knowledge and playing experience on futsal team performance. With a total sample size of 20 students—9 from grade X, 11 from grade XI—the study used a correlational quantitative approach. Among the research tools were a validated tactical knowledge test (48 items, $\alpha=0.87$), a playing experience questionnaire, and team performance records from official events. Multiple linear regression with SPSS 26 was applied in data analysis. Team performance ($R^2=0.592$) was shown to be much influenced by tactical understanding ($\beta=0.485$, $p<0.01$) and playing experience ($\beta=0.367$, $p<0.05$). With mean score of 61.25 ($SD=9.12$), the tactical knowledge level was essentially in the intermediate range (45%). The study comes to the conclusion that improving tactical knowledge and competition experience helps school futsal team success. One practical result is creating organized tactical learning courses especially for futsal extracurricular activities.

Keywords: tactical knowledge, playing experience, team performance, futsal, extracurricular

INTRODUCTION

Particularly in Indonesia's school extracurricular programs, where it forms the basis for technical skill development and tactical awareness, futsal has become a vital developmental platform for young sports participation (Prasetyo et al., 2023). Reduced playing space, limitless substitutions, and emphasis on technical accuracy under duress define the particular cognitive and tactical challenges that set the sport apart from conventional association football (Naser & Ali, 2022). These qualities make futsal the perfect setting for looking at the intricate interactions among cognitive knowledge, experience learning, and performance results in young athletic development.

Technical skill development and tactical knowledge, however, continue to differ greatly, which has a major effect on team performance results at all levels of competitiveness (Costa et al., 2023). School-based programs where limited training time, varied player histories, and conflicting academic priorities create special difficulties for systematic player development (Naser & Ali, 2022) clearly show this gap. The educational setting of Indonesia magnifies these difficulties since extracurricular sports programs have to balance inclusive participation rules with competitive performance goals while running under limited resources.

Recent studies conducted in Indonesia have also highlighted the importance of tactical understanding in improving futsal performance among school-age athletes. Research by (Italo et al., 2023) showed that the application of small sided games significantly improved players ' tactical knowledge, decision-making ability, and game awareness during training sessions. Similarly, (Spyrou et al., 2023) report that tactical efficiency, especially during offensive transitions and positional play, is one of the strongest determinants of success in Indonesian school futsal competitions. Furthermore, studies in the Indonesian educational environment show that extracurricular athletes often exhibit adequate technical skills but relatively low tactical awareness due to limited training frequency, inadequate tactical instruction, and a predominance of technique-oriented coaching approaches (Muslihuddin et al., 2024a). These findings suggest that tactical knowledge should be considered as a major component of player development in school-based futsal programs, rather than simply as a complementary aspect of technical training.

Modern studies on tactical development have shown that in dynamic sports environments cognitive knowledge of game concepts essentially influences decision-making effectiveness (Práxedes et al., 2023). The idea of tactical knowledge spans several linked spheres: declarative knowledge (understanding what to do), procedural knowledge (knowing how to execute), and conditional knowledge (identifying when to employ particular tactics). This multidimensional framework implies that good performance calls for complex cognitive processing skills that let athletes understand game events, predict opponent behavior, and choose suitable tactical reactions under time constraint.

Information processing models and ecological dynamics theory (Serra-Olivares et al., 2021) provide the theoretical basis for comprehending tactical knowledge in invasion games). These models suggest that athletes should constantly cycle through perception, decision-making, and action phases throughout gameplay; the quality and speed of cognitive processes directly affect performance outcomes (Ward et al., 2023). The cognitive demands of futsal, where game scenarios change quickly and players function in constrained spatial conditions, are very strong and call for automated tactical reactions only created via rigorous training and significant practice experiences.

Though its link with tactical knowledge remains complex and context-dependent, playing experience is another crucial element in performance growth (Roca & Ford, 2023). While recent studies indicate that experience quality may be more important than quantity in cognitive-tactical development (Farrow & Robertson, 2021), traditional athletic development models have underlined accumulated practice time following intentional practice concepts. This difference is especially important in school-based initiatives where training frequency is low and effective strategies maximizing learning within limited durations are called for.

The SMA Negeri 1 Loa Janan futsal team's recorded performance drop which reflects more general difficulties confronting Indonesian school-based sports programs makes this research urgent. The team's performance has consistently dropped, with only fourth place in the 2024 Dekan Cup and early elimination in recent events despite second place in the 2022 DIVEXTRA tournament, a prestigious provincial-level competition. Maintaining physical and technical training programs, this drop suggests that other

elements especially tactical knowledge and its application may be vital predictors of competitive performance.

