

## **PILOT VALIDATION OF THE USE INSTRUMENT FOR EVALUATING A PSYCHOLOGICAL SKILLS TRAINING MODULE DESIGNED FOR RUGBY COACHES**

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**Received:** 10 August 2025; **Revised:** 10 October 2025 **Accepted:** 25 October 2025; **Published:** 11 November 2025

**To cite this article (APA):** Razak, A. E. A., Rustam, S., Kassim, M., Idriss, A. F. A., & Maliki, A. B. H. M. (2025). Pilot validation of the use instrument for evaluating a psychological skills training module designed for rugby coaches. *Jurnal Sains Sukan & Pendidikan Jasmani*, 14(SI1), 115-125. <https://doi.org/10.37134/jsspj.vol14.sp.12.2025>

**To link to this article:** <https://doi.org/10.37134/jsspj.vol14.sp.12.2025>

### **Abstract**

This pilot study evaluated the preliminary psychometric properties of an adapted USE (Usefulness, Satisfaction, and Ease of Use) questionnaire designed to assess the usability of a Psychological Skills Training (PST) module for Malaysian rugby coaches. A total of 30 coaches from state and national levels participated in the study. Psychometric analysis focused on content and face validity, internal consistency reliability, and item-level performance using the Percentage Calculation Method and Cronbach's Alpha with Corrected Item-Total Correlation (CITC). Results demonstrated excellent internal consistency ( $\alpha = .918$ ), with 20 out of 30 items surpassing the CITC threshold ( $\geq .50$ ). Content validity scores exceeded 96%, affirming the instrument's clarity and relevance. These findings provide promising preliminary evidence of the instrument's content validity and internal consistency reliability, supporting its feasibility for future large-scale psychometric evaluation and potential integration into broader sports psychology coaching frameworks..

**Keywords:** Usability Evaluation, Psychological Skills Training, Sport Psychology, Rugby Coaching, Psychometric Validation, Content Validity

## Introduction

Modern rugby union demands a synergy of physical conditioning and advanced psychological competencies, such as emotional regulation and cognitive control, to sustain elite performance under pressure (Beaven et al., 2023; Ashford et al., 2025). While the efficacy of Psychological Skills Training (PST) is well-documented globally, its systematic integration within the Malaysian rugby ecosystem remains nascent. Local coaching practices predominantly prioritise technical and tactical drills, often neglecting mental skill development due to a lack of practical resources and culturally contextualised training aids (Camiré et al., 2021; Bird et al., 2024; Lima et al., 2025).

A critical barrier to bridging this gap lies in the translation of psychological principles into accessible coaching tools. Although previous research has explored the psychological challenges and PST experiences of Malaysian athletes (Khan et al., 2023), there is a paucity of research evaluating the practical usability of PST interventions from the coach's perspective. For psychological interventions to be effective, they must be instructionally designed to be user-friendly and relevant to the coaching environment. However, a significant methodological limitation persists in the current literature. Despite the availability of PST modules, there is a lack of validated usability instruments for coaches in the Malaysian rugby context. Without a robust mechanism to evaluate the utility and accessibility of these educational resources, their adoption and long-term effectiveness remain difficult to ascertain.

To address this measurement deficit, the Usefulness, Satisfaction, and Ease of Use (USE) questionnaire originally conceptualised by Lund (2001) and refined by Johnson et al. (2022) offers a viable evaluative framework. While the USE instrument has been extensively applied in digital learning and instructional design, its psychometric validation within sports science, particularly for evaluating coaching-based psychological training materials, remains scarce.

Consequently, this study undertakes a pilot psychometric validation of an adapted USE instrument, specifically tailored to evaluate a newly developed PST module for Malaysian rugby coaches (Razak et al., 2025). By assessing internal consistency reliability and content validity, this study aims to establish foundational psychometric evidence for the adapted tool, thereby facilitating the evidence-based integration of psychological training within Malaysian rugby coaching practices.

## METHODOLOGY

### Research Design

This study adopted a cross-sectional, quantitative survey design to pilot test the adapted USE (Usefulness, Satisfaction, and Ease of Use) instrument for evaluating the usability of a Psychological Skills Training (PST) module (Razak et al., 2025). The primary objective of this pre-testing phase was to assess the clarity, cultural relevance and measurement consistency of the instrument prior to broader implementation.

