

The Effectiveness of Using an Interactive Assessment Instrument (Pass Model) for Basic Athletic Skills

¹Mohd Izwan Shahril, ²Mohd Huzairi Mohd Sani, ³Tang Tsiao Yin, ⁴Mohd Syahrul Rahim, ⁵Asep Angga Permadi

^{1,2,3,4}Sultan Idris Education University, Perak, Malaysia, ⁵Universitas Garut, Indonesia

Corresponding Author Email: izwan.shahril@fsskj.upsi.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i4/16957> DOI:10.6007/IJARBSS/v13-i4/16957

Published Date: 18 April 2023

Abstract

This study aims to investigate the effectiveness of the Interactive Assessment Instrument (PASS Model) for basic athletic skills: block sprinting skills, Fosbury Flop style high jump skills, and Parry O'Brien style shot put skills. The research design uses the pre-experiment-case study method to see the effectiveness of using the Interactive Assessment Instrument (PASS Model). A total of 122 prospective Physical Education teachers were involved in this study, namely 62 male and 60 female teachers. The student's achievement data were analysed descriptively using mean and percentage, namely block sprinting (87.5%), Fosbury Flop style high jump (75%), and Parry O'Brien style shot put skills (80%). The data also shows that there is no significant difference ($p=0.126$) in the achievement level of student performance for block sprinting skills based on gender. The mean achievement of male students ($M=95$, $SD=10.47$) is higher than that of female students ($M=85$, $SD=6.32$). For Fosbury Flop style high jump skills, the study shows that there is no significant difference ($p=0.126$) in the level of student achievement based on gender. The mean achievement of male students ($M=80$, $SD=15.71$) is higher than that of female students ($M=70$, $SD=10.08$). Meanwhile, for Parry O'Brien style shot put skills, it shows that there is no significant difference ($p=0.222$), and the mean achievement of male students ($M=84$, $SD=16.67$) is higher than the mean achievement of female students ($M=78$, $SD=10.08$). The mean percentage of agreement of prospective Physical Education teachers to use the Interactive Assessment Instrument (PASS Model) is 83.71%, above the 70% agreement among tester. The value shows that it can be used based on (Izwan et al., 2018; Norkhalid et al., 2014; Rink, 2002). Overall, the Interactive Assessment Instrument (PASS Model) can be used as a standard assessment instrument to assess student performance in basic athletic skills during the teaching and learning process.

Keywords: Interactive Assessment Instrument (PASS Model), Basic Athletic Skills, Physical Education

Introduction

The goal of the National Education Philosophy is to develop individual potential holistically and integrate it to produce a balanced and harmonious human being in terms of intellectual, spiritual, emotional, and physical aspects based on a firm belief in and devotion to God (Curriculum Development Division, 2016). This shows the government's commitment to improving the nation's education holistically, which is reflected in the Malaysian Education Development Plan (PPPM) 2013–2025, with an emphasis on student-centred teaching and learning as well as assessment of student performance through PE and health activities, sports, uniformed bodies, clubs, and other activities sponsored by external parties.

Through continuous skill assessment, student assessment can have a long-term impact on a broader level of student performance. Teachers can obtain periodic improvement information about student performance and reduce the emphasis on teaching for exams. This approach helps teachers pay careful attention during the teaching and learning process, in line with the government's wishes to transform the education system. The focus should be on student assessment so that teachers, students, and parents can continuously assess the child's achievement. Forming a systematic and meaningful assessment model is necessary to ensure that the level of national education achieves the highest and most comprehensive performance.

Systematic assessment in PE needs to be implemented by teachers to realize the goals of the subject. An orderly and systematic assessment process can provide quality results and allow students' achievement levels to be tested more meaningfully. Therefore, the use of Interactive Assessment Instrument (PASS Model) can help teachers and individuals involved in the field of education in assessing and evaluating students in PE subjects.

The study of assessment in Physical Education (PE) is crucial for Malaysia because it aligns with the National Education Philosophy and the Malaysian Education Development Plan (PPPM) 2013-2025, which both emphasize the holistic development of students.

