

# Visualizing Victory: Exploring the Influence of Imagery Training on Shooting Precision in Kuching Pétanque Novices

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## ABSTRACT

This study aims to examine the impact of imagery training on shooting accuracy, highlighting the variability in shooting proficiency among players. Employing a True Experimental Design, specifically a Pre-test Post-test Randomized Group Design, 24 participants were randomly assigned to two groups following the pre-test assessment. The intervention group consisted of 12 participants who underwent imagery training, while the remaining 12 participants formed the control group. The sample comprised pétanque players in the vicinity of Kuching, selected through purposive sampling. Data collection spanned four weeks of training. Findings indicate a significant enhancement in pétanque shooting performance attributable to imagery training. This research offers practical benefits to players, facilitating the refinement and augmentation of their shooting abilities in pétanque through the utilization of imagery scripts.

**Keywords:** Pétanque; Shooting Accuracy; Imagery Script

## INTRODUCTION

Pétanque gained official recognition as a sport in Malaysia in 1990, endorsed by Dato' Seri Mohd Najib Tun Abdul Razak. It stands out as a distinctive game wherein participants aim to position their boules close to the jack while strategically maneuvering to keep opponents' boules at bay (Rony et al., 2021). Played on a rocky surface, the sport encompasses various events including singles, doubles, triples, triple mix, and precision shooting. Among these, shooting techniques hold particular significance, as players must skillfully direct their boules towards opponents' boules to maintain distance from the jack (Phytanza et al., 2022). This skill becomes crucial in every match scenario, especially during precision shooting.

Subsequently, the researcher intends to leverage imagery scripting to enhance player performance in shooting. Imagery scripting involves crafting detailed mental scenarios tailored towards achieving specific outcomes, ensuring players can replicate successful techniques consistently (Cooley et al., 2013). Given the repetitive nature of actions in a pétanque match, this technique aids players in ingraining and replicating effective techniques across various game situations.

Existing literature underscores the significant impact of imagery training on player performance, particularly in terms of shooting accuracy. These findings underscore the potential of imagery training to notably enhance players' performance levels.

## METHODOLOGY

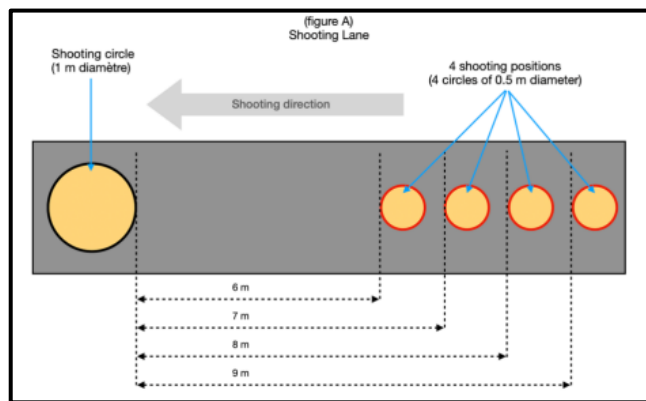
The methodology employed in this research comprises a True Experimental Design utilizing a Pre-test Post-test Randomized Group Design. Following the initial pre-test assessment, subjects were randomly allocated into two groups. The research duration extended over a 4-week period of training. A total of 24 subjects participated, all undergoing the pre-test evaluation. Subsequently, they were divided into two groups: 12

subjects in the control group and 12 subjects in the intervention group. Both groups underwent a 4-week training regimen focusing on shooting techniques. However, only the intervention group received additional training utilizing an imagery script.

## PRECISION SHOOTING

The precision shooting assessment measures shooting accuracy, with participants tasked with throwing the boule four times from distances of 6, 7, 8, and 9 meters. Points are allocated as follows: 0 points for missing the target entirely, 1 point for reaching the target but not hitting the opponent's boule, 3 points for displacing the opponent's boule, and 5 points for landing the boule nearest to the jack. Following each throw, participants progress to the subsequent distance.

Points are only awarded for successful shots and infractions such as lifting one's feet during the test result in penalties. The shooting lane layout is illustrated in Figure 1.



**Figure 1:** Shooting lane.

In this scoring system, each throw is meticulously recorded individually. Subsequently, following the test, scores are aggregated, taking into account the total number of successful shots. Thus, for each point, there are four distinct shooting results.

**Table 1:** Shooting Result

Shooting Results	Points
Miss.	0
Target boule hit but do not leave the circle.	1
Target boule hit and leave the circle.	3
Target boule leave the circle and shooter boule remain.	5

According to Table 1, players receive points for each successful attempt they make. For instance, if a player manages to hit the target boule but their own boule also exits the circle, they will still be awarded 3 points. To maximize their score, players must strive to perform optimally with each attempt at varying distances of 6, 7, 8, and 9 meters.