### Participants

A purposive sample of 30 Malaysian rugby coaches ( $n = 30$ ) was recruited for this pilot study. The selection of this sample size is supported by the recent methodological guidelines provided by Hollman et al. (2024) in their critical review of pilot studies within the physical activity domain. They advocate that pilot trials should prioritise feasibility and preliminary process assessment over statistical power, making a sample of this magnitude sufficient for detecting initial instrument flaws and assessing implementation viability. Furthermore, consistent with the foundational criteria for scale development (DeVellis & Thorpe, 2021), this sample allowed for the assessment of preliminary internal consistency and content validity. However, following the distinctions clarified by Hollman

et al. (2024), this study is strictly classified as a pilot validation; thus, it clearly does not aim to confirm factor structure via Exploratory Factor Analysis (EFA), which would require a significantly larger sample size (Hair et al., 2022).

### Instrument Development

The instrument was grounded in the USE framework originally established by Lund (2001). Comprising three subscales Usefulness, Satisfaction, and Ease of Use, the questionnaire was adapted to evaluate the PST module, ensuring alignment with recent usability evaluation protocols utilized in Malaysian sports education contexts (Liu et al., 2025) and global sports platform assessments (Gao et al., 2024). Each subscale consisted of 10 items, resulting in a total of 30 items. To preserve linguistic and conceptual equivalence, the items were translated into Malay using a back-translation approach, adhering to rigorous protocols for cross-cultural instrument validation (Zhao et al., 2022). The translated version was subsequently reviewed and revised by a panel of experts in sport psychology and coaching to ensure content relevance, contextual appropriateness, and cultural sensitivity.

### Data Analysis

All quantitative analyses were performed using IBM SPSS Statistics Version 23. The validation process was initiated with an assessment of face and content validity based on expert ratings. The Percentage Calculation Method (PCM), as proposed by Sidek and Jamaludin (2005) and utilized in subsequent psychometric studies (e.g., Mahfar et al., 2019), was employed to quantify expert agreement. The total score assigned by the experts (x) was divided by the maximum obtainable score (y) and the result was multiplied by 100 to generate the percentage validity coefficient. A minimum threshold of 70% was set as the benchmark for item acceptance. Items scoring below this threshold were flagged for revision or elimination.

Internal consistency was evaluated using Cronbach's Alpha coefficient. Adhering to the interpretive framework established by George and Mallery (2024) and consistent with contemporary applications in sports psychology research (Çakır & Yılmaz, 2025; Yiğit & Şahin, 2025), a threshold of 0.60 was accepted for exploratory analysis. To further scrutinise item quality, Corrected Item-Total Correlation (CITC) values were computed. Items failing to meet the 0.50 benchmark, or those suppressing the overall reliability coefficient, were flagged for potential exclusion. Table 1 outlines the reliability criteria utilized in this study.

**Table 1.** Cronbach's Alpha Interpretation

Mean Value	Description
$\geq 0.9$	Excellence
$\geq 0.8$	Good
$\geq 0.7$	Acceptable
$\geq 0.6$	Questionable
$\geq 0.5$	Poor
$< 0.5$	Unacceptable

### Expert Review for Face and Content Validity

To ensure linguistic clarity, conceptual coherence, and content relevance, both face and content validity of the Psychological Skills Training (PST) Module Usability Questionnaire were evaluated by a panel of domain experts. The assessment followed the Percentage Calculation Method (PCM) developed by Sidek and Jamaludin (2005) and utilized in contemporary module validation studies (Jaladin et al., 2024).

A total of five experts with specialisations in psychometrics, sport psychology, instructional language, and module design were purposively selected to review the instrument. Each expert assessed the items using a 5-point Likert scale, rating them on dimensions of clarity, linguistic accuracy, and construct relevance. The validity coefficient was computed using the following formula:

$$\text{Percentage Validity} = \left( \frac{\text{Total Score by Experts (x)}}{\text{Maximum Possible Score (y)}} \right) \times 100\%$$

A minimum threshold of 70% was set as the acceptance criterion for item inclusion. Items scoring below this benchmark were subjected to revision or exclusion based on expert consensus.

Face validity was determined through the examination of grammatical precision, clarity of phrasing, and contextual comprehensibility of the instrument items. All items achieved scores exceeding 96%, reflecting excellent agreement among experts and strong linguistic suitability for the target coaching population.

Content validity was assessed by evaluating the relevance and representativeness of each item in measuring the three targeted constructs Usefulness, Satisfaction, and Ease of Use. Similar high levels of expert consensus were obtained, with all three constructs achieving content validity coefficients above 96%. However, the construct ‘Frequency of Implementation’ yielded a comparatively low coefficient of 56%, indicating weak conceptual alignment with the instrument’s overall objectives. Following panel recommendation, this construct was removed from the final version.

