

Role of Strategic Upskilling in Enhancing Competitive Performance of Taekwondo Athletes

Ms. Harmandeep Kaur¹, Dr. Monu (Asst Professor)²

Research Scholar¹, Asst Prof. Department of Physical Education²
Niilm University Kaithal

Abstract. This study examines the role of strategic upskilling in enhancing the competitive performance of Taekwondo athletes. Taekwondo requires not only technical skills, physical fitness, flexibility, and speed, but also tactical awareness, decision-making, opponent reading, emotional control, and match planning. Strategic upskilling helps athletes use their techniques at the right time and in the right situation during competition. It enables players to adapt to changing match conditions, manage pressure, control distance, and select suitable attacking or defensive actions. The study highlights that athletes with strong strategic skills perform more confidently and effectively in competitive situations. Therefore, strategic upskilling plays an important role in improving overall Taekwondo performance and preparing athletes for higher-level competitions.

keywords: Taekwondo, Technical Skilling, Strategic Upskilling, Tactical Awareness, Match Planning, Opponent Reading, Decision-Making, Punjab, National Players, International Players

I. Introduction

Taekwondo is a modern competitive sport that requires both physical and mental preparation. A player may have good kicking speed, flexibility, balance, and fitness, but these qualities become more effective when used with proper timing, planning, and tactical awareness. In competitive Taekwondo, players need to attack, defend, counter-attack, control distance, read opponents, and adjust their strategy according to the match situation. Strategic upskilling helps players move beyond mechanical performance and use their technical skills in a planned and intelligent way. It also develops confidence, emotional control, and decision-making under pressure. Therefore, the comparison of technical skilling and strategic upskilling among national and international Taekwondo players in Punjab is important for understanding performance differences and improving training methods.

Objectives

- To compare the technical skilling of national and international Taekwondo players in Punjab.
- To examine the level of strategic upskilling among national and international Taekwondo players.

- To study the role of tactical awareness, opponent reading, and decision-making in Taekwondo performance.
- To identify the importance of planned training for higher-level Taekwondo competition

II. Concept of Strategic Upskilling in Taekwondo

Calculated upskilling of an athlete's performance is essential to modern taekwondo. Taekwondo players may have the physical qualities of high kicking speed, flexibility, balance and fitness, but possess the ability to use their technique, footwork and body position wisely at the right time and place to gain points efficiently, thus outperforming their opponents. Planned upskilling consists of tactical knowledge, training-related awareness, tactical knowledge, reading opponents, tactical flexibility, psychological control and control over activity during the match. Calculated upskilling is one of the major variables of the present study and it is used for comparing the national and international levels of taekwondo players of Punjab province. Taekwondo strategy is the use of technical skills in a planned and clever manner. Areas of Taekwondo strategy include opponent analysis, distance control, choice of attack, time control, scoring situations, and tactical/technical adaptation to changes in the course of the match. Planned upskilling therefore helps the player to move from mechanical use of techniques towards thinking, judging, adjusting and employing techniques with purpose. It is especially important in modern competitive taekwondo, where matches are fast, unpredictable and technically complex.

Calculated upskilling is a variation. It is closely related to technical skilling as it measures how well a player will be able to use a technique in a non-practice game. For example, a well-executed roundhouse kick is useless without the planned training to know when to use it, against which movements to use it, and whether to use it in order to attack, counterattack, or build up pressure in the first place. Movement training provides a technical base, and calculated training provides the competitive intelligence necessary to use that base. In the sport of taekwondo, practitioners are required to quickly adapt to an unpredictable environment where the opponent's attack, distance, feints or fighting style may change. The need to perceive, decide, respond, and adapt in real-time situations as opposed to relying solely upon premeditated drills is a vital aspect of taekwondo. Hsieh et al. (2025) highlighted response inhibition and ecological validity in taekwondo performance, stressing the importance of cognitive control. Nam et al. (2022) introduced psychological skills variables, such as concentration, confidence, emotional control, and readiness to compete, as other relevant constructs that can impact the performance of taekwondo athletes. These findings show that mental and tactical development both play important roles in calculated performance.

Upskilling: a calculated advantage in taekwondo

- Improves tactical awareness: It helps the player know when to attack, to defend, to counterattack and to control distance.

- Supports decision-making: It enables the player to select the right technique at the right moment under pressure.
- Improves opponent reading: It helps the player observe the opponent's movement pattern, strengths, weaknesses, and attacking habits.
- Improves match control: A strategically skilled player can manage time, the score difference, the rhythm, and the pressure of the match.
- Strengthens adaptive response: It allows the player to change tactics when the opponent changes strategy.
- Reduces unnecessary risk: Use planned thinking to prevent careless attacks that invite retaliation.
- Improves competitive confidence: The player with a clear strategy plays more composed, controlled and focused.
- Supports higher-level performance: Planned upskilling is central for players in making the journey from competing nationally to competing globally.