**Table 2:** Shooting Accuracy Norms

Norms	Level of Scoring	Remark
1 – 19	Low	Poor in shooting accuracy
20 – 39	Moderate	Average in shooting accuracy
40 – 60	High	Very good in shooting accuracy

Referring to Table 2, the established norms serve as criteria for assessing the players' proficiency levels upon completing all attempts. These levels are categorized as low, moderate, and high. For instance, achieving a total of 40 points designates a player as high-level, indicative of their superior performance. These norms serve as a valuable tool for researchers to pinpoint players with subpar accuracy in their pétanque shooting skills, enabling targeted interventions and support.

### Imagery Script

Members of the intervention group will create personalized scripts outlining their approach to executing shooting skills, recognizing the individual nuances and preferences inherent in each player's technique. Subsequently, these scripts will be recited aloud 30 minutes prior to the commencement of their training session. An illustrative example of an imagery script is provided below:

Shooting Imagery: To begin, I will assess the distance and surface conditions, allowing me to determine the most suitable throwing technique. Next, I will step into the circle, ensuring both feet are firmly planted. Taking a deliberate pause, I will spend 5 seconds breathing slowly, calming my mind. Proceeding, I will execute a pre-throw motion to gauge the necessary power required. Finally, I will conduct a final check to confirm the correct grip on the boule. With a fluid motion, I will gently and confidently swing my arms back, following through towards the target boule without hesitation.

## RESULTS AND DISCUSSION

Analysis of the data in this study was conducted utilizing Statistical Package for the Social Sciences (SPSS) version 26.0 software. Descriptive statistics ( $M \pm SD$ ) were employed to elucidate the variables within the dataset, while inferential statistics were addressed through the utilization of the Independent Samples T-Test. The significance level was established at  $p < 0.05$ .

### Results

**Table 3:** Descriptive Statistics for Control Group and Intervention Group Score

Group		n	Minimum	Maximum	Mean	±Std. Deviation
Control	Pre-test	12	18	26	22.67	2.96
	Post-test	12	20	27	23.25	2.56
Intervention	Pre-test	12	16	30	23.25	3.98
	Post-test	12	19	33	26.41	3.91

Table 3 illustrates the descriptive statistics of scores for both the control and intervention groups, with each group comprising 12 novice players from Kuching Pétanque ( $n=12$ ). In the control group, the mean and standard deviation for the pre-test were 22.67 (pre-test) and  $\pm 2.96$  (pre-test), respectively, while for the post-test, they were 23.25 (post-test) and  $\pm 2.56$  (post-test), respectively. Regarding the intervention group, the mean and standard deviation for the pre-test were 23.25 (pre-test) and  $\pm 3.98$  (pre-test), respectively, and for the post-test, they were 26.41 (post-test) and  $\pm 3.91$  (post-test), respectively. Both the control and intervention groups demonstrated moderate levels based on the mean scores.

**Table 4:** Normality Test

		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
Group		Statistic	df	Sig.	Statistic	df	Sig.
Pre-test	Control	0.17	12	0.20	0.90	12	0.15
	Intervention	0.12	12	0.20	0.97	12	0.97

Post-test	Control	0.22	12	0.08	0.89	12	0.13
	Intervention	0.14	12	0.20	0.97	12	0.97

Table 4 displays the results of the Shapiro-Wilk test conducted to assess the normality of shooting accuracy scores in both the intervention and control groups during the pre-test and post-test phases. A non-significant outcome in the Shapiro-Wilk Normality test signifies normality. The Shapiro-Wilk test revealed significant normality in the pre-test for the intervention group,  $W(12) = 0.97, p = 0.97 (p > 0.05)$ , as well as the control group,  $W(12) = 0.90, p = 0.15 (p > 0.05)$ . Similarly, the Shapiro-Wilk test indicated significant normality in the post-test for the intervention group,  $W(12) = 0.97, p = 0.97 (p > 0.05)$ , and the control group,  $W(12) = 0.89, p = 0.13 (p > 0.05)$ . These results suggest that the data distribution was significantly normal for both the intervention and control groups during both the pre-test and post-test phases. Consequently, a parametric test (Independent Samples T-test) was employed to compare the intervention group (script imagery and practice) with the control group in pétanque shooting accuracy.