In addition to numerical scoring, the experts provided qualitative feedback that guided refinements to item wording, logical sequencing, and construct definition. These revisions contributed to improved item interpretability and enhanced psychometric precision.

**Table 2.** Expert Evaluation Results for Face and Content Validity of the PST Module Questionnaire.

No	Assessed Aspect	Validity Type	Expert Score (x/25 or x/30)	Validity Percentage (%)	Expert Conclusion
1	Simplicity of Language Used	Face	25/25	100%	Accepted
2	Clarity of Meaning and Interpretation	Face	25/25	100%	Accepted

3	Accuracy of Terminology	Face	25/25	100%	Accepted
4	Grammar and Sentence Structure	Face	24/25	96%	Accepted
5	Comprehensibility of Construct Items	Face	24/25	96%	Accepted
6	Demographic Section Suitability	Content	24/30	96%	Accepted
7	Usefulness Construct Validity	Content	24/30	96%	Accepted
8	Satisfaction Construct Validity	Content	24/30	96%	Accepted
9	Ease of Use Construct Validity	Content	24/30	96%	Accepted
10	Frequency of Implementation Construct Validity	Content	14/30	56%	Rejected
11	Overall Instrument Relevance	Content	24/30	96%	Accepted

All expert evaluations were conducted anonymously to minimise bias and enhance the objectivity of the review process. In addition to the quantitative assessments, qualitative comments provided by the panel were systematically analysed and incorporated to guide iterative refinements to the instrument prior to reliability testing. These refinements focused on optimising linguistic clarity, item sequencing and construct representation. Collectively, the findings confirm both the linguistic precision and content validity of the adapted USE-based instrument, establishing its suitability for subsequent psychometric evaluation and broader application in Malaysian sports coaching contexts.

### **Pilot Study Procedure**

The pilot study was conducted in person with 30 rugby coaches from various states across Malaysia. Prior to data collection, participants were provided with a detailed briefing regarding the study's objectives, procedures and expected outcomes. Participation was entirely voluntary and informed consent was obtained from all respondents in accordance with ethical research standards.

Each participant was given the adapted PST module usability questionnaire to complete independently. The researcher remained available throughout the session to address any queries or clarify response instructions where needed. Observational notes were taken during administration to capture spontaneous reactions and feedback, particularly in relation to item clarity, scale comprehension and interpretability.

Qualitative feedback provided by participants was also documented and later reviewed to inform further refinement of the instrument. Ethical principles were rigorously upheld throughout the pilot process, including the assurance of participant anonymity, confidentiality of responses and non-disclosure of identifiable data. No coercion or inducement was used and participants retained the right to withdraw at any point without penalty.

The pilot implementation not only supported the initial validation of the instrument but also served as a practical usability test of the administration process, offering insights into the clarity of instructions, time efficiency and respondent engagement with the adapted instrument.

## Psychometric Analysis and Interpretation

### Reliability Analysis of Pilot Study Findings

To evaluate the internal consistency of the PST module usability instrument, reliability analysis was conducted using Cronbach's Alpha and Corrected Item-Total Correlation (CITC). The analysis focused on the three subscales Usefulness, Satisfaction and Ease of Use as well as the overall scale.

#### Section B: Usefulness

Table 3 presents the complete reliability statistics for the 10 item Usefulness subscale. The analysis revealed mixed performance across the items. Five items (B1, B2, B3, B4, and B6) demonstrated robust internal consistency with Corrected Item-Total Correlation (CITC) values exceeding the recommended threshold of 0.50. Notably, item B4 (.718) and B1 (.703) exhibited the strongest alignment with the construct, indicating substantial contribution to the scale's overall reliability.

Conversely, the remaining five items (B5, B7, B8, B9, and B10) recorded CITC values below the 0.50 benchmark, signalling potential issues with item homogeneity. Item B5 appeared as the most problematic outlier with the lowest CITC value of .285. Furthermore, the *Cronbach's Alpha if Item Deleted* column suggests that removing item B5 would noticeably increase the scale's reliability coefficient to .843, confirming its detrimental effect on internal consistency. Similarly, items B8 (.360) and B9 (.382) also displayed suboptimal correlations, warranting further scrutiny.

These findings suggest that while half of the items perform strongly, the Usefulness subscale requires significant refinement. The prevalence of low CITC values among items B5, B7, B8, B9, and B10 implies potential construct contamination or semantic ambiguity. Addressing these specific low-performing items through linguistic revision or exclusion is essential to enhance the instrument's psychometric precision and validity in future iterations.

