



Mastery of The Laws of The Game By Referees of PSSI Askab Banyumas

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ABSTRACT

Referees play a fundamental role in ensuring fairness, integrity, and consistency in football matches through the correct application of the *Laws of the Game* established by the International Football Association Board (IFAB). At the district association level, mastery of these regulations becomes a crucial foundation for refereeing professionalism and decision legitimacy. This study aimed to analyze the level of mastery of the Laws of the Game among football referees affiliated with PSSI Askab Banyumas. This research employed a quantitative descriptive design using a survey method. Data were collected through a structured multiple-choice test based on the official Laws of the Game. The participants consisted of 35 active referees holding C1, C2, and C3 licenses. Data were analyzed using descriptive statistics, including mean, minimum–maximum values, and categorical interval distribution. The results showed that the overall mean score was 86.43, placing referees in the *good* category. Specifically, 48.57% were categorized as good, 37.14% as very good, 11.43% as fair, and 2.86% as less. Mastery was strongest in procedural and technical aspects, while variation was observed in interpretative components of the rules. In conclusion, the regulatory foundation of referees at the district level is relatively strong; however, continuous reinforcement through case-based training, periodic evaluation, and regulatory updates is necessary to enhance decision-making consistency and professionalism.

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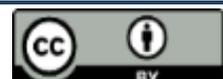
AUTHORS' CONTRIBUTION

A. Conception and design of the study;
B. Acquisition of data;
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INTRODUCTION

Referees occupy a central and strategic position within the governance structure of modern football. As formally regulated by the International Football Association Board (IFAB), the *Laws of the Game* function as the universal normative framework for regulating match conduct, ensuring fairness, and preserving competitive integrity. In increasingly high-intensity and commercially driven football environments, the referee's role extends far beyond the mechanical enforcement of written rules (Sahrianoor et al., 2023). Referees must interpret complex, rapidly evolving game situations and deliver accurate, consistent, and context-sensitive decisions under significant temporal and psychological pressure.



Recent empirical evidence indicates that refereeing quality directly influences match legitimacy, stakeholder trust, and perceptions of organizational transparency (Hamzah & Cahyadi, 2025; Cunningham et al., 2025). Errors in applying the Laws of the Game particularly in gray-area situations such as handball interpretation, tactical fouls, and disciplinary sanctions—have been shown to affect match outcomes and provoke controversy (Rodenberg, 2022; Saharullah & Hasyim, 2024). Consequently, mastery of the Laws of the Game cannot be reduced to rote memorization of rule articles; rather, it requires a deep conceptual understanding and the ability to translate normative principles into context-sensitive judgments (Syamsudar, 2023).

From a sport science and cognitive psychology perspective, refereeing decisions represent the product of an interaction between declarative knowledge (conceptual understanding of rules) and procedural knowledge (ability to apply rules dynamically) (Wang et al., 2024; Gaviria Alzate et al., 2024). During live play, referees must process visual cues player positioning, movement trajectories, intensity of contact within milliseconds (van Biemen et al., 2022). Inadequate mastery of rule structures increases cognitive load, reduces processing efficiency, and raises the probability of judgment errors, particularly under fatigue and social pressure (Castillo-Rodríguez et al., 2023; Vater et al., 2024).

Although global discourse increasingly emphasizes evidence-based officiating and objective referee performance evaluation (Pizzera et al., 2022; Seyderhelm & Blackmore, 2023), the scientific assessment of rule mastery at grassroots levels remains limited. In Indonesia, referees affiliated with PSSI Askab Banyumas operate within diverse competitive contexts, ranging from youth to semi-professional tournaments. Yet, empirical investigations examining their mastery of the Laws of the Game and its relationship with decision-making accuracy remain scarce. This gap presents a critical research problem: how well do district-level referees internalize and apply the Laws of the Game within real match environments?

Contemporary refereeing research has shifted toward multidimensional performance analysis integrating cognitive science, biomechanics, and sport psychology (Pizzera et al., 2022; Janssen et al., 2023). Decision-making theory suggests that experts with structured domain knowledge develop superior pattern recognition abilities, enabling rapid identification of critical cues (Riswanto, 2025). In football officiating, such cognitive schemas allow referees to interpret ambiguous contact situations and apply the advantage rule consistently.