By implementing a systematic assessment process in PE, Malaysia can ensure that students' knowledge and skills in this subject are being evaluated effectively. This can help in identifying students' strengths and weaknesses and designing more effective teaching strategies to meet the needs of individual students.

Moreover, assessment in PE helps to ensure that students are meeting the learning objectives set out in the curriculum, which is important for their personal development and for the overall quality of education in Malaysia. It also provides feedback to students about their performance, which can motivate them to improve and develop their skills.

Furthermore, by emphasizing assessment in PE, Malaysia can ensure that the education system is accountable and of a high quality. It provides evidence of the effectiveness of the teaching and learning process and helps to ensure that the curriculum is being delivered to a high standard.

In summary, the study of assessment in PE is important for Malaysia as it aligns with the National Education Philosophy and the Malaysian Education Development Plan, promotes the holistic development of students, and ensures accountability and quality assurance in the education system.

The study of assessment in Physical Education (PE) is important and beneficial for several groups of people in Malaysia, including:

Teachers: By studying and emphasizing assessment in PE, teachers can improve their ability to evaluate students' knowledge and skills, which can help them design more effective teaching strategies to meet the needs of individual students.

Students: Through assessment in PE, students receive feedback on their performance, which can motivate them to improve and develop their skills.

Education policymakers and administrators: The study of assessment in PE can provide valuable information for education policymakers and administrators.

Society as a whole: A well-designed assessment process in PE can contribute to the overall development of the Malaysian society. By promoting the holistic development of students, ensuring that they meet the learning objectives set out in the curriculum, and providing feedback to motivate them to improve their skills, students are better prepared for future education and career opportunities.

This study suggests using the Interactive Assessment Instrument (PASS Model) for basic athletic skills as a standardized instrument in reasoning activities by students. This instrument is also seen as capable of being used as a guide for PE teachers in improving the quality of teaching and learning assessment more effectively.

Research Objectives

The objective of this study is to look in more detail at the effectiveness of the Interactive Assessment Instrument (PASS Model) as follows:-

- i. To identify student performance achievement levels using the Interactive Assessment Instrument (PASS Model) for basic athletic skills based on video recordings of actions according to the event.
- ii. To compare student performance achievement levels using the Interactive Assessment Instrument (PASS Model) for basic athletic skills based on video recordings of actions according to the event.
- iii. To evaluate the agreement of prospective Physical Education teachers on the use of the Interactive Assessment Instrument (PASS Model) for basic athletic skills.

Methodology

The design of this study is a pre-experiment-case study method (Hanapiah, 2019; Liza, 2017; Izwan, 2017; Norkhalid, 2012). It aims to investigate the effectiveness of using the Interactive Assessment Instrument (PASS Model).

Table 1

Pre-experimental design—single case study

Non-Dependent Variables	Post Test
X	O

The design of the pre-experimental study is a one-shot case study, meaning no control group is performed on the study group (Shahril et al., 2019; Gay et al., 2006). This design involved only one study group exposed to treatment (X) and post-test (O). The purpose is to determine the effect on and change in the dependent variable. Noraini Idris (2010) also stated that the pre-experimental method—a one-shot case study, only involves one group given treatment, and the dependent variable is measured to evaluate the effect of the treatment. This design is compatible with the study method used by (Shahril et al., 2019; Izwan et al., 2018; Liza, 2017; Norkhalid, 2012).

Data Collection Procedures

The data collection procedure is divided into three phases, namely before, during, and after.

Each phase is planned in advance before it is implemented based on an agreement with the supervisor.

Before Phase

In this phase, the researcher first obtained approval to conduct the study from the Faculty of Sports Science and Coaching by sending a proposal paper that the supervisor approved. After that, the researcher also planned the data collection schedule to be carried out smoothly. Once all the work in this process is completed, the researcher continued the subsequent work in the during phase.