Thus, taekwondo is not only a sport of movement, but also a sport of smart action. A technically skilled player can perform techniques up to a certain skill level, whereas a strategically skilled player knows how to apply techniques to win competitive situations. Therefore, planned upskilling is necessary.

III. Meaning and Scope of Strategic Upskilling

Calculated upskilling is a planned development of certain tactically and strategically relevant skills and abilities to be used in taekwondo competition. This includes determining tactical objectives before the start of the match, analysing and understanding the opponent, selecting the correct techniques, and adapting fighting behaviour according to the distance to the opponent, timing, mental condition, score, and match situation. Planned upskilling is the development of the player's ability to outsmart the opponent. Planned upskilling is a large domain, as several areas of taekwondo are included. Examples include pre-match planning, in-match decision making, opponent analysis, situational adjustment, emotion regulation, response inhibition, timing, scoring the game, and post-match reflection. Thus, cognitive and psychological aspects of sport performance play a major role in expert performers. In addition to planning, expert strategists closely observe opponents, adjust their manoeuvres according to the situation, and, most important, purposefully apply technical skills. Additionally, calculated upskilling can be progressive, with a beginner following instructions from their coach to initiate basic attacking or defending options.

An intermediate level player can estimate distance, time their attacks and counter, analyse their opponent's behaviour. An advanced level player can set traps, change strategies, focus on frame data and psychological warfare techniques, and counter different styles. An elite level player has to know all of these strategies, and still make the right analyses in extremely short time intervals. Planned upskilling is also practical and experiential. The player develops strategy not only through reading the rules or watching the matches, but through sparring, competitions, strategy drills, video analysis, and

coach-run strategy sessions. Match experience is thought to give players familiarity with pressure, uncertainty, opponent types and scoring scenarios, with international players showing greater planned maturity than national players. This is likely due to the larger variety of styles and tactics that international players have to deal with.

The implications of planned upskilling are that it is not an additional and optional part of the taekwondo curriculum, but rather that it is directly relevant to competition performance. The effectiveness of technical skills is dependent on their use in combination with planned skill. A player who has a good attacking technique may lose points to another player with a better counterattack. In such cases, he has to change his own game, using the distance, feints, rhythm and attack at safer times.

If the player is ahead (in material) they may need to manage their position with limited defence, a patient counterattack, and if necessary time management. Conversely if the player is losing, they are likely to need to play aggressively, taking risks and attempting to apply pressure wherever possible. In an equal position, the player must be patient, time moves precisely, and use effective techniques. Accordingly, calculated decisions are always made in the context of the match.

In the present research, planned upskilling will help the participants to differentiate the national taekwondo players from the international taekwondo players because national players have very good taekwondo skill but they need to improve their tactical maturity, match preparation, match response, and in-game adaptability. Internationally, other players may be better at planned decision-making due to the increased level of competition and more varied play styles. This could potentially be another point of comparison.

IV. Tactical Awareness and Match Planning

Tactical awareness is the ability for a player to be mindful of a situation and be able to react accordingly. This includes distance from other players, time, movement of opponent, scoring opportunities, defensive movements, signals by the referee, and score difference. A player with tactical awareness does not simply use techniques but uses them according to the match situation. The player thinks beforehand how to start, what and when to use certain techniques, how to keep the correct distance, what to do according to how the opponent reacts, and what to do when the player is put under pressure or finds themselves in a negative situation. Match planning is not set. If the opponent does not behave as expected, it is necessary to adapt. Having a good match plan is important, but tactical awareness enables a player to adapt their plan to the match.

Taekwondo tactics begin with a player's self-evaluation. A player must know which techniques are the best, if he or she is better at attacking or counterattacking, if his or her footwork is good and how he or she performs under pressure. A skilled player can

then use this information to strengthen their strong qualities and cover for their weak qualities during a match.

Tactical awareness also covers observing opponent behaviour. During or before fighting, the fighter must determine whether the opponent leads the offence, waits for counterattack, attacks with front leg techniques, spins, fights at long distance, or fights aggressively. It can help determine whether to use certain tactics such as counter-attack and distance control against an opponent who is attacking or feints and pressure against an opponent who is defending. The structure of matches is born in match planning. When a player does not plan he operates reactively and confused. A planned player has a definite plan how he would score, and how his opponent would score against him. However, his plan has to be flexible as a taekwondo game could change within any one score, penalty or counterattack. Thus match planning must include other options.