**Table 5:** Comparison Between Imagery and Non-imagery in Shooting Accuracy

	Group	n	Mean (SD)	t	df	Sig. (2 tailed)
Pre-test	Control	12	22.67 (2.96)	-0.40	22	0.688
	Intervention	12	23.25 (3.98)			
Post-test	Group	12	23.33 (2.60)	-2.27	22	0.033
	Intervention	12	26.41 (3.91)			

An independent samples T-test was conducted to evaluate the impact of imagery training (script imagery and practice) on shooting accuracy between the control and intervention groups among novice players. As depicted in Table 5, a statistically significant difference was observed between the intervention group ( $M = 26.41, SD = 3.91$ ) and the control group in the post-test ( $M = 23.33, SD = 2.60$ ),  $t(11) = 2.45, p < 0.033$  (two-tailed). Thus, the null hypothesis of this study was rejected. These findings suggest that script imagery and practice influenced pétanque shooting accuracy.

## Discussion

The findings of this study underscore the significant impact of imagery training on shooting accuracy among novice players in Kuching Pétanque. The rejection of the null hypothesis indicates a notable effect of the intervention on the players. The efficacy of this intervention can be attributed to the utilization of imagery scripts by the players, enabling them to mentally rehearse the actions required for execution. This assertion finds support in the work of Omar-Fauzee (2009), who emphasizes the pivotal role of imagery in athletes' success. Hall (2001) further elucidates that athletes can recreate past actions and experiences through cognitive rehearsal, leveraging the information stored in their memories to construct clear mental images. For 4 weeks, the intervention group engaged in these activities, resulting in improved skills, particularly evident during the post-test. By employing imagery scripts, individuals can generate vivid mental representations, aligning their actions with the outlined details in the script (Cooley et al., 2013). Consequently, players can envision the precise execution of their actions by revisiting and mentally rehearsing the script.

While it may pose challenges to recall exact movements, imagery scripts prove invaluable. They assist athletes in executing correct actions by facilitating the recall of sensations and refinement of skills, thereby mitigating anxiety during performance (Yahya et al., 2016). This streamlined recollection of script content and visualization of correct action execution contributes to enhanced confidence, as emphasized by Filgueiras (2016), which subsequently positively influences motor skills and overall performance. This elucidates the observed improvement in players' performance during the post-test.

Moreover, imagery constitutes a mental process wherein athletes visualize themselves preparing for tasks, aiming to enhance performance. Both deliberate and spontaneous recall processes contribute to imagery, wherein individuals perceive images or movements as mental representations without physically witnessing them. In this context, imagery enhances motor task performance (Guarnera et al., 2016).

## CONCLUSION

In summary, this study investigated the efficacy of imagery scripts and precision shooting training on novice pétanque players in Kuching, comparing an intervention group to a control group. After a 4-week training period, significant disparities in shooting accuracy were observed between the group utilizing imagery scripts and the control group among the novice players in Kuching. The outcomes suggest that incorporating imagery scripts can enhance players' performance in precision shooting, while the control group did not exhibit significant improvement in their shooting training. This underscores the potential benefits of imagery scripts, particularly for emerging players, particularly those under 21 years old. Moreover, the data suggests moderate improvement within the intervention group over the 4-week period, indicating the potential for further enhancement with extended training, possibly up to 6 weeks.

Several avenues for future research are suggested. Firstly, investigating the efficacy of imagery training among different populations, such as professional athletes or individuals with varying levels of experience, could elucidate its broader applicability. Secondly, expanding the age range of participants may offer insights into age-related responses to such training interventions, considering physiological and developmental factors. Additionally, the utilization of tools like the Movement Imagery Questionnaire-Revised (MIQ-R) could aid in assessing participants' imagery capabilities, guiding the tailored application of imagery training for maximum effectiveness.

Overall, this study offers valuable insights for coaches and players seeking to integrate imagery into training regimens and lays the groundwork for further exploration in this domain, contributing to the advancement of knowledge and practice in sports psychology and training methodologies.

## Ethical Approval

Ethical approval for this study was obtained from the Ethics Committee of Universiti Teknologi MARA (UiTM), ensuring that all research procedures adhered to the ethical guidelines and standards set by the institution.

## CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## REFERENCES

1. Beilock, S. L., JamesA, A., Rabe, A. L., & Carr, T. H. (2000, June). "Don't Miss!" The Debilitating Effects of Suppressive Imagery on Golf Putting Performance. In JOURNAL OF SPORT & EXERCISE PSYCHOLOGY (Vol. 22, pp. S17-S18). 1607 N MARKET ST, CHAMPAIGN, IL 61820-2200 USA: HUMAN KINETICS PUBL INC.