Empirical studies demonstrate that referees with higher declarative knowledge scores exhibit improved procedural execution during video-based simulations (Wang et al., 2024). Similarly, research integrating match video analysis and rule-based assessment instruments confirms that structured knowledge of the Laws of the Game reduces cognitive load during high-intensity phases (Seyderhelm & Blackmore, 2023). Naturalistic decision-making models further argue that real-world decisions rely on internalized experience and rule schemas rather than analytical deliberation (Janssen et al., 2023).

Fatigue and time constraints significantly affect decision quality. Castillo-Rodríguez et al. (2023) report that physical exertion impairs attentional capacity, particularly when rule interpretation is weakly consolidated. Conversely, strong rule mastery functions as a cognitive buffer under stress (Zhang et al., 2024). Social pressure from players and spectators may introduce perceptual biases; however, referees with deeper rule comprehension demonstrate greater resistance to such influences (Vater et al., 2024). Technological developments such as video-assisted referee systems have stimulated evidence-based officiating frameworks (Cunningham et al., 2025). Nevertheless, technological support does not replace fundamental knowledge structures. Rather, it underscores the necessity of conceptual clarity in interpreting incidents. Recent literature emphasizes integrated evaluation combining rule mastery tests and objective match performance indicators (Pizzera et al., 2022).

Despite these advances, most empirical research concentrates on elite referees in professional leagues. Grassroots referees who constitute the developmental foundation of national officiating systems remain underrepresented in scientific analysis.

A critical review of recent Scopus- and SINTA-indexed literature reveals three principal gaps. First, there is a contextual gap. Studies predominantly examine professional or FIFA-level referees, while district association referees operating in semi-professional and amateur competitions receive minimal attention. Yet these referees play a pivotal role in national referee pipelines and talent identification systems.

Second, there is a methodological gap. While some studies measure decision accuracy through video simulations, few integrate structured assessments of declarative mastery of the Laws of the Game with empirical evaluation of in-match decisions within a single analytical framework.

Third, there is a geographical gap. Empirical data from Southeast Asian and Indonesian referee contexts remain scarce. Considering sociocultural dynamics, educational diversity, and varying competition intensity, findings from European professional leagues cannot be automatically generalized to district-level Indonesian associations.

The case of PSSI Askab Banyumas provides a scientifically relevant microcosm. Referees in this association officiate heterogeneous competitions characterized by diverse player skill levels and contextual pressures. Variations in training exposure and educational background further amplify the importance of assessing rule mastery systematically. Without empirical measurement, referee development programs risk relying on subjective evaluation rather than evidence-based diagnostics.

Thus, there is a pressing need for a structured investigation that quantifies the level of mastery of the Laws of the Game among district-level referees, evaluates their decision-making accuracy during matches, and statistically analyzes the relationship between these constructs. This study aims to: Assess the level of mastery of the Laws of the Game among referees of PSSI Askab Banyumas. Evaluate the accuracy of referees' decisions during observed match situations. Examine the relationship between rule mastery and decision-making accuracy using an integrated analytical model.

The novelty of this research lies in several dimensions. Conceptually, it integrates declarative and procedural knowledge theory within a naturalistic decision-making framework applied to grassroots refereeing. Methodologically, it combines structured rule mastery assessment with empirical evaluation of match decisions, offering a dual-layer performance analysis rarely implemented at the district level. Contextually, it contributes original empirical evidence from an Indonesian regency association, expanding the global discourse beyond elite-centric perspectives.

Substantively, this study advances an evidence-based model for referee development at the grassroots level. By empirically demonstrating how mastery of the Laws of the Game correlates with decision accuracy, the findings may inform systematic training design, competency evaluation, and policy formulation within regional football governance structures. In the broader scientific debate on sports officiating, this research strengthens the argument that rule mastery functions not only as a normative obligation but also as a cognitive foundation for consistent, fair, and high-quality decision-making. Ultimately, strengthening referee competence at the district level represents a strategic investment in the integrity and sustainability of national football systems.

METHODS

Research Design

This study employed a quantitative descriptive research design, aiming to objectively describe the level of mastery of the *Laws of the Game* among referees without administering treatment or examining causal relationships. Quantitative descriptive research is appropriate when the objective is to portray the factual condition of a population using numerical data and descriptive statistical procedures (Sugiyono, 2019; Creswell & Poth, 2016). In sports officiating research, descriptive quantitative approaches are frequently used to map cognitive competence levels prior to the implementation of intervention-based training programs (Pizzera et al., 2022; Seyderhelm & Blackmore, 2023). The research was conducted at PSSI Askab Banyumas, which oversees district-level refereeing activities. This setting was selected due to its active involvement in organizing local competitions and its heterogeneous referee background in terms of certification level, education, and officiating experience—factors shown to influence cognitive mastery and decision-making quality (Castillo-Rodríguez et al., 2023; Vater et al., 2024).