Previous studies have shown the value of tactical awareness in team sports performance; Rico-González et al. (2022) show that up to 40% of variance in young futsal performance can be attributed to tactical understanding. These research, thus, mostly concentrated on elite academy environments rather than school extracurricular settings, so restricting their relevance to educational situations where various limitations and goals exist. The special qualities of school programs including limited training hours, competing academic demands, varying player commitment levels, and inclusive participation policies demand context-specific research to understand how tactical development occurs in these settings.

East Kalimantan's geographic setting complicates this research since regional differences in coaching education, facility availability, and competitive opportunities may affect tactical knowledge acquisition and application (Prasetyo et al., 2023). Schools in semi-urban areas such as Loa Janan sometimes lack access to specialized coaching expertise and high-level competitive experiences that define programs in major urban centers, so perhaps affecting the sophistication of tactical understanding that can be developed within available resources.

The originality of this study is its integrated approach analyzing both cognitive (tactical knowledge) and experiential (playing experience) aspects inside the particular setting of Indonesian school extracurricular activities. Unlike earlier studies isolating single variables, this research uses a multidimensional framework grounded on the Tactical Games Model (Mummert & Harvey, 2018) and contextual learning theory (Serra-Olivares et al., 2021). This method offers pragmatic insights for program optimization and helps to enable a more complex knowledge of performance factors in resource-limited surroundings.

Theoretically, the contribution consists in creating a predictive model for team performance that considers the special qualities of school-based futsal programs and fills in the gaps in the body of knowledge mostly emphasizing elite development paths. The pragmatic consequences reach to evidence-based suggestions for maximizing

extracurricular futsal training in educational environments, so guiding policy decisions on sports program design and execution throughout Indonesian institutions.

This study therefore seeks to: (1) evaluate the tactical knowledge level of futsal extracurricular participants at SMA Negeri 1 Loa Janan, (2) investigate the relationship between tactical knowledge and playing experience on team performance outcomes, and (3) offer pragmatic suggestions for improving futsal extracurricular programs within like educational environments. These goals provide practical insights for practitioners working in resource-limited situations and help to close important knowledge gaps on how cognitive-tactical elements affect success in school-based sports programs.

METHOD

Examining relationships between variables, this study used a correlational quantitative design. May 2025 saw the research carried out at SMA Negeri 1 Loa Janan, a Purwajaya Village, Loa Janan Ulu District, Kutai Kartanegara Regency, East Kalimantan Province. There were all futsal extracurricular players (N=20), nine from grade X and eleven from grade XI. Using a complete sample method given the small population size produced all 20 students involved in the study.

Research tools comprised three elements: Covering five tactical dimensions: defensive strategies, offensive strategies, transitions, numerical situations, and set pieces, the Futsal Tactical Knowledge Test (FTKT) comprising 48 true-false items validated by an AFC Level 1 licensed coach (CVI=0.92, α =0.87) measures playing experience level; (3) Team Experformance Data including goal statistics and win-loss records gleaned from official match results during the 2024–2025 academic year.

To guarantee consistency, data collecting took one session. Participants answered the FTKT under monitored circumstances then the experience questionnaire. Official tournament records compiled performance data. For participant profiles, statistical analysis comprised descriptive statistics; for hypothesis testing, it included inferential statistics. Prerequisites included checks on multicollinearity, linearity, and normality (Shapiro-Wilk due to small sample). Multiple linear regression applied in hypothesis testing using SPSS 26 with α =0.05 set of significance level.