2. Button, K. S., Ioannidis, J. P., Mokrysz, C., Nosek, B. A., Flint, J., Robinson, E. S., & Munafò, M. R. (2013). Power failure: why small sample size undermines the reliability of neuroscience. *Nature reviews neuroscience*, 14(5), 365-376
3. Cooley, S. J., Williams, S. E., Burns, V. E., & Cumming, J. (2013). Methodological variations in guided imagery interventions using movement imagery scripts in sport: A systematic review. *Journal of Imagery Research in Sport and Physical Activity*, 8(1), 13-34.
4. Corbin, C. B., Landers, D. M., Feltz, D. L., & Senior, K. (1983). Sex differences in performance estimates: Female lack of confidence vs. male boastfulness. *Research Quarterly for Exercise and Sport*, 54(4), 407-410.
5. Filgueiras, A. (2016). Imagery for the improvement of serving in beach volleyball: a single case study. *Revista Brasileira de Psicologia Do Esporte*, 6(3).
6. Guarnera, M., Stummiello, M., Cascio, M. I., & Di Corrado, D. (2016). Vividness and transformation of mental images in karate. *International Journal of Kinesiology and Sports Science*, 4(3), 10-17.
7. Hall, C. R., Mack, D. E., Paivio, A., & Hausenblas, H. A. (1998). Imagery use by athletes: development of the sport imagery questionnaire. *International Journal of Sport Psychology*.
8. Hall, C. (2001, October). Why athletes and exercisers use imagery. In Symposium presented at the annual conference for the Association or the Advancement of Applied Sport Psychology.
9. Hall, C. R., & Martin, K. A. (1997). Measuring movement imagery abilities: a revision of the movement imagery questionnaire. *Journal of mental imagery*.
10. Khan, T. K. A., Mazli, A. M., & Hashim, A. (2018). The effects of PETTLEP and traditional imagery interventions on netball players shooting accuracy. *Jurnal Sains Sukan & Pendidikan Jasmani*, 7(2), 53-60.
11. Lubis, M. R., & Permadi, A. G. (2020). Perbedaan pengaruh Latihan imagery dan tanpa Latihan imagery terhadap peningkatan kemampuan shooting game atlet petanque UNDIKMA. *Jurnal Ilmiah Mandala Education*, 6(1).
12. Mohd Nor, N., Mohamed, Z., Sheikh Silan, S. I., & Huri, I. (2018). Coaching Manual Level I Nasir., (2013). Manual Kursus Kejurulatihan Petanque Sesi 01/2013 (Tahap 1).
13. Omar-Fauzee, M. S., Daud, W. R. B. W., Abdullah, R., & Rashid, S. (2009). The effectiveness of imagery and coping strategies in sport performance. *European Journal of Social Sciences*, 9(1), 97-108.
14. Phytanza, D. T. P., Burhaein, E., Indriawan, S., Lourenço, C. C. V., Demirci, N., Widodo, P., ... & Susanto, A. (2022). Accuracy Training Program: Can Improve Shooting Results of Petanque Athletes Aged 15-20 Years. *International Journal of Human Movement and Sports Sciences*, 10(1), 121-130.
15. Pilus, A. M., Amin, M. N. M., & Muhammad, N. (2017). The effect of sport technology on student-athletes' Petanque Skill Performance. *International Journal of Applied Engineering Research*, 12(17), 6591-6596.
16. Rizal, R. M., Asmawi, M., & Lubis, J. (2020). Petanque: Mental Training and Kinesthetic Perception of Shooting Accuracy. *ACTIVE: Journal of Physical Education, Sport, Health and Recreation*, 9(3), 185-191.
17. Rony, M. R., Asmawi, M., & Lubis, J. (2021, July). Petanque: Mental Imagery and Shooting Accuracy. In 4th International Conference on Sports Sciences and Health (ICSSH 2020) (pp. 16-18). Atlantis Press.
18. Smith, D., Holmes, P. S., Whitmore, L., & Devonport, T. (2001). The effect of theoretically based imagery scripts on field hockey performance. *Journal of sport behavior*, 24(4), 408-419.
19. Williams, S. E., Cooley, S. J., Newell, E., Weibull, F., & Cumming, J. (2013). Seeing the difference: Developing effective imagery scripts for athletes. *Journal of Sport Psychology in Action*, 4(2), 109-121.
20. Williams, S. E., Cooley, S. J., & Cumming, J. (2013). Layered stimulus response training improves motor imagery ability and movement execution. *Journal of Sport and Exercise Psychology*, 35(1), 60-71.
21. Yahya, M. F., Ismail, M., & Amer, A. (2016). The idea of using practice in mind training program for rugby players to improve anxiety and kicking performance. *Int J Sports Sci*, 6(2), 70-5.