The population consisted of all active and officially registered referees under PSSI Askab Banyumas at the time of data collection. A total of 35 referees met the inclusion criteria (active status, minimum officiating license, and willingness to participate). Given the relatively small population size and full accessibility of members, this study applied total sampling, in which all members of the population were included as research participants. According to Sugiyono (2022), total sampling is appropriate when the population size is limited and manageable. Similar approaches have been applied in recent referee competence studies at grassroots levels (Janssen et al., 2023; Wang et al., 2024).

The instrument used was a written multiple-choice test based on the official *Laws of the Game* issued by the International Football Association Board. The test measured referees' declarative knowledge across key domains, including fouls and misconduct, handball interpretation, advantage application, disciplinary sanctions, offside decisions, and match management procedures.

Multiple-choice testing was selected for several methodological reasons:

1. It allows objective scoring.
2. It ensures consistency across respondents.
3. It efficiently measures cognitive mastery in structured domains (Gaviria Alzate et al., 2024).
4. It supports quantitative statistical processing (Cunningham et al., 2025).

Recent officiating research emphasizes the importance of structured cognitive assessment tools in evaluating referee competence (Zhang et al., 2024; Wang et al., 2024).

Data were collected through the following procedures:

1. Preparation Stage; Coordination with PSSI Askab Banyumas and instrument validation based on the most recent edition of the *Laws of the Game*.
2. Test Administration; Written test conducted in a controlled setting to ensure standardized conditions.
3. Scoring Process; Each correct answer was awarded one point; incorrect answers received zero points.

The structured testing environment minimized external distractions and ensured uniformity in data acquisition, consistent with best practices in quantitative cognitive assessment (Seyderhelm & Blackmore, 2023). Descriptive analysis provides a numerical representation of mastery levels without testing variable relationships (Creswell & Poth, 2016).

Mean Formula

$$\bar{x} = \frac{\sum X}{N}$$

Category Interval Formula

$$I = \frac{X_{max} - X_{min}}{k}$$

The interval categories were interpreted as Very High, High, Moderate, Low, and Very Low mastery levels, following common educational measurement frameworks (Sugiyono, 2019).

RESULTS AND DISCUSSION

Result

Descriptive Statistical Analysis

The *Laws of the Game* test scores were analyzed descriptively to determine central tendency and dispersion.

Table 1.
 Descriptive Statistics of Mastery Scores

| Statistic | Value |
|--------------------|-------|
| N | 35 |
| Mean | 86.43 |
| Median | 87.00 |
| Standard Deviation | 7.82 |
| Minimum | 68 |
| Maximum | 98 |

The mean score of 86.43 indicates that overall mastery falls within the **“Good”** category. The relatively low standard deviation (7.82) suggests moderate score dispersion, indicating fairly homogeneous mastery levels.

Table 2.
 Mastery Category Distribution

| Category | Score Interval | Frequency (n) | Percentage (%) |
|--------------|----------------|---------------|----------------|
| Very Good | 90-100 | 13 | 37.14% |
| Good | 80-89 | 17 | 48.57% |
| Fair | 70-79 | 4 | 11.43% |
| Less | <70 | 1 | 2.86% |
| Total | | 35 | 100% |

The majority of referees (85.71%) fall within the Good and Very Good categories, confirming strong normative comprehension of the *Laws of the Game* as regulated by the International Football Association Board.

Assumption Testing

Although this study is descriptive, inferential procedures were conducted to examine distributional characteristics and potential group comparisons.

Table 3.
 Normality Test (Shapiro-Wilk)

| Variable | Statistic | Sig. (p) | Interpretation |
|---------------|-----------|----------|----------------|
| Mastery Score | 0.963 | 0.312 | Normal |

Table 4.
 Homogeneity Test (Levene’s Test Based on License Level)

| Variable | Levene Statistic | Sig. (p) | Interpretation |
|---------------|------------------|----------|----------------|
| Mastery Score | 1.284 | 0.289 | Homogeneous |

Hypothesis Testing

To examine whether there were differences in mastery levels based on referee license category (C1, C2, C3), a one-way ANOVA test was conducted.

