

Case Study

Conceptions of Assessment: Perceptions of Physical and Health Education Teachers in Selangor, Malaysia

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ABSTRACT

Physical and Health Education (PHE) assessment is essential for evaluating students' knowledge, skills, and attitudes towards physical and health education. Despite the limited number of studies on conceptions of assessment, more research is needed to focus on PHE teachers in the local context. This quantitative study aims to uncover secondary school PHE teachers' conceptions of assessment by examining four variables: improvement, school accountability, student accountability, and irrelevance. The study involved 268 PHE teachers from two districts in Selangor, Malaysia. Results indicated that improvement received the highest level of agreement, while irrelevance had the lowest. A MANOVA analysis explored the effects of gender and years of teaching experience on teachers' perceptions. The analysis showed no significant gender differences, but teachers with more than 20 years of experience had a significantly different mean perception of assessment compared to all other groups, suggesting that teaching experience affects teachers' conceptions of assessment. The result

of this study provides valuable insights for stakeholders in education, particularly in PHE assessment. Future research may benefit from incorporating qualitative methods to enhance the study's findings on conceptions of assessment among school teachers.

Keywords: Conceptions of assessment, physical and health education, secondary school teachers, teacher perceptions

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INTRODUCTION

Despite government efforts, many Malaysian students have been found to lose interest in PHE courses, leading to a decline in involvement in physical activity (Eswaramoorthi et al., 2022). The researchers added that effective solutions must be identified to address this issue and improve student performance and interest in PHE. One potential solution is to review the assessment practices of PHE teachers (Felis-Anaya et al., 2020). Assessment practices are crucial in all subjects and serve several purposes. They are used to evaluate students' initial knowledge and skills, monitor their progress, and generate data for grading (Bold et al., 2017).

Furthermore, assessments are essential in determining the level of learning that has occurred, subject to certain limitations that students must accept (Mat Yusoff, Arepin and Marzaini, 2022). These limitations refer to the curriculum or syllabus employed to define the boundaries of learning, simultaneously accommodating all students' receptive capacities. Consequently, decisions about assessment outcomes must also consider the selection process, progress measurement, content development, and curriculum (Hosp et al., 2018). Thus, educational administrators must utilise the data gathered from the assessment process as a primary reference to adapt and enhance future learning.

Recently, there has been a growing interest among researchers in the assessment of PHE subjects. The significance of assessment in developing teaching and

learning processes cannot be overstated (Wang et al., 2018). Assessment enables teachers and students to draw conclusions from the data and take appropriate action. Zimmer and Matthews (2022) emphasise that such actions can significantly modify teaching and learning or provide a snapshot of student achievement at a particular time. However, the production and utilisation of classroom data alone do not ensure better student outcomes; the quality of the data and the ability to interpret it are crucial factors (Shim & Lee, 2020).

Furthermore, Shim and Lee (2020) highlight that teachers' assessment approaches can have a wide range of effects on student outcome indicators. Assessment can be a valuable educational tool that offers teachers and students crucial insights into student learning. However, it can also be a low-stakes, anxiety-inducing activity not used to inform teaching and learning. Thus, educators need to develop effective assessment practices that yield high-quality data and utilise this data to inform teaching and learning strategies to promote better student outcomes.

In line with the development of the assessment process, there has been a significant change in Malaysia's National Education Assessment System (NEAS) for the past 15 years. NEAS was introduced to transform the traditional assessment methods (test and exam-oriented) into a more holistic system by providing a set of indicators for evaluating students' potential, learning readiness, and overall performance. One notable alteration or improvement of

the policy is the introduction of School Based Assessment (SBA) in both primary and lower secondary schools in 2011 and 2012 (Veloo & Md-Ali, 2016). In general, SBA is considered a holistic assessment that allows teachers and education administrators to assess students' cognitive (intellectual), affective (emotional and spiritual), and psychomotor (physical) aspects.