During Phase

A total of 122 prospective Physical Education teachers were involved in this study, namely 62 male and 60 female teachers. The sample watched a recording of a teaching session for block sprinting skills, Fosbury Flop style high jump skills, and Parry O'Brien style shot put skills. Evaluation is done based on the results of the student's behavior in the recording. Before the assessment session is implemented, each teacher was given a briefing on the procedure for using the Interactive Assessment Instrument (PASS Model) with the help of a complete recording of a teaching session contained in the teacher's guide. After that, a discussion session was conducted on any problem raised by the teacher. Once the teacher has completely mastered the procedure of using the Interactive Assessment Instrument (PASS Model), the student assessment process was carried out. Teachers were also given a questionnaire on the level of teacher agreement with using the Interactive Assessment Instrument (PASS Model) after the assessment session ended. After completing all the work in this phase, the data obtained were analyzed in the next phase.

After Phase

The data results were analyzed to answer the objectives and research questions set.

Interactive Assessment Instrument (Pass Model)

The Interactive Assessment Instrument (PASS Model) is divided into general and specific details, where each detail has its function.

General Details

General details include game, skill, name, student number, assessor, and even dates. Each general detail must be completed in the space provided.

Specific Details

The specific details contained in this model are Protocol, Assess, Synchronize, and Stage. These details are as follows.

i. Protocol

Rules or procedures are focused on 3 phases: the preparation phase, the implementation phase, and the follow-through phase. Each action phase is assessed based on body position criteria, including foot, hand, shoulder, and eye gaze positions. The position of the equipment is also an assessed criterion for each phase of the action.

ii. Assess

Performance assessment is done based on a mastery level scale using a 5-point scale. The scale is 5 (Excellent), 4 (Good), 3 (Satisfactory), 2 (Moderate), and 1 (Weak). The mastery level value is circled in the space provided. Assessment can be done either by the teacher or by peer review. The assessor must sign the Conduct Performance Standard form and record the assessment date upon completion.

iii. Synchronize

The assessment for each mastery level is coordinated with the notes written in the notes column. All performance information is recorded according to the assessor's needs.

iv. Stage

The score value for each phase of the action is converted to a percentage to see the overall level of performance. The performance standard statement is divided into three levels: <45% (Not Mastered), 46% - 70% (Partially Mastered) and >71% (Mastered).

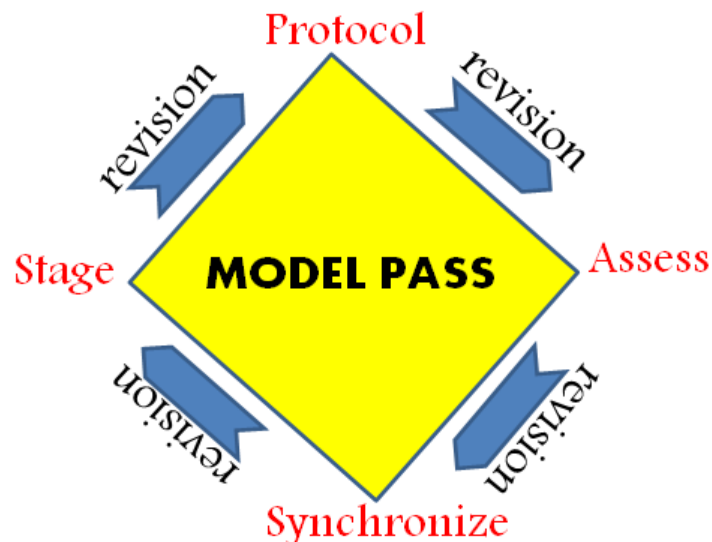


Figure 1 PASS Model Cycle

Results and Discussion

i. The achievement level of student performance using the Interactive Assessment Instrument (PASS Model) for basic athletic skills based on video recordings of actions according to the event

Descriptive analysis is used to report the level of achievement of student performance using the Interactive Assessment Instrument (PASS Model) for basic athletic skills based on video recordings of actions based on block sprinting skills, Fosbury Flop style high jump skills, and Parry O'Brien style shot put skills, as in Table 2.