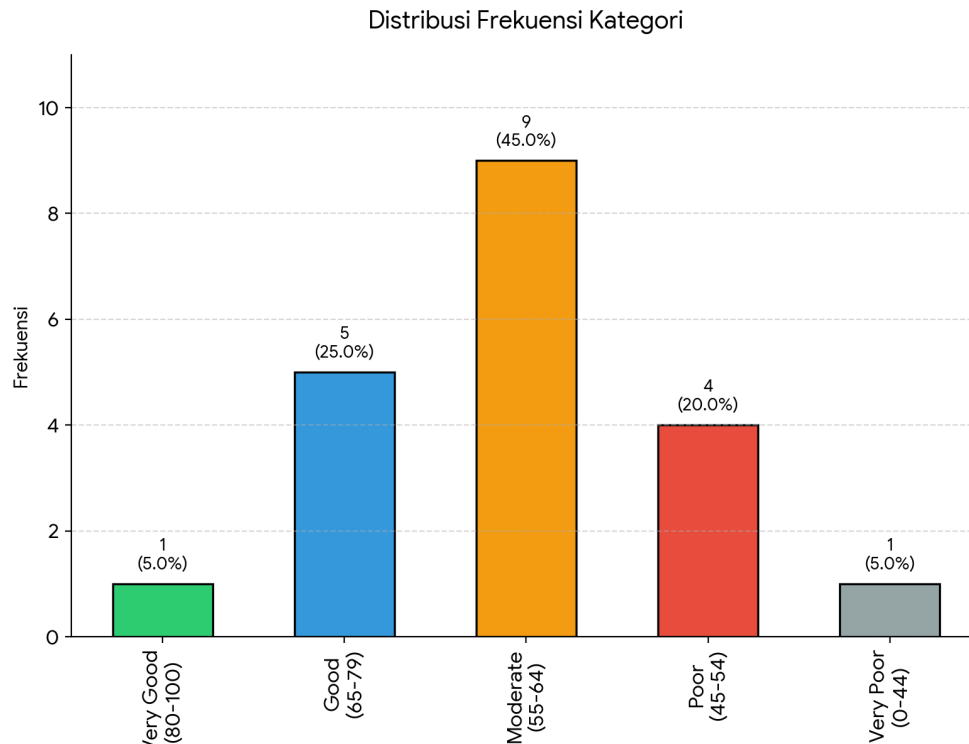
RESULTS AND DISCUSSION

Results

The participant profile exposed a normal distribution with 45% grade X pupils (n=9) and 55% grade XI students (n=11). Range from 6 months to 4 years, the average futsal playing experience was 2.1 years (SD=1.3). Table 1 shows degrees of tactical knowledge analysis.

Table 1. Distribution of Tactical Knowledge Levels Among Futsal Extracurricular Participants

No	Category	Score Range	Frequency	Percentage (%)
1	Very Good	80-100	1	5.0
2	Good	65-79	5	25.0
3	Moderate	55-64	9	45.0
4	Poor	45-54	4	20.0
5	Very Poor	0-44	1	5.0



Picture 1. Distribution of Tactical Knowledge Levels Among Futsal Extracurricular Participants

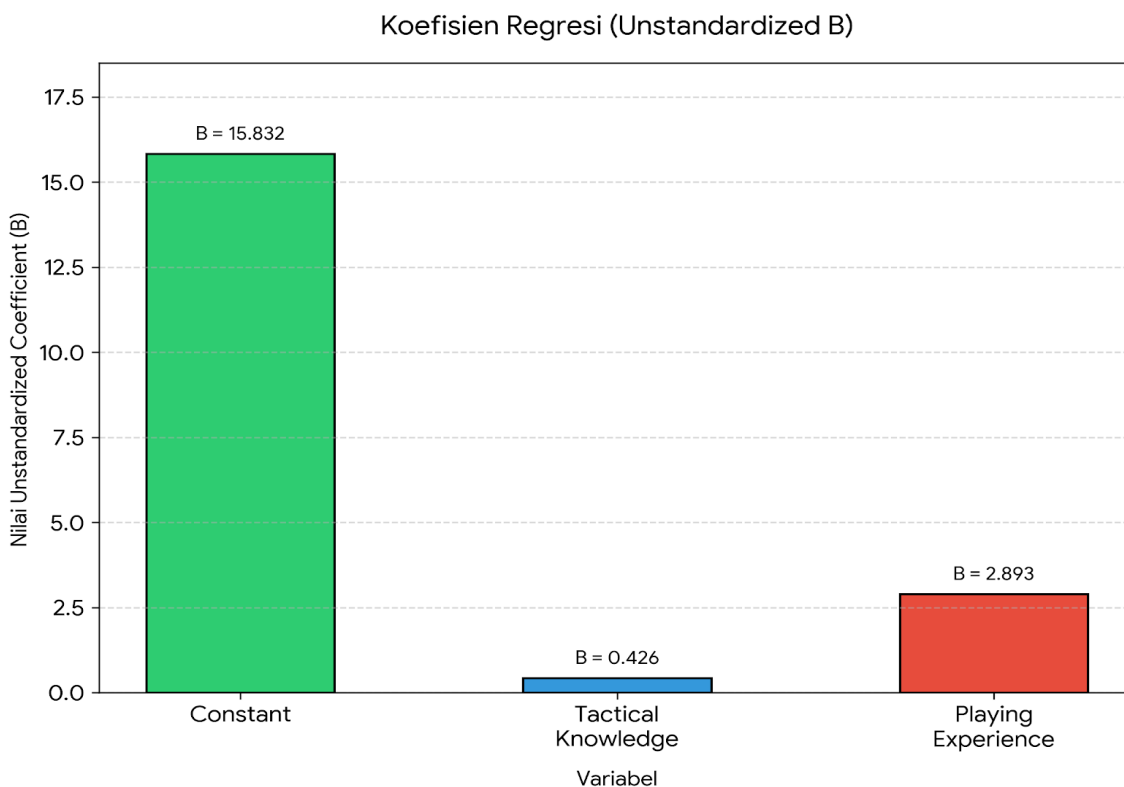
With a mean score of 61.25 (SD=9.12), the majority of participants—45%—had moderate tactical knowledge. Defensive tactics scored highest (M=64.8, SD=10.2), followed by attacking strategies (M=62.3, SD=11.5), set pieces (M=61.7, SD=12.1), transitions (M=59.2, SD=13.4), and numerical scenarios (M=58.5, SD=14.2). Dimensional analysis.