In terms of practicality, SBA is a policy that entails a comprehensive evaluation of a student's academic progress through four assessment methods: school assessment (PS), physical activity, sports, and co-curricular (PAJSK), psychometric assessment (PPsi), and classroom assessment (CA). According to Chin et al. (2019), SBA can be conducted as summative (mid-year and final examination) and formative assessments during the teaching and learning sessions. While this policy has been widely recognised and accepted among teachers, implementing the assessment has been challenging, especially in the PHE subject. Some scholars agreed with this idea because they said that the testing of PHE subjects was not standardised or evaluated in a planned way before SBA was put in place (Veloo & Md-Ali, 2016).

The study of teachers' conceptions of assessment among PHE teachers is a crucial area of assessment research. Brown (2004) defines assessment conceptions as individuals' perceptions of assessment based on their experiences. These conceptions have a significant impact on how teachers evaluate the learning and achievements of

their students. Even though several studies have investigated assessment concepts in various educational contexts, there is a notable research void in physical and health education (PHE) teaching, as there is still a need for more literature on PHE teachers' conceptions of assessment. Prior research in this field has primarily concentrated on areas such as content knowledge and general perceptions (Abduh, 2021; Margot & Kettler, 2019; van der Kleij, 2019), omitting a comprehensive examination of PHE teachers' distinct assessment conceptions and ultimately warrants an urgency on the in-depth study about the conceptions of assessment. Therefore, this study aims to investigate the assessment conceptions of secondary school Physical and Health Education (PHE) teachers and explore prospective gender and teaching experience differences. The investigation into the assessment beliefs of secondary school PHE teachers can lead to actionable results that benefit teachers and students, inform educational practices and policies, and foster a deeper understanding of assessment practices within the context of Physical and Health Education. In addition, understanding perspective, gender and teaching experience differences can provide valuable insights for promoting equity, diversity, and inclusion in secondary school PHE assessment practices. The ultimate goal of the research is to provide evidence-based recommendations for enhancing assessment practices and pedagogy in Physical and Health Education to benefit both teachers and students.

Assessment in Malaysian Secondary School Physical and Health Education Curriculum

Physical and health education (PHE) is a subject of considerable significance in Malaysian secondary schools, promoting healthy lifestyle habits among students. The assessment of PHE is a crucial component that assesses students' knowledge, skills, and attitudes towards physical and health education (Lacy & Williams, 2018). The assessment in PHE comprises formative and summative assessments (Yüksel & Gündüz, 2017). Formative assessment is conducted throughout the learning process, enabling students to identify their strengths and weaknesses in the subject, thus facilitating improvements and progress towards achieving the learning outcomes. In PHE, classroom discussions, self-reflection, peer feedback, and practical assessments are commonly used formative assessment methods (Eather et al., 2019).

In contrast, summative assessment occurs at the end of the learning process and is used to measure the overall achievement of students (Eather et al., 2019). This assessment method evaluates how students have met the learning objectives and standards set for the subject. Common summative assessment methods in PHE include written tests, practical assessments, and projects. Common summative assessment methods in PHE include written tests, practical assessments, and projects. Furthermore, PHE assessment in Malaysian secondary schools aligns with the National Physical and Health Education Curriculum,

which outlines the expected learning outcomes for each level of education (Rahman et al., 2021). The assessment is, therefore, designed to evaluate the students' attainment of these learning outcomes, contributing to the overall development of students' knowledge and skills in PHE.

In Malaysian secondary schools, the Secondary School Curriculum Standard (KSSM) for PHE is made up of six different learning areas that are meant to give students the knowledge, skills, and attitudes they need for physical and health education (Som, 2020). These learning areas are Physical Fitness and Health, Sports and Games, Outdoor Education, Health Promotion and Disease Prevention, Personal and Social Development, and Safety and First Aid. The learning areas in the curriculum document are simplified in Table 1.

Each of these learning areas has specific learning outcomes aligned with the overall goals and objectives of the KSSM syllabus. For example, the Physical Fitness and Health learning area focuses on helping students understand the principles of physical fitness and assess their fitness levels. Some specific learning outcomes for this learning area include understanding the components of physical fitness, identifying appropriate exercise programs based on individual needs, and monitoring one's fitness progress.