Table 2

Student achievement level according to skills

No	Skills	Achievement level (%)		
		Male	Female	Mean
1	Block sprinting	90	85	87.5
2	Fosbury Flop style high jump	80	70	75
3	Parry O'Brien style shot put	82	78	80
	Average Achievement	84	78	
	Overall Achievement Average	81		

Based on Table 4.3, male and female students achieved 90% and 85% for block sprinting skills (M: 87.5%). Fosbury Flop style high jumping skills (M; 75%) showed the achievement level of male students at 80% and female students at 70%. In addition, Parry O'Brien style shot put skills (M: 80%) showed the achievement level of male students at 82% and females at 78%. The overall achievement percentage of male and female students for the three skills is 84% and 78%. Overall, the mean percentage of student achievement is 81%.

ii. **The difference in student achievement levels using the Interactive Assessment Instrument (PASS Model) for basic athletic skills based on video recordings of actions according to the event**

ANOVA analysis was used to compare the mean score of student learning achievement for lock sprinting skills, Fosbury Flop style high jump skills and Parry O'Brien style shot put skills using the Interactive Assessment Instrument (PASS Model).

Table 3

Differences in student achievement using Interactive Assessment Instruments (PASS Model) for basic athletic skills

Skills	Gender	N	M	SD	F	t	Sig-p
Block Sprinting	Male	62	95	10.47	3.471	1.157	0.126
	Female	60	85	6.32			
High Jump	Male	62	80	15.71	3.481	1.558	0.126
	Female	60	70	10.08			
Shot Put	Male	62	84	16.67	9.442	1.988	0.052
	Female	60	78	10.08			

* significant at the level of $p < 0.05$

Based on Table 3, it was found that there is no significant difference ($p=0.126$) for the mean score of the student's achievement level according to gender using the Interactive Assessment Instrument (PASS Model) for block sprinting skills. Data analysis shows that the mean achievement of male students ($M=95$, $SD=10.47$) is higher than the mean achievement of female students ($M=85$, $SD=6.32$) based on the level of achievement using the Interactive Assessment Instrument (PASS Model).

Next, the analysis results found no significant difference ($p=0.126$) for the mean score of student achievement according to gender using the Interactive Assessment Instrument (PASS Model) for Fosbury Flop-style high jump skills. Data analysis shows that the mean achievement of male students ($M=80$, $SD=15.71$) is higher than the mean achievement of female students ($M=70$, $SD=10.08$) based on the level of achievement using the Interactive Assessment Instrument (PASS Model).

The analysis results also found no significant difference ($p=0.052$) for the mean score of student achievement according to gender using the Interactive Assessment Instrument (PASS Model) for Parry O'Brien style shot put skills. Data analysis shows that the mean achievement of male students ($M=84$, $SD=16.67$) is higher than the mean achievement of female students ($M=78$, $SD=10.08$) based on the level of achievement using the Interactive Assessment Instrument (PASS Model).

Table 4 shows an independent sample t-test analysis to compare the mean scores of students' learning levels by gender using the Interactive Assessment Instrument (PASS Model) for basic athletic skills. The study's findings show no significant difference ($p=0.222$) for the mean score of students' achievement levels according to gender using the Interactive Assessment Instrument (PASS Model) for basic athletic skills. Data analysis shows that the mean achievement of male students ($M=84$, $SD=9.12$) is higher than the mean achievement of female students ($M=78$, $SD=8.68$) based on the level of student achievement using the Interactive Assessment Instrument (PASS Model) for basic athletic skills.

Table 4

The overall difference in student achievement by gender using the Interactive Assessment Instrument (PASS Model) for basic athletic skills

Gender	N	M	SD	F	T	Sig-p
Male	62	84	9.12	.103	1.223	.222
Female	60	78	8.68			

* significant at the level of $p<0.05$

iii. The level of agreement of prospective Physical Education teachers towards the use of the Interactive Assessment Instrument (PASS Model) for basic athletic skills

Table 5 displays the level of teachers' agreement with the use of the Interactive Assessment Instrument (PASS Model) for basic educational athletic skills. This data is essential to ensuring that this instrument can be implemented.