Tactical capacity and planning in sporting contexts depend on psychological control (a player can have a good plan but be unable to carry it out if they are anxious, angry, or overconfident). According to Nam et al. (2022), psychological skills such as concentration, confidence, and emotional regulation are necessary for taekwondo athletes. They highlight that tactical performance requires psychological stability. Tactical awareness can be improved through experience of competition. Players learn how their opponents tend to behave, when to attack and wait, how to deal with pressure and how to regroup when points are lost. International players could also develop their tactics more, as they are faced with other countries that use different fighting systems. This might help their approach to match preparation and tactics.

V. Decision-Making Under Competitive Pressure

Decision making under pressure is one of the most important aspects of planned upskilling in taekwondo, because the player has to make decisions very quickly during a match. The player must decide to attack, defend, counter-attack, back off, shorten or lengthen distance between oneself and the opponent, or wait for a more planned opportunity, while the opponent is also on the move. Taekwondo is therefore fast, complicated and time-sensitive. Competitive pressures can come from the opponent, the score, the time left in the match, the crowd, or the taekwondo coach. A player might be further under pressure for other reasons: the fear of losing or the importance of the tournament might be important. Mistakes include not attacking at the right time, playing defensively, becoming too hesitant, and getting stuck in a repetition-based attack (a pattern in which the same move recurs). A tactically clever player is calm and even-tempered.

Decision making is a type of cognitive control where the player must inhibit or suppress impulsive responses to select the response with the goal of producing the most helpful outcome. Hsieh et al. (2025) found response inhibition important for taekwondo performance. Response inhibition is the ability to avoid carrying out an inappropriate action. This is important because if a player is about to attack but their

opponent has counterattack available, the cost for the player to attack might be greater than the cost of waiting or changing angle. This links decision making with reaction times. Taekwondo is characterised by quick action and visual processing. Greco et al. (2024) show that choice visual reaction time of elite taekwondo athletes is regulated by pre-task music, showing how mental activation and preparedness can optimise speed of visual information processing, thus suggesting that decision-making is not simply a tactical matter, but rather a psychological and cognitive one.

The player's cognition in taekwondo involves elements such as opponent stance, foot position, body movements, distance, and their preparation to attack, then the player decides quickly how they can respond back to the opponent's stance with their own text. More experienced players often make better decisions, as they become better at identifying situations quickly, rather than piecing together every detail. Also, players need to be patient in high-stakes situations, as they may lose points if they go for the attack too quickly. Instead of risking everything at once, a player can pick and choose his moment, and wait patiently for a decisive opportunity. The player is active and vigilant, but does not act thoughtlessly.

The player will need to work harder to make decisions if they are tired, which affects focus, reaction time, and technical accuracy. Thus, conditioning can improve tactical decision-making. Taekwondo specific high-intensity training features high aerobic and anaerobic energy demands (Bartel et al., 2022). Another effect on tactical decisions is that badly fatigued players may not be able to make adept tactical choices in later stages of the match. This may be more relevant for international players, who may be exposed to more high pressure games. This might include improving the players' nerves and shot selection. Although national team players might be more skilled, they tend to have less experience and training under pressure. So, decision-making provides a useful dimension by which to compare the planned upskilling of players

VI. Opponent Reading and Adaptive Response

Opponent reading is the ability to observe and analyse an opponent's behaviour and predict their future moves in a match. It is one of the most important calculated skills to learn because taekwondo is an interactive sport. A player has to take into account the opponent's movement, spacing, timing and patterns. Reading the opponent allows the player to focus on which moves to use or avoid using. The read starts with observing the opponent. The player observes the opponent's guard, foot movement, preferred attacking leg, attack rhythm, defensive habits, reflexes, and emotional reactions as some opponents attack most of the time while others wait for a counterattack. Some prefer front-leg kicks, others prefer back-leg or spinning kicks. Certain players may get nervous or even aggressive in stressful situations, which a skilled player will exploit strategically.

Adaptive response is changing what you do depending on your opponent and the situation in the match, and if the plan is not working, you have to change. For example,

if your opponent is blocking a direct attack, you can use a feint. If the opponent is faster, the player may want to distance control or counter, and so forth. If the opponent is defensive, the player can ramp up pressure with combination attacks. This reaction prevents the player from becoming predictable. Hsieh et al (2025) proposed that in the future, taekwondo research should use task conditions that would be as realistic and ecologically valid as possible, in which the players have to constantly change their actions according to their opponents' actions. Calculated upskilling, therefore, is not just about having a pre-planned strategy, but also about adapting to that strategy during the match.