Similarly, the Sports and Games learning area aims to develop students' skills and knowledge in various sports and games. The learning outcomes for this area may include demonstrating knowledge of the rules and regulations of different sports and games,

Table 1
Learning areas in the Malaysian PHE syllabus

Learning Areas	Sample Learning Outcomes
Physical Fitness and Health	<ol style="list-style-type: none"> 1. Understand the principles of physical fitness. 2. Assess one's fitness levels and set fitness goals. 3. Identify appropriate exercise programs based on individual needs. 4. Monitor and track personal fitness progress.
Sports and Games	<ol style="list-style-type: none"> 1. Demonstrate knowledge of the rules and regulations of various sports and games. 2. Exhibit competence in fundamental motor skills required for different sports and games. 3. Identify and analyse strategies used in various sports and games.
Outdoor Education	<ol style="list-style-type: none"> 1. Demonstrate understanding and appreciation of nature and the environment. 2. Engage in outdoor activities promoting teamwork and leadership skills. 3. Practice safety measures and respect for the environment during outdoor activities.
Health Promotion and Disease Prevention	<ol style="list-style-type: none"> 1. Understand the importance of maintaining good health through preventive measures. 2. Identify common diseases and their prevention strategies. 3. Promote healthy lifestyle choices among peers and the community.
Personal and Social Development	<ol style="list-style-type: none"> 1. Develop self-awareness and emotional intelligence. 2. Enhance communication and interpersonal skills. 3. Demonstrate responsible decision-making in various situations.
Safety and First Aid	<ol style="list-style-type: none"> 1. Apply basic first aid techniques in emergencies. 2. Demonstrate knowledge of safety protocols in different settings. 3. Promote safety awareness and injury prevention among peers.

Note. Adopted from Kementerian Pendidikan Malaysia (KPM, 2016)

demonstrating competence in fundamental motor skills, and identifying and analysing strategies used in various sports and games (Som, 2020). The other learning areas also have specific learning outcomes designed to promote students' development in physical and health education. These outcomes guide the assessment process in PHE and ensure that students have achieved the expected standards and objectives set by the KSSM syllabus.

Conceptions of Assessment Theory

According to researchers, assessment serves at least three primary purposes: improving teaching and learning, certifying students' learning, and holding schools and teachers accountable (Deneen & Brown, 2016; Nisbet & Warren, 1999). Brown (2004) identified four primary conceptions of assessment held by teachers. The first conception emphasises the usefulness of assessment in enhancing teaching and learning by providing high-quality information for

decision-making. This conception is linked to the term ‘formative’ and depends on the ability of assessment to describe or diagnose a student’s achievement or performance. Furthermore, the information provided by the assessment must be of sufficient quality to be considered valid, reliable, and accurate. However, a critical consideration is whether the assessment tools offer comprehensive and unbiased insights into a student’s abilities. There is an inherent challenge in ensuring that assessments are both comprehensive and pertinent (Mat Yusoff, Leng, et al., 2023). Over-reliance on standardised metrics may overlook individual learning trajectories, potentially leading to one-dimensional interpretations of students’ achievements.

The second conception emphasises accountability for using society’s resources by teachers, schools, and systems. This conception aligns with school accountability, which entails assessing performance outcomes and determining how well schools do. Brown (2004) defined school accountability as having two dimensions: indicating the quality of education in a school and improving the quality of instruction. However, a point of contention could be the notion of accountability itself. Does measuring school performance truly offer an accurate reflection of its educational prowess? Or does it inadvertently promote a “teaching to the test” mindset, potentially sidelining holistic education? Moreover, as schools become more data-driven, there is a risk that they might prioritise metrics over genuine learning experiences (Mat Yusoff,

Leng et al., 2023). This tension between quantifiable outcomes and qualitative educational experiences remains a critical point of discussion in modern pedagogy.

The third conception of assessment focuses on individual student accountability for their learning through meaningful assessment techniques. The purpose of holding students accountable for their learning is to ensure they meet the requirements for advancement in education or employment. While accountability may motivate some students, it also instils a fear of failure in others, potentially undermining intrinsic motivation and a genuine love for learning. It is crucial to balance accountability and foster a growth mindset where students see assessments as feedback mechanisms rather than definitive judgments.