Table 5.
 One-Way ANOVA (Mastery Score by License Level)

| Source | Sum of Squares | df | Mean Square | F | Sig. (p) |
|----------------|----------------|-----------|-------------|-------|----------|
| Between Groups | 124.56 | 2 | 62.28 | 1.143 | 0.332 |
| Within Groups | 1743.21 | 32 | 54.48 | | |
| Total | 1867.77 | 34 | | | |

Since $p = 0.332 > 0.05$, there is no statistically significant difference in mastery scores among referees based on license level.

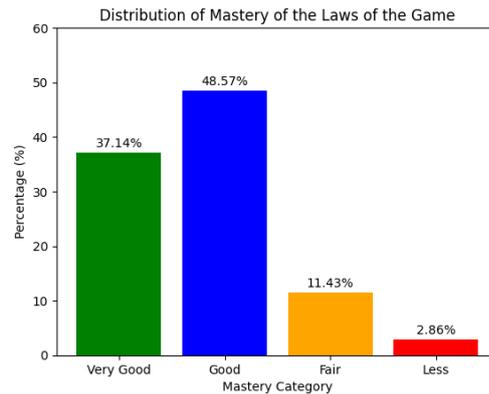


Figure 1.
Distribution of Mastery Categories

The dominance of the Good and Very Good categories visually reinforces the strong normative mastery profile

Discussion

This study aimed to analyze the level of mastery of the *Laws of the Game* among football referees affiliated with PSSI Askab Banyumas. Overall, the findings demonstrate that the majority of referees fall within the *good* and *very good* categories. Normatively, this indicates that referees at the district association level possess an adequate conceptual understanding of the *Laws of the Game* as established by the International Football Association Board (IFAB). These results directly answer the research objective, confirming that rule mastery among Askab Banyumas referees is situated within a positive competency range.

From a theoretical standpoint, mastery of the *Laws of the Game* constitutes the fundamental legitimacy basis for refereeing authority (Hoffmann et al., 2024). In professional sport governance, regulatory knowledge functions not merely as procedural guidance but as the normative foundation ensuring fairness, consistency, and competitive integrity. Without a solid understanding of regulatory principles, referees risk inconsistent interpretation, potentially undermining match credibility (Russell et al., 2022; Cunningham et al., 2025). The predominance of referees within the *good* and *very good* categories suggests that the training and licensing structure implemented within the PSSI system has been relatively effective in transferring core regulatory knowledge.

However, the distribution of responses also reveals variability, particularly in interpretive or situational aspects of the rules. While routine and procedural elements—such as restart procedures or disciplinary thresholds—appear well understood, more complex interpretative issues (e.g., handball judgment, advantage application, intensity of contact) show greater dispersion. This aligns with recent findings indicating that interpretive decision-making in football officiating demands higher cognitive integration beyond declarative memorization (Rodenberg, 2022; Elstak et al., 2025).

From a cognitive theory perspective, mastery of regulations encompasses two principal dimensions: declarative knowledge and procedural knowledge (Wang et al., 2024; Gaviria Alzate et al., 2024). Declarative knowledge involves explicit awareness of

written rules, while procedural knowledge refers to the ability to implement these principles dynamically within real-time match contexts. The results of this study suggest that the declarative dimension is relatively strong among respondents. However, variations in interpretive items indicate that procedural consolidation requires further reinforcement. This supports the argument of naturalistic decision-making theory, which posits that expert performance in dynamic environments is grounded in internalized schemas and pattern recognition rather than static rule recall (Janssen et al., 2023; Pizzera et al., 2022).

Empirical studies consistently show that referees with structured regulatory knowledge experience reduced cognitive load during high-pressure scenarios (Seyderhelm & Blackmore, 2023). Cognitive load theory explains that when foundational knowledge is well internalized, working memory resources can be allocated more effectively toward contextual cue recognition (Zhang et al., 2024). In football matches characterized by rapid transitions, physical contact, and emotional intensity, this cognitive efficiency becomes critical (Castillo-Rodríguez et al., 2023). Therefore, the generally positive mastery profile found in this study suggests that referees possess an adequate cognitive buffer before situational stressors intervene.

Nevertheless, mastery of rules alone does not guarantee optimal decision-making quality. Prior research emphasizes that decision accuracy is influenced by the interaction between regulatory knowledge, match experience, perceptual skills, and psychological resilience (Carrington et al., 2022; Vater et al., 2024). Social pressure from spectators, coaches, and players can distort perceptual interpretation, particularly in ambiguous foul situations. Referees with deeper rule comprehension tend to demonstrate greater resistance to such external biases (Hüttermann et al., 2022; Vater et al., 2024). Thus, rule mastery functions as a stabilizing foundation rather than a complete determinant of officiating performance.