**Table 3.** Reliability Analysis for Section B: Usefulness

ITEM	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
B1	32.2000	7.752	.703	.662	.802
B2	32.1667	7.799	.690	.601	.804
B3	32.2333	7.771	.693	.745	.803
B4	32.1667	7.730	.718	.687	.801
B5	32.2333	8.875	.285	.245	.843
B6	32.2333	8.116	.559	.457	.817
B7	32.0333	8.654	.410	.435	.830
B8	32.1000	8.714	.360	.296	.835
B9	32.0667	8.685	.382	.366	.833
B10	32.1667	8.351	.477	.321	.825

### Section C: Satisfaction

Table 4 details the complete reliability statistics for the 10-item Satisfaction subscale. The analysis revealed a distinct disparity in item performance. Only three items C9 (.784), C1 (.615), and C3 (.600) achieved Corrected Item-Total Correlation (CITC) values exceeding the recommended threshold of 0.50. Item C9 emerged as the strongest indicator, demonstrating the highest coherence with the overall construct.

Conversely, the remaining seven items (C2, C4, C5, C6, C7, C8, and C10) exhibited suboptimal correlations ranging from .303 to .464. Of particular concern were items C7 (.303) and C8 (.310), which recorded the weakest associations with the total scale. The diagnostic statistics indicate that the excision of either item C7 or C8 would effectively increase the subscale's Cronbach's Alpha to .793, thereby improving internal consistency.

Collectively, these findings suggest that while the Satisfaction subscale maintains an acceptable overall reliability, it suffers from significant item heterogeneity. The prevalence of low CITC values across the majority of items implies potential issues regarding semantic ambiguity or conceptual overlap. Consequently, a rigorous refinement process incorporating expert review and cognitive debriefing is recommended to enhance item clarity and ensure the instrument's discriminant validity in future iterations.

**Table 4.** Reliability Analysis for Section C: Satisfaction

ITEM	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
C1	31.2667	6.823	.615	.476	.757
C2	31.2667	7.444	.351	.371	.787
C3	31.0667	6.754	.600	.599	.757
C4	31.2333	7.220	.430	.391	.778
C5	31.1667	7.316	.375	.434	.785
C6	30.9667	7.137	.464	.504	.774
C7	31.0000	7.517	.303	.326	.793
C8	31.1000	7.472	.310	.264	.793
C9	31.2000	6.372	.784	.697	.734
C10	31.1333	7.154	.435	.263	.778

### Section D: Ease of Use

Table 5 details the complete reliability statistics for the 10-item Ease of Use subscale. The construct demonstrated generally robust internal consistency, with seven items (D1, D2, D4, D5, D6, D9, and D10) achieving Corrected Item-Total Correlation (CITC) values exceeding the 0.50 threshold. Among these, items D1 (.655) and D10 (.610) exhibited the strongest psychometric performance, indicating a high degree of alignment with the overall construct.

However, three items fell below the established benchmark, necessitating further scrutiny. Items D3 (.320) and D7 (.384) displayed distinct conceptual misalignment, while item D8 (.496) presented a borderline value just shy of the recommended cutoff. The diagnostic analysis reveals that the retention of item D3 is particularly detrimental; its removal would elevate the Cronbach's Alpha to .840, thereby significantly improving the subscale's homogeneity.

Collectively, while the Ease of Use subscale maintains a strong overall reliability, the variance in item performance suggests semantic inconsistencies in specific items. The underperformance of items D3 and D7 implies that these questions may not accurately capture the

intended user experience within the Malaysian coaching context. Consequently, targeted linguistic refinement and cognitive debriefing are recommended to resolve these ambiguities and enhance the instrument's structural validity in future applications.

**Table 5.** Reliability Analysis for Section D: Ease of Use

ITEM	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
D1	30.8667	7.775	.655	.717	.808
D2	30.9000	7.955	.589	.604	.814
D3	30.8667	8.671	.320	.382	.840
D4	31.0333	8.309	.506	.551	.823
D5	31.1000	8.231	.595	.520	.815
D6	30.8000	8.028	.556	.466	.818
D7	30.8333	8.489	.384	.461	.834
D8	30.8667	8.189	.496	.621	.824
D9	30.9333	7.995	.582	.539	.815
D10	30.8000	7.890	.610	.544	.812

#### ***Overall Reliability of the Instrument***

As presented in Table 6, the full 30-item version of the PST module usability instrument demonstrated excellent internal consistency, achieving a Cronbach's Alpha of .918. A total of 20 items recorded Corrected Item-Total Correlation (CITC) values above the established threshold of 0.50, suggesting a high degree of item homogeneity and content coherence.