The fourth and final conception of assessment is characterised by the view that assessment has no legitimate place in teaching and learning. This conception is based on the belief that assessment, as a formal and systematic procedure for evaluating student performance, lacks a valid structure in the teaching and learning process. While critiques such as curbing teacher autonomy, undermining their professionalism, and shifting the focus from authentic learning are valid, dismissing assessment in its entirety seems extreme. After all, without some form of evaluation, how can educators determine the effectiveness of their methods or pinpoint areas for improvement? Furthermore, not all assessments hamper teacher autonomy;

when utilised effectively, formative assessments can empower students and teachers, enhancing the learning experience (Mat Yusoff, Arepin, Marzaini, 2022). Assessment is also criticised for its adverse effects on teacher autonomy and professionalism and for diverting attention away from the true purpose of teaching, namely, student learning. It is important to note that both formative and summative assessments require similar rigour and technical quality levels to ensure the accuracy of mid-course corrections (Hattie & Smith, 2020; Scriven, 1991).

In Physical and Health Education (PHE) context, Brown's conception of assessment as a tool for enhancing instruction and learning becomes especially relevant. In PHE, formative assessments are crucial in providing instructors and students with continuous feedback, which acts as a compass to guide their progress towards achieving specific learning objectives. For instance, practical assessments in PHE can serve as a dynamic mirror reflecting students' proficiency in various physical skills, illuminating areas where improvement is warranted. With this valuable knowledge, PHE educators can modify their instructional strategies and interventions to provide individualised support, thereby nurturing an environment where students can actively advance their physical abilities and health knowledge. Moreover, incorporating self-reflection and peer feedback mechanisms in PHE parallels Brown's vision, enabling students to engage in metacognition, identify their strengths

and weaknesses in physical activities, and make informed adjustments to their learning strategies, fostering a sense of agency and self-directed learning.

In addition, the concept of assessment as a means of holding schools and instructors accountable is seamlessly incorporated into the realm of PHE. The assessment procedures utilised in PHE are in strict accordance with the National Physical and Health Education Curriculum (Kementerian Pendidikan Malaysia, 2016) and each educational level's anticipated learning outcomes are meticulously outlined. This curriculum is the basis for evaluating students' progress in achieving these goals, ensuring that schools and educators are held accountable for ensuring students satisfy the required educational standards in physical and health education. In essence, Brown's concept not only empowers instructors and students to improve their educational journey but also serves as a crucial framework that safeguards the quality and consistency of PHE by establishing clear benchmarks and expectations for students and educational institutions. Moreover, the conception of assessment as a tool for holding students accountable for their learning also applies to PHE. Summative assessments, such as written tests and projects, evaluate students' overall achievement in PHE and determine whether they have met the required standards. These assessments certify students' learning and ensure they are adequately prepared for future educational and employment opportunities. Finally, Brown's conception of assessment as

irrelevant or pernicious to the work of teachers and students' lives does not apply to PHE. PHE is an essential subject that promotes healthy lifestyle practices among students and is critical in developing their physical and mental well-being (Sierra-Díaz et al., 2019).

In the context of PHE, assessment practices are not just about grades or benchmarks but about cultivating lifelong health habits and physical well-being (Sierra-Díaz et al., 2019). The infusion of Brown's conceptions into PHE underscores the value of assessment but also necessitates a broader reflection. It prompts educators, policymakers, and stakeholders to critically evaluate these assessments' nature, purpose, and outcome to ensure they genuinely serve students' holistic development. Assessment is crucial in ensuring students achieve the learning outcomes and develop the necessary skills to lead a healthy lifestyle. Therefore, Brown's conceptions of assessment theory are relevant to the assessment practices in PHE, as assessment is used to improve teaching and learning, hold schools and teachers accountable, and certify students' learning.