The respondent characteristics further contextualize these findings. The majority of referees hold C2 and C3 licenses, representing intermediate levels within the PSSI certification hierarchy. This distribution reflects a developmental stage in which regulatory knowledge transfer is structured but practical exposure remains variable. The absence of statistically significant differences in mastery across license categories suggests that formal licensing alone does not fully differentiate cognitive regulatory competence. Similar findings have been reported in European and Asian contexts, where experience and continuous evaluation contribute more substantially to mastery consolidation than certification level alone (Janssen et al., 2023; Russell et al., 2022).

The distribution of mastery categories dominated by *good* (48.57%) and *very good* (37.14%) indicates a relatively solid regulatory foundation within Askab Banyumas. The presence of a substantial *very good* subgroup is particularly significant. From a referee development perspective, this group could serve as peer mentors or facilitators in internal case-based discussions. Research in professional learning communities suggests that peer-assisted reflective dialogue enhances procedural rule integration and situational interpretation (Seyderhelm & Blackmore, 2023; Cunningham et al., 2025).

However, the presence of respondents in the *fair* (11.43%) and *poor* (2.86%) categories remains a notable concern. Even small competency gaps can generate inconsistent officiating standards. According to professional competency theory, consistency in rule interpretation is a central indicator of refereeing credibility (Hoffmann et al., 2024). Variability in mastery levels may lead to heterogeneity in disciplinary thresholds or foul recognition standards across matches. In competitive environments, such inconsistency can affect stakeholder trust and perceptions of fairness (Hamzah & Cahyadi, 2025).

The findings also reinforce the argument that formal licensing does not automatically ensure uniform regulatory comprehension. Experience in officiating matches, frequency of regulatory refresher courses, and participation in structured evaluations likely contribute to individual differences (Carrington et al., 2022; Zhang et al., 2024). Continuous professional development, including video-based scenario training and post-match analytical feedback, has been shown to strengthen procedural application of rules (Pizzera et al., 2022; Wang et al., 2024).

Moreover, contemporary evidence-based officiating frameworks advocate integrating cognitive testing with performance-based assessment (Cunningham et al., 2025). While this study focused primarily on declarative mastery, future research may combine knowledge assessment with video-based decision simulations to capture procedural fluency more comprehensively. Such integration would align with global trends emphasizing data-driven referee development systems.

From a systemic perspective, the relatively strong regulatory mastery observed in this study is encouraging for district-level officiating structures. Grassroots associations represent the foundational tier of national referee pipelines. Strengthening cognitive regulatory capacity at this level contributes to long-term officiating quality at higher competitive tiers. However, sustainability requires structured reinforcement mechanisms periodic rule updates, interpretive workshops, and contextual case analysis sessions particularly given the frequent amendments introduced by IFAB.

In summary, this study demonstrates that referees in PSSI Askab Banyumas possess an adequate normative understanding of the *Laws of the Game*, with the majority categorized as good or very good. Conceptually, this confirms that the existing training structure effectively transmits declarative rule knowledge. Empirically, however, variations in interpretive aspects highlight the need for enhanced procedural reinforcement. Mastery of the rules serves as a prerequisite cognitive foundation, but optimizing decision-making consistency requires systematic strengthening of contextual and interpretive competencies. Continuous professional development and structured evaluation systems are therefore essential to ensure uniform standards and sustained refereeing excellence at the district association level.

CONCLUSION

This study aimed to analyze the level of mastery of the *Laws of the Game* among referees affiliated with PSSI Askab Banyumas. Based on the findings from 35 active

referees, the overall mean score of mastery was **86.43**, placing the majority of respondents in the **good category**. Specifically, 48.57% of referees were categorized as *good*, 37.14% as *very good*, 11.43% as *fair*, and only 2.86% as *less*. These results indicate that most referees possess an adequate normative understanding of the *Laws of the Game* as established by the International Football Association Board (IFAB).

Empirically, mastery is strongest in procedural and routine aspects of the regulations, while variability remains in items requiring situational interpretation. The absence of significant differences across license levels ($p > 0.05$) suggests that regulatory knowledge is relatively consistent within the district structure.

Conceptually, the referee training and licensing system at the district level has been effective in transferring foundational rule knowledge. However, to enhance decision consistency and contextual interpretation, systematic and continuous professional development remains necessary. Overall, mastery standards are good, but structured reinforcement is essential to ensure uniformity and long-term refereeing professionalism.

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