

**UNIVERSITI TEKNOLOGI MARA**

**RELATIONSHIP BETWEEN  
SELECTED ATTACKING  
PERFORMANCE INDICATORS AND  
MATCH DYNAMICS IN THE FIFA  
U-20 WORLD CUPS 2019 AND 2023**

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## ABSTRACT

Youth football plays a crucial role in talent development and tactical evolution, with international tournaments like the FIFA U-20 World Cup showcasing emerging players and innovative strategies. Despite the increasing emphasis on youth football as a talent pipeline, comprehensive analyses of goal-scoring patterns in age-specific tournaments remain limited. In addition, comparing play patterns between World Cup editions may be necessary for understanding playing approaches. This study examines key performance indicators (KPIs) influencing match outcomes in the 2019 and 2023 youth tournaments, focusing on goal-scoring patterns and tactical trends. Utilizing notational analysis, data from 104 matches and 307 goals were analyzed across seven KPIs: goalscoring zones, assist locations, passing sequences, goal timing, scorer and assist provider positions, goal-scoring mechanisms, and types of play (open play vs. set pieces). Statistical analyses, including Mann-Whitney U Test and Pearson's Chi-Square tests, evaluated inter-tournament differences and associations between KPIs and match outcomes. Results revealed that Position 2 (box inside the penalty area) was the predominant goal-scoring zone, while Position 12 (edge outside the penalty area) increased from 8.5% of goals in 2019 to 14.9% in 2023. Position 5 (centre just outside the penalty area) emerged as the primary assist zone in 2023. Headed goals increased significantly from 15.0% to 23.4%, indicating a shift toward aerial strategies. A decline in long-passing sequences highlighted a trend toward direct attacking play, with open play dominating scoring and set-piece contributions marginally decreasing. Notably, goals peaked in the 76-90+ minute interval, with goal timing in 2019 and goal-scoring mechanisms in 2023 showing significant associations with match outcomes. These findings clarify evolving tactical dynamics in elite youth football, offering evidence based on specific indicators such as goal timing and goal-scoring mechanisms. This study informs coaches' understanding and approach toward attacking and defensive strategies based on game situations and match timelines by delineating critical scoring zones, assist patterns, and strategic shifts. Further investigation should focus on the influence of defensive strategies and goalkeeper performance on goal-scoring patterns, as well as changes in attacking tactics and player positioning.

*Keywords:* performance analysis, soccer, world cup, youth, goal scoring pattern

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# CHAPTER 1

## INTRODUCTION

### 1.1 Background of Study

Performance analysis in football provides precise, clear and objective insights to players and coaches, assisting in improving and optimizing team performance. The amount of research on match analysis in football has expanded as there is a rise in the large volume of data collected (Goes et al., 2021). Goal scoring patterns have been extensively studied at the elite senior level across various tournaments, e.g. the FIFA World Cup (Degreene & Carling, 2024; Ivan Baragafio et al., 2024, Cobanoglu, 2019; Dufour et al., 2017), the European Championship (Codina, J. S et al, 2024, Michailidis et al, 2018), the English Premier League (Durlik & Bieniek, 2014; Penn & Berridge, 2019; Zhao & Zhang, 2019), and other leagues (Ahmad et al., 2020; Alberti et al., 2013; Eusebio et al., 2025; Mitrotasios et al., 2019). These studies revealed key patterns, such as the dominance of open play in goal-scoring, with over 75% of goals coming from this style of play in World Cup competitions (Dufour et al., 2017).

Spatial Analyses highlight the effectiveness of central areas within the penalty box, with Cobanoglu (2019) reporting that 84% of goals during the 2018 FIFA World Cup were scored from this zone. Additionally, based on the temporal analysis, the majority of the goals are scored in the last 15 minute of the games which happens because the attacking intensity increases and defensive fatigue which increases the tendency to make a mistake and lose focus. The analysis of situational efficiency in football especially at the youth international level has gain more attention because of its implications for talent identification, tactical preparation and performance improvement. However, these works emphasize the focus on senior level, leaving goal scoring trends among youth tournaments relatively underexplored

Although goal scoring patterns in different football tournaments have been studied in the past, further study is specifically needed in this context, especially in recent years (Cobanoglu, 2019). Significant milestones in the growth of young talents emerged during the youth football tournaments in 2019 and 2023, which saw changes in team formations, strategic breakthroughs and gameplay innovations.

A comprehensive study of goal scoring in the youth football tournaments of