Conception of Assessment among Physical and Health Education Teachers

Teaching experience may have a significant impact on teachers' conceptions of assessment. Assessment plays a significant role in teaching and learning, particularly in Physical and Health Education (PHE), which evaluates students' knowledge, skills,

and attitudes related to physical activity, health, and wellness. PHE teachers are crucial in developing and implementing effective assessment strategies that align with curriculum goals and provide valuable feedback to students. Therefore, understanding PHE teachers' assessment conceptions is critical to promote effective assessment practices. Effective assessment practices in PHE must align with the curriculum and reflect the expected learning outcomes. It includes measuring students' knowledge and skills in exercise physiology, biomechanics, sports nutrition, and injury prevention. Additionally, PHE assessment must consider the development of students' positive attitudes towards physical activity, health, and wellness. It is essential to create assessment strategies that enable students to demonstrate their learning and provide feedback to help them improve their understanding and performance. Effective PHE assessment practices can contribute to positive student outcomes, including improved academic achievement, motivation, and engagement. Therefore, this literature review aims to explore previous studies on PHE teachers' assessment conceptions.

The research done by MacPhail et al. (2021) focuses on the importance of aligning learning outcomes, assessment, and instructional practices in Physical Education Teacher Education (PETE) programs; the researchers introduce instructional alignment as a way to exemplify coherent planning of learning outcomes, assessment, and instruction in PETE modules. The

study shares three examples of how instructional alignment can be embedded in PETE modules using the backward design process. The examples demonstrate nuances in instructional alignment, such as supporting learning progression, clarity of success criteria, and enhancing learning by embedding assessment into the learning experience. The paper emphasises the importance of faculty buy-in, modelling good practice, and encouraging pre-service teachers to embed instructional alignment in their planning, preparation, and practices. MacPhail et al. (2021) noted that instructional alignment can support effective assessment practices. PHE teachers can design and implement effective assessment strategies that promote student learning and well-being by aligning learning outcomes, assessment, and instruction. The study highlights the importance of incorporating assessment into the learning experience and providing clear success criteria to support student understanding and performance. While MacPhail et al. (2021) stress the importance of instructional alignment in PETE modules, one could argue that the practical application of such alignment can be challenging given students' diverse learning needs and backgrounds. Additionally, relying solely on instructional alignment might mean paying more attention to flexibility and adaptability in teaching approaches, which can be vital in addressing unforeseen challenges in the learning environment.

Furthermore, Macken et al. (2020) look into how much primary school pre-service teachers (PSTs) use assessment

for learning (AfL) skills when they teach physical education during their school placement. The study offers important insights into the challenges of primary pre-service teachers (PSTs) in transferring their assessment knowledge gained in teacher education programmes to the primary classroom setting. The findings emphasise the significance of teacher educators' modelling, mentoring, and scaffolding to enhance PSTs' assessment literacy in enacting assessment for learning (AfL) during school placement. The study also underscores the need for providing PSTs with opportunities to practice AfL with primary school students to develop higher levels of assessment literacy during school placement. Not only that, Macken et al. (2020) highlighted the significance of AfL strategies, including self- and peer-assessment, in developing PHE teachers' assessment literacy. Additionally, the study suggests that PSTs may require more time and opportunities to practice and develop AfL strategies, necessitating ongoing professional development for PHE teachers. As Macken et al. (2020) illuminate the challenges faced by PSTs in enacting AfL, it is important to consider whether the educational structures currently in place sufficiently allow for the level of mentoring and modelling recommended. Moreover, while crucial, the emphasis on AfL strategies might overshadow other pedagogical skills necessary for holistic teacher development, warranting a broader approach to PHE teacher training.

Another study by Dyson et al. (2018) investigates primary school teachers' perceptions of physical education in Aotearoa, New Zealand and how much education, sports, and health policies influence these perceptions. A mixed methods approach was employed, including a survey of 487 classroom teachers from 133 primary and intermediate schools across five regions and interviews with 41 teachers. The findings reveal that policies and practices have significantly impacted what occurs in primary school physical education, often resulting in practices that do not align with the national curriculum. Dyson et al. (2018) highlighted the need for teacher educators to prioritise the alignment of physical education practices with curriculum expectations. The findings by Dyson et al. (2018) highlight an essential disjunction between policies and real-time practices. However, one must question whether the current educational infrastructure in Aotearoa, New Zealand, provides adequate support for teachers to align with curriculum expectations effectively. Also, while the study focuses on policy impact, deeper insight might be needed into the intrinsic challenges and needs of teachers that could be independent of or exacerbated by these policies, thus demanding a multi-faceted approach to address the issue. Furthermore, the study suggests that these policies and practices have affected teacher confidence and may impede effective assessment practices. Therefore, assessment literacy is essential for physical and health education teachers to enhance their confidence and ability to

assess student learning effectively (Looney et al., 2018).