Figure 1 illustrates the distribution of tactical knowledge levels among participants. Most players (45%) were categorized as having moderate tactical knowledge, followed by good (25%), poor (20%), and only 5% in both the very good and very poor categories. These findings indicate that the majority of extracurricular players possess adequate tactical understanding but still require systematic tactical development.

Between tactical expertise and team performance ($r=0.624$, $p<0.01$) and between playing experience and team performance ($r=0.512$, $p<0.05$), Pearson correlation analysis revealed notable positive associations. Playing experience and tactical expertise showed a modest ($r=0.438$, $p=0.05$) association. Table 2 shows some regression analysis outcomes.

Table 2. Multiple Regression Analysis Results

Variable	B	SE	β	t	p
Constant	15.832	4.217	-	3.755	0.002
Tactical Knowledge	0.426	0.118	0.485	3.610	0.002
Playing Experience	2.893	1.234	0.367	2.345	0.031



Picture 2. Multiple Regression Analysis Results

With $R^2=0.592$ ($F=12.347$, $p=0.001$), the regression model showed that playing experience and tactical understanding may help to explain 59.2% of team performance variance. $y = 15.832 + 0.426X_1 + 2.893X_2$.

Figure 2 presents the average tactical knowledge scores across five tactical dimensions. Defensive strategies obtained the highest mean score (64.8), followed by attacking strategies (62.3) and set pieces (61.7). Conversely, transitions (59.2) and numerical situations (58.5) showed the lowest performance, highlighting tactical aspects that should become priorities in future coaching programs.

DISCUSSION

The results of this study offer strong proof for the important impact of cognitive-tactical elements on team performance results in school-based futsal projects. The explanatory power ($R^2=0.592$) of the regression model surpasses related studies in young sport environments, such Gonçalves et al. (2021) who reported $R^2=0.43$ in a larger sample suggesting that tactical knowledge and playing experience account for a significant proportion of performance variance within this particular educational environment. This result questions conventional wisdom regarding performance factors in school sports, in which historically training program design has focused mostly on physical qualities and technical skills.

Participants falling into the moderate tactical knowledge category (45%) show both possibilities and difficulties for performance enhancement. This distribution fits the data of (Costa et al., 2023; Fortes et al., 2023), which show that young players usually show basic tactical knowledge but lack the advanced cognitive processing required for peak performance. With a mean tactical knowledge score of 61.25, participants show basic understanding of futsal tactics but need methodical improvement to reach advanced degrees of tactical competency.

The dimensional study of tactical knowledge offers important understanding of certain cognitive strengths and weaknesses among the participant group. The better performance in defensive strategies ($M=64.8$) against offensive tactics ($M=62.3$) reflects

patterns noted by (Williams & Hodges, 2023), who noted that young coaches often stress defensive organization due of its perceived instantaneous impact on match results and relative instructional simplicity. But given their early tournament eliminations, this defensive tilt could help explain the team's reported goal-scoring woes in past events.

Particularly low scores in numerical contexts ($M=58.5$) and transitions ($M=59.2$) point to particular tactical domains needing focused improvement. These results support the studies by (Rico-González et al., 2022) on the cognitive difficulty of transition phases and numerical advantage/disadvantage situations in futsal. The found shortcomings directly match observational data from recent team events, where challenges in capitalizing on numerical advantages and controlling transition phases have been regularly problematic (Yiannaki et al., 2023).