Table 5

Level of agreement of prospective Physical Education teachers on the use of Interactive Assessment Instruments (PASS Model) for basic athletic skills (N:122)

Item	Agreement %				
	SA	A	QA	S	SD
The use of assessment of student achievement					
Student achievement can be improved	83.30	-	16.70	-	-
Students actively carry out activities	-	100.00	-	-	-
Students are motivated to carry out activities	27.80	72.20	-	-	-
Students try to give their best	-	100.00	-	-	-
Student participation is very encouraging	72.20	27.80	-	-	-

Overall	36.66	60.00	3.34	-	-
The use of teacher assessment					
Help evaluate student performance	55.60	44.40	-	-	-
Identify student weaknesses	55.60	27.80	16.70	-	-
Helping the teaching and learning process	55.60	44.40	-	-	-
The teaching and learning process went smoothly	83.30	16.70	-	-	-
Burden the teacher's duties	5.60	-	-	55.60	38.90
Overall	51.14	26.62	3.34	11.12	7.78
The use of assessment for the achievement of learning objectives					
Achieving the goals of PE subjects	22.20	72.20	-	-	5.60
Achieve PE objectives based on syllabus	27.80	72.20	-	-	-
Scoring criteria are simple and clear	27.80	72.20	-	-	-
In accordance with the learning topic	27.80	72.20	-	-	-
Comply with learning standards	33.30	66.70	-	-	-
Overall	27.78	71.10	-	-	1.12
Instrument quality					
The sentences used are clear and easy to understand	44.40	55.60	-	-	-
User friendly	50.00	50.00	-	-	-
The rubric used matches the assessment score	11.10	88.90	-	-	-
The assessment procedure is easy to follow	11.10	88.90	-	-	-
Overall	33.32	61.12	5.56	-	-
Assessing accuracy (Accountability)					
The constructs or instructions in the assessment instrument are clear	-	100.00	-	-	-
The components or criteria in the instrument are easy to understand	16.70	83.30	-	-	-
The level of difficulty in the assessment is easy to follow	5.60	94.40	-	-	-
The assessment criteria give the assessor the opportunity to make an assessment	22.20	72.20	5.60	-	-
Fair assessment can be implemented for students	44.40	55.60	-	-	-
Overall	17.78	81.10	1.12	-	-
Assessment method					
Flexible assessment method	5.60	94.40	-	-	-
Holistic assessment method	5.60	94.40	-	-	-
Instructions in the assessment method are easy to understand	27.80	72.20	-	-	-

The scale used is in accordance with the teaching content	-	100.00	-	-	-
Teachers are free to assess students according to preference	27.80	72.20	-	-	-
Overall	12.00	88.00	-	-	-
Assessment process					
Cognitive assessment is easy to implement	27.80	61.10	11.10	-	-
Psychomotor assessment is easy to implement	27.80	72.20	-	-	-
Affective assessment is easy to implement	38.90	61.10	-	-	-
The assessment content is not too much	-	83.30	-	16.70	-
Time does not limit the assessment process	-	100.00	-	-	-
Overall	18.90	75.54	2.22	3.34	-

Overall Level of Teacher Agreement = 83.71%

SA-Strongly Agree, A-Agree, QA-Quite Agree, D-Disagree, SS-Strongly Disagree

Table 5 shows that 60.00% of the teachers agree that using the Interactive Assessment Instrument (PASS Model) for basic athletic skills can improve student achievement, motivate students, and make them work hard and give their best. The study also proved that student participation is very encouraging when carrying out block sprinting skill activities, Fosbury Flop style high jump skills, and Parry O'Brien style shot put skills for the assessment items of student achievement. The study's results also showed that 83.30% of the teachers agreed that using Interactive Assessment Instrument (PASS Model) can improve student achievement.