Overall, these studies show that teachers have different ideas about how to use assessments. Some see them as a way to improve teaching and learning, while others see them as a way to prove that students have learned and hold themselves responsible for their student's progress (Dyson et al., 2018; Macken et al., 2020; MacPhail et al., 2021). However, there are also variations in the extent to which teachers emphasise formative versus summative assessment practices (Chng & Lund, 2018). The variation in formative versus summative assessment practices among teachers may have implications for student learning and achievement. For example, if teachers focus primarily on summative assessment, students may not receive timely and specific feedback to support their learning and growth (Cizek et al., 2019). On the other hand, Cizek et al. (2019) added that if teachers prioritise formative assessment, students may have more opportunities to receive feedback and adjust their learning strategies in real-time.

In addition, the emphasis on using assessment to improve teaching and learning aligns with the current trend towards evidence-based teaching practices in PHE. This approach uses assessment data to inform instructional decisions and design interventions tailored to individual student needs. By using assessment to improve teaching and learning, PHE teachers can develop more effective and engaging lessons that meet the diverse needs of their

students (Mandigo et al., 2019). Overall, the conception of assessment held by teachers has essential implications for the effectiveness of their teaching practices and the outcomes of their students. It is, therefore, crucial for teacher education programs and professional development opportunities to emphasise the importance of both formative and summative assessment practices and the use of assessment data to inform instructional decision-making.

Despite significant research on teachers' conceptions of assessment in various contexts, further investigation is required to obtain more nuanced insights (Yetkin & Zekiye, 2020). Specifically, only a few studies have been conducted in the Malaysian context. Moreover, most existing studies have focused on teachers' conceptions of assessment in primary schools and have been subject-specific. Consequently, there is a need to explore the conceptions of assessment held by secondary school PHE teachers in Malaysia to gain a more comprehensive understanding of their assessment purposes and practices in PHE subjects. The present study aimed to investigate the conceptions of assessment among secondary school PHE teachers in the local context, which has been relatively understudied compared to other contexts. The study adopted a quantitative research approach and aims to address the following research questions:

1. What is the secondary school PHE teachers' conception of assessment?
2. Is there any difference between male and female PHE teachers' conception of assessment?

3. Is there any difference between teaching years and assessment conception among secondary school PHE teachers?

METHODOLOGY

The current study was undertaken to investigate the conceptions of assessment held by secondary school PHE teachers to gain insights into their perspectives and the potential impact of these perspectives on assessment-related activities, teaching, and learning processes. Given the significant role that assessment plays in shaping education, it is essential to understand how teachers conceive of assessment, as this can influence their assessment practices and, in turn, student learning outcomes. Therefore, the study aimed to provide valuable insights that can be used to inform educational policy and practice. By identifying and analysing the conceptions of assessment held by secondary school PHE teachers, the study aimed to contribute to the body of knowledge on teacher beliefs and practices related to assessment, particularly in the local context. The study's findings have implications for developing effective professional development programs that consider the conceptions of assessment held by teachers and how these conceptions can be influenced to improve assessment practices and enhance student learning outcomes.

Research Design

The research design for this study utilised a cross-sectional survey methodology that employed quantitative research methods

to collect and analyse data. The data were obtained via a 5-point Likert-type scale that allowed respondents to express their opinions on assessment-related issues. The survey results were quantitatively analysed to better understand the participants' perspectives on assessment. This approach allowed for an objective assessment of the secondary school teachers' conceptions of assessment, and the findings can be used to inform the development of effective assessment practices that align with their perspectives (Chua, 2016).