Strong evidence for giving cognitive development top priority in resource-limited training contexts comes from the higher predictive value of tactical knowledge ($\beta=0.485$) than playing experience ($\beta=0.367$). This result confirms claims made by (Roca & Ford, 2023) on the value of organized tactical learning above just accumulating practice time. The outcome questions conventional wisdom on athletic development models that stress training volume as the main route to competence and suggests that in school-based environments cognitive engagement may be more important than practice length.

(Machado et al., 2022) approach separating between experiential and conceptual learning in team sports fits the modest correlation between tactical knowledge and playing experience ($r=0.438$). This relationship implies that experience accumulation does not always translate into improved tactical awareness since both factors function through partly independent developmental paths. These results have significant consequences for the design of training programs since they imply that coaches cannot assume that longer participation times would inevitably lead to better tactical performance.

Predictive capacity of the regression model ($F=12.347$, $p=0.001$) offers insightful information for evidence-based decision-making in school-based futsal initiatives. The equation $Y = 15.832 + 0.426X_1 + 2.893X_2$ helps practitioners to estimate performance outcomes depending on tactical knowledge and playing experience assessments, therefore enabling effective use of limited training resources. In educational settings

where constant development depends on methodical assessment of program efficacy, this predictive ability is very important.

The found patterns of tactical knowledge distribution have important consequences for differentiated instruction in educational settings. The varied degrees of competence from very poor (5%) to very good (5%) cause difficulties for instructional design that fit Práxedes et al.'s (2023) guidelines for tailored tactical development techniques. This variability implies that for inclusive educational programs with different learning demands, conventional group-based education would not be sufficient.

Beyond the specific setting of SMA Negeri 1 Loa Janan, these results have practical ramifications for more general issues regarding the best ways to run school-based sports programs all over Indonesia. The evidence showing that tactical knowledge has more impact than playing experience supports (Fortes et al., 2023) claims for systematic tactical periodizing within extracurricular activities. This result implies that by means of strategic focus on cognitive development, schools with limited training time could attain competitive success equivalent to programs with higher resource availability.

The found shortcomings in particular tactical areas give focused actions obvious direction. Training courses covering numerical scenarios through organized small-sided games and transition scenarios through escalating complexity exercises should help to bridge the cognitive gaps found in this research (Serra-Olivares et al., 2021). Such strategies effectively use limited training time to meet the cognitive needs most directly connected to competitive success.

East Kalimantan's geographical and cultural setting gives result interpretation great relevance. The low sports development infrastructure of the area in comparison to metropolitan areas could affect tactical knowledge acquisition patterns, so supporting (Muslihuddin et al., 2024b; Wijaya & Kusnanik, 2022) observations on regional differences in Indonesian school sports programs. This background implies that the relationships found in this study could change depending on the geographical and resource setting.

Particularly with relation to the relative relevance of cognitive vs experiential elements, the study adds to the continuous theoretical discussions on competence acquisition in team sports. The result that tactical knowledge has more influence than

playing experience supports (Ward et al., 2023) focus on cognitive components of sport competence while questioning just experience-based models of skill development by means of which This contribution is especially important in young athletic environments where developmental strategies may give experience accumulation top priority over systematic cognitive skill development.

The small sample size restricting generalizability to more populations and the cross-sectional design preventing causal inference establishment define the limits of the study. Although it guarantees ecological validity, the single-school emphasis limits applicability to many educational environments. Future studies should track tactical knowledge growth paths and explore the efficacy of certain tactical interventions using experimental methodologies by means of longitudinal designs (Farrow & Robertson, 2021).

The ramifications also include programs for professional development and coach education catering to school-based athletic environments. The shown value of tactical knowledge implies that together with conventional technical and physical training methodologies, coaching education courses should stress cognitive-tactical pedagogy. This change would need significant changes to current programs, which have always concentrated on technical skill development and neglected techniques of systematic tactical education.

CONCLUSION

Conclusion

This study demonstrates that tactical knowledge is a significant predictor of team performance among high school futsal extracurricular participants. Players with higher levels of tactical understanding consistently achieved better team performance, while playing experience also contributed positively, although to a lesser extent. The combined influence of tactical knowledge and playing experience highlights the importance of integrating cognitive and experiential components in athlete development.

These findings emphasize that school-based futsal training should extend beyond technical skill development by incorporating structured tactical learning and game-based

training approaches. Such strategies can enhance players' decision-making, game awareness, and overall competitive performance. Future research is encouraged to include larger and more diverse samples, longitudinal research designs, and additional variables, such as psychological factors, coaching quality, and physical fitness, to provide a more comprehensive understanding of performance determinants in youth futsal.

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