Opponent reading may be improved through sparring, video analysis, competition experience, and instruction. Players may also view opponent videos and observe techniques prior to competition. In some training environments, coaches may deliberately pair up players with different sparring partners, because having to play against players of a similar playing style may not be conducive to their experiences in matches.

Adaptive response requires technical variety, the player lacks the ability to adapt if they only know one or two techniques. As planned upskilling ultimately depends on technical skilling, there should be enough permutations of the technical options for the strategy to change. If direct roundhouse kicks do not work, the player must try a side kick, back kick, feint, counterattack, or change the angle. A range of techniques restricts planned flexibility.

Opponent reading and adaptive response are also related to emotional control, when the player stops thoroughly observing what is happening and simply reacts when frustrated. Repeating the same mistakes is common, while a composed player will be more flexible in adjusting their plans. According to Nam et al. (2022), emotional control and concentration are among the impressive psychological skills of taekwondo, underlying the role of mental stability in strategy. The consideration of reading the opponent may be more pronounced in international players due to experiencing people from other regions and countries with different styles of play. National players face limited tactical variations and may not develop in-game adaptability as a result, which may be one reason to contrast national and international players' approach to planned upskilling in the present study. Opponent reading and counterstrategies are also relevant. Boys and girls may differ in their exposure to competition and to sparring and coaching, which could have implications for their tactical maturity. It would therefore be worthwhile to assess how boys and girls in Punjab differ in their planned upskilling.

VII. Strategic Training for Higher-Level Competition

Planned training refers to the acquisition of tactical, cognitive, psychological and match-specific skills required for success in high-level taekwondo competition. This is more complex than the mechanical execution of basic techniques. Planned training, in which players should be able to plan, think, observe, adapt and cope with pressure, should be an integral part of taekwondo coaching. While at lower levels the focus is on

technique and fitness, these alone are not enough to guarantee success at national and international levels. At higher levels, an opponent's technical and physical abilities are assumed. The difference between winning and losing may depend on tactical intelligence, decision-making, timing, emotional control and response to changing conditions. Calculated training is vital for players to be successful at the district, state, national, and international levels.

Preparation should parallel competition, involving tactical sparring, tactical opponent analysis, score/period/time-based scenarios, decision-making training, video analysis, psychological preparation and tactical discussion between coach and player. These aspects help players understand how to apply technical skills during a match, and should be tailored to the individual player. Every player behaves differently and makes use of specific strengths; some are more offensive, while others are defensive. Some players are fast yet weak, and others are strong yet slow. Coaches should develop strategies that exploit the advantages of each player's characteristics. The strategy for one player may not be the strategy for another.

Modern technologies such as video analysis, performance tracking, cyber-physical systems, and augmented reality-based feedback systems can help players understand tactical mistakes and improve their tactical decision-making skills. Cunha et al. (2024) mentioned that cyber-physical systems for specific purposes could be used to evaluate taekwondo athlete performance. Yang and Wang (2025) found that an augmented reality-based taekwondo coaching system with real-time feedback increased technical learning and coaching efficiency. Planned development can also be supported through tools for feedback and tactical correction. There is likely to be a focus on psychological skills training, including maintaining composure after a point is lost, dealing with pressure, properly managing anger, and retaining concentration throughout the match. Furthermore, Andreato et al. (2022) reported positive effects of mental training on psychological readiness, attention, emotion regulation, and performance in combat sports. Accordingly, mental training programs should be included in the training programs of advanced taekwondo athletes.

It is especially important for players who want to progress from a national level to an international level as at international level, players are generally stronger, faster, and more tactically aware of the game. Another player may be technically good but not tactically suited, and tactical training may enable a player to progress from a national level to an international level. Calculated training may be helpful for further taekwondo development in Punjab, including match analysis, tactical preparation, psychological preparation, and opponent-specific training. However, such tactics can help improve performance, and planned upskilling can be employed by coaches and academies to train athletes. The study may have implications for the differences in calculated upskilling between national- and international-level players and the structure of planned upskilling training systems.

VIII. Conclusion

The study concludes that Taekwondo performance depends not only on physical and technical ability but also on strategic thinking and match intelligence. A technically skilled player can perform techniques effectively, but a strategically skilled player knows when, where, and how to use those techniques to gain advantage. Strategic upskilling improves tactical awareness, decision-making, opponent reading, emotional control, and adaptive response. Therefore, planned training should be included in Taekwondo coaching to prepare players for national and international competition.

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