The results of the study show that 51.14% of teachers strongly agree that the use of the Interactive Assessment Instrument (PASS Model) can help teachers assess student performance, identify student weaknesses, help the teacher's teaching process, ensure that the teaching and learning process runs smoothly, and not burden the teacher's duties when teaching block sprinting skills, Fosbury Flop-style high jumping skills and Parry O'Brien-style shot put skills. 83.30% of the teachers surveyed strongly agreed that using the Interactive Assessment Instrument (PASS Model) helped the teaching and learning process run smoothly. The study shows that 71.10% of teachers agreed that the Interactive Assessment Instrument (PASS Model) achieves PE's goals, the scoring criteria are simple, clear and suitable for the title, and the item meets the learning outcomes. 33.30% agree that it meets the learning standard. 71.10% agree that it facilitates student assessment, is user-friendly, has an accurate rubric and simple procedure. 50% agree that it is not time-consuming and user-friendly.

In addition, the findings of the study show that 81.10% of teachers agree that the use of the Interactive Assessment Instrument (PASS Model) provides very clear constructs or instructions in the assessment instrument, the components or criteria in the instrument are easy to understand, the level of difficulty in the assessment is easy to follow, the assessment criteria give opportunities to the assessor to make an assessment, and a fair assessment can be carried out against students in the item of assessment accuracy (accountability). Next, data analysis shows that 44.40% of teachers strongly agree that fair assessment can be implemented for students.

The study shows that 88.00% of teachers agree that the use of the Interactive Assessment Instrument (PASS Model) is flexible, holistic, easy to understand, appropriate to the teaching content, and allows teachers to assess students according to their preferences during the badminton game in the assessment method items. The assessment method sub-item also showed the highest percentage of 27.80%, concluding that the teachers strongly agreed with the instructions of an easy-to-understand and flexible assessment method.

As for the assessment process item, it was found that 75.54% of teachers agreed that the use of Interactive Assessment Instrument (PASS Model) could make cognitive, psychomotor, and affective assessments easy to implement, the assessment content was not too much, and time did not limit the assessment process. In addition, the highest percentage for the assessment process sub-item shows that 38.90% of the teachers surveyed strongly agree that affective assessment is easy to implement with the use of the Interactive Assessment Instrument (PASS Model) for basic athletic skills.

Summary

Through the Interactive Assessment Instrument (PASS Model), the performance level of athletic skills can be assessed holistically based on the student's actual achievement level. The instrument that has been developed is a standardized assessment instrument and is suitable for the school climate in Malaysia. This study is in line with the government's desire to transform education through school-based assessment to replace public examinations in Malaysia.

The results of this study help Physical Education teachers assess student performance during the teaching and learning process. This study is expected to be a reference for teachers to be more creative in choosing appropriate assessment instruments in line with 21st-century learning. This alternative assessment is also capable of producing quality teachers who are relevant to the global development of the digital era.

Conventional teaching is replaced by a more practical alternative assessment approach. This study becomes a foundation for other researchers in conducting research on assessment issues. Other researchers can develop studies on teachers' perceptions and challenges in the implementation of 21st-century learning assessments.

Interactive Assessment Instrument (PASS MODEL)

Game	:		Skill	:	
Name	:		Student No.	:	

Instructions: Please circle the value on the mastery level based on the following scale:

5 - Excellent 4 - Good 3 - Satisfactory 2 - Average 1 – Poor

NO	CRITERIA	LEVEL OF MASTERY	FEEDBACK
A. PREPARATION PHASE			
1.	The body position is in the correct position:-		
-	The position of the leg is in a ready and static position before performing the action.	1 2 3 4 5	
-	The position of the hand is in a ready and static position before performing the action.	1 2 3 4 5	
-	The position of the shoulder is in a ready and static position before performing the action.	1 2 3 4 5	
-	The position of the eye gaze is focused on the target before performing the action.	1 2 3 4 5	
2.	The position of the equipment is in the correct position before performing the action.	1 2 3 4 5	
3.	The application of the science process can be demonstrated in a static state before performing the action.	1 2 3 4 5	
	TOTAL SCORE		
B. IMPLEMENTATION PHASE			
1.	The body position is in the correct position:-		