The highest-performing item across the entire instrument was C9 with a CITC value of .784, indicating a strong alignment with the overall construct. However, certain items including B5 (.285), C7 (.303), and D3 (.320) remained as low-performing outliers, potentially compromising the psychometric precision of their respective subscales.

**Table 6.** Summary of Overall Reliability Statistics

Statistic	Value
Number of Items	30
Cronbach's Alpha (Overall)	.918
Item with CITC $\geq .50$	20
Item Below Acceptable CITC	10

These findings provide strong empirical support for the preliminary reliability of the adapted instrument. Nonetheless, consistent with best practices in instrument development (DeVellis & Thorpe, 2021; Taherdoost & Madanchian, 2024), low-performing items should undergo further theoretical review and linguistic refinement to eliminate construct redundancy in subsequent large-scale applications. Crucially, while the reported Cronbach's Alpha values suggest high internal consistency, it must be noted as detailed in the Limitations (Section 5) that these values represent preliminary reliability estimates and do not empirically confirm the instrument's dimensionality due to the pilot study's sample size constraints.

## DISCUSSION

This study represents a foundational step in the psychometric validation of a usability evaluation instrument tailored for the Malaysian rugby coaching context. Grounded in the USE model comprising Usefulness, Satisfaction, and Ease of Use the adapted instrument demonstrated robust internal consistency with a global Cronbach's Alpha of .918. This high coefficient suggests strong item homogeneity across the subscales, providing preliminary evidence of the instrument's reliability, although the underlying dimensionality remains to be empirically confirmed through future factor analysis.

Item-level analysis indicated that approximately two-thirds of the item pool achieved Corrected Item-Total Correlation (CITC) values above the acceptable threshold. This supports the instrument's general psychometric stability. However, the presence of specific low-performing items such as B5, C7, and D3 highlights areas necessitating targeted refinement. By integrating expert-informed content validation (Sidek & Jamaludin, 2005) with statistical reliability testing, this study ensured that the instrument is not only methodologically sound but also culturally responsive and linguistically congruent with the local coaching ecosystem.

Collectively, these findings support the feasibility and content adequacy of the adapted instrument. It serves as a preliminarily validated mechanism to evaluate the perceived effectiveness of psychological training modules, thereby supporting broader efforts to embed psychological literacy into national coach education curricula.

### Critical Analysis of Psychometric Divergence

Despite the satisfactory overall reliability, the divergence of specific items most notably B5 (Usefulness), C7 (Satisfaction), and D3 (Ease of Use) warrants critical theoretical engagement. The suboptimal CITC values for these items suggest potential issues related to semantic dissonance, cultural interpretation, or construct proliferation within the specific demographic of high-performance coaches.

### Semantic Ambiguity and Cultural Nuance (Item D3)

The underperformance of item D3 within the Ease of Use subscale ( $r=.320$ ) can be attributed to a "high-performance paradox" in cultural translation. In standard usability models, "ease" implies efficiency. However, within the rugged ethos of rugby coaching, the term "ease" may be linguistically conflated with "simplicity" or "lack of rigor." Coaches accustomed to demanding training regimes might interpret "ease of use" as an indication that the module lacks sufficient depth or challenge. Thus, the low correlation likely stems not from the module's actual difficulty, but from a semantic conflict where the phrasing failed to align with the professional values of the respondents.

### Conceptual Overlap and Construct Redundancy (Items B5 & C7)

Similarly, the weak psychometric performance of items B5 ( $r = .285$ ) and C7 ( $r = .303$ ) points to construct redundancy. In adapting the USE model, the boundaries between "perceived usefulness" and "affective satisfaction" can become porous if item wording lacks distinctiveness. The extremely low correlation of Item B5 suggests it may have functioned as a double-barreled question or measured a concept orthogonal to the core "Usefulness" construct. This indicates that these specific items caused cognitive interference rather than clarity, necessitating their revision or exclusion to enhance the instrument's structural validity and reduce respondent fatigue in future iterations.

## Conclusion

To conclude this study posits that usability is a prerequisite for efficacy. A psychological training module can only enhance performance if coaches perceive it as useful, satisfying, and easy to apply. This adapted instrument represents a significant first step towards ensuring that sport psychology interventions in Malaysia are rigorously evaluated and optimized for the unique demands of the rugby ecosystem.

The full module can be access privately through:

- i. <https://anyflip.com/reyar/cphy/>
- ii. [https://www.tiktok.com/@fendiensw73?\\_t=8oyX5vXFj0R&\\_r=](https://www.tiktok.com/@fendiensw73?_t=8oyX5vXFj0R&_r=)

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