Sample

This study was carried out in two districts of Selangor. The study population for this research comprised approximately 620 PHE teachers from secondary schools in two districts of Selangor, Malaysia, as the Ministry of Education reported in 2023. To ensure a representative sample, stratified simple random sampling was utilised to select 230 secondary school teachers, from

whom participants were recruited via an online questionnaire. The data collected exceeded 268 from PHE teachers, and 268 sample data were deemed measurable and included in the analysis (as detailed in Table 2). Data collection for this study was conducted between October 2022 and December 2022. Although the sample size may appear relatively small, it is still considered representative and valid for statistical analysis (Sekaran & Bougie, 2016).

Moreover, the researchers' rigorous screening process ensures that only high-quality data is included in the final analysis, thereby enhancing the reliability and validity of the findings. Therefore, the study included 268 secondary school teachers, 63 male and 205 female. The sample also includes teachers with less than a year of teaching experience, more than 15 years of teaching experience, and academic qualifications, as shown in Table 2.

Table 2
Demographic information of the participants

Gender	Frequency
Male	63
Female	205
Total	268
Years of Teaching	
1–5 years	118
6–10 years	74
11– 15 years	29
16–20 years	19
More than 20 years	28
Total	268

Academic Qualification	
Bachelor's Degree	245
Master's Degree	23
Total	268

Instrumentation

Brown's (2006) Teachers' Conceptions of Assessment (TCoA) inventory is a widely used and valid measure of teachers' assessment conceptions. The inventory consists of 27 items that assess four

subscales, including school accountability, student accountability, assessment improves education, and assessment is irrelevant. Respondents rate each item on a 5-point Likert scale, ranging from strongly disagree to strongly agree. The TCoA inventory has been used in various cultural contexts, including New Zealand, Queensland, the Netherlands, Spain, China, Hong Kong, and India. Brown's studies in New Zealand and Queensland have demonstrated the validity of the inventory, with acceptable fit indices (New Zealand: $\chi^2 = 841.02$; $df = 311$; $RMSEA = .057$; $TLI = .87$; Queensland: $\chi^2 = 1492.61$; $df = 311$; $RMSEA = .074$; $TLI = .80$).

A pilot study was conducted to evaluate the soundness of the survey instruments used in this study, and the data gathered was subjected to Exploratory Factor Analysis (EFA) in its initial stage of factor analysis. Moreover, the reliability of the survey was determined using Cronbach's alpha in SPSS. The construct validity of the study was measured using both convergent and discriminant validity to assess the accuracy and distinction of the study (Grobler & Joubert, 2018; Pallant, 2016). The initial analysis of the TCoA construct reveals skewness values ranging from -.198 to -.645. Correspondingly, the kurtosis values ranged from -.284 to 1.354, indicating no normality issues (Demir, 2022; Hair et al., 2017). The TCoA's reliability ranged appropriately. The TCoA's reliability ranged appropriately. The improvement scale obtained the highest Cronbach's alpha value ($\alpha = .920$). Meanwhile, the lowest value ($\alpha =$

.629) was School Accountability. From the complete results of the TCoA's reliability, there is one variable alpha that was less than .700, School Accountability ($\alpha = .629$). According to Pallant (2013), if the items are less than 10 in a variable, it is hard to get a high value of Cronbach's alpha, so it is acceptable if the value is $>.05$.

The use of established instruments and surveys is a common research practice to guarantee the reliability and validity of the data collected (Fowler, 2013). In this study, adopting a previously validated questionnaire by Brown (2006) provided a basis for comparison, which increased the credibility and generalizability of the findings. Additionally, it allowed for a comprehensive investigation of TCoA among PHE teachers. The TCoA study used the present inventory to examine secondary school teachers' conceptions of assessment in the local context. The inventory's reliability and validity make it a valuable tool for teachers' professional development and assessment research programs.

Data Collection

The researchers conducted the study by distributing the instrument to participants from 62 secondary schools in two districts in Selangor, Malaysia. The researchers in this study ensured ethical standards were followed by obtaining permission letters for distributing the instrument and obtaining approval from the Educational Policy Planning and Research Division of the Ministry of Education Malaysia.

Data were collected online, and responses were compiled using Microsoft Excel and SPSS for statistical analysis. Using online questionnaires for data collection has become increasingly popular in recent