-	The position of the leg is in a ready and static position while performing the action.	1	2	3	4	5	
-	The position of the hand is in a ready and static position while performing the action.	1	2	3	4	5	
-	The position of the shoulder is in a ready and static position while performing the action.	1	2	3	4	5	
-	The position of the eye gaze is focused on the target while performing the action.	1	2	3	4	5	
2.	The position of the equipment is in the correct position while performing the action.	1	2	3	4	5	
3.	The application of the science process can be demonstrated in a static state while performing the action.	1	2	3	4	5	
TOTAL SCORE							
C. FOLLOW THROUGH PHASE							
1.	The body position is in the correct position:-						
-	The position of the leg is in a ready and static position after performing the action.	1	2	3	4	5	
-	The position of the hand is in a ready and static position after performing the action.	1	2	3	4	5	
-	The position of the shoulder is in a ready and static position after performing the action.	1	2	3	4	5	
-	The position of the eye gaze is focused on the target after performing the action.	1	2	3	4	5	
2.	The position of the equipment is in the correct position after performing the action.	1	2	3	4	5	
3.	The application of the science process can be demonstrated in a static state after performing the action.	1	2	3	4	5	
TOTAL SCORE							

PERCENTAGE	
-------------------	--

Assessor:

Date: _____

()

Performance Hint:	
Percentage	Performance Statement
>71 %	Mastered
46% - 70%	Partially Mastered
< 45%	Not Mastered

References

- Bahagian Pembangunan Kurikulum. (2016). Kurikulum Standard Sekolah Menengah Pendidikan Khas Pendidikan Jasmani Dan Pendidikan Kesihatan. Dokumen Standard Kurikulum dan Pentaksiran Tingkatan 2. Putrajaya. Kementerian Pendidikan Malaysia.
- Gay, L. R., Mills, G. E., & Airasian, P. (2006). Educational Research: Competencies for Analysis and Applications. *Columbus: Merrill Greenwood*.
- Hanapiah, M. K. (2019). Keberkesanan Pentaksiran Ekstensif (PE) Bagi Permainan Kategori Memadang dalam Pendidikan Jasmani Tahun 5. (Doctoral dissertation, Universiti Pendidikan Sultan Idris).
- Kementerian Pendidikan Malaysia. (2013). Pelan pembangunan pendidikan Malaysia 2013-2025. Putrajaya: Bahagian Pembangunan Kurikulum.
- Liza Saad. (2017). Pentaksiran Pembelajaran Kemahiran Asas Bagi Permainan Kategori Serangan dalam Pendidikan Jasmani Tahun 4. (Doctoral dissertation, Universiti Pendidikan Sultan Idris)
- Shahril, M. I., Salimin, N., Abdul Aziz, S., & Saryono. (2018). The Effectiveness of Task Assessment Standard (TASK) in the Teaching and Learning Process of Physical and Health Education Teachers. *Advances in Social Science, Education and Humanities Research*, volume 278.
- Shahril, M. I., Salimin, N., & Elumalai, G. (2015). The Validity and Reliability Of ISO Test Towards the Performance Assessment of Future Physical Education Teachers in Teaching and Learning Process. *Procedia – Social and Behavioral Sciences*, 195, 814–820. <https://doi.org/10.1016/j.sbspro.2015.06.184>.
- Idris, N. (2010). Penyelidikan dalam Pendidikan. *McGraw-Hill Education*. Kuala Lumpur.
- Salimin, N. (2012). Pentaksiran Komprehensif Dalam Mata Pelajaran Jasmani Berdasarkan Model K. (Doctoral dissertation, Universiti Pendidikan Sultan Idris)
- Rink, J. E. (2002). "Teaching Physical Education for Learning 4th ed.". *New York: McGraw-Hill*.
- Shahril, M. I., Jani, J., Salimin, N., Suherman, W., & Guntur. (2019). The Effectiveness of Learning Assessment Instrument (LAI) Based on Teaching Games for Understanding (TGfU) for Badminton Games. *International Journal of Academic Research in Business and Social Sciences*, 9(6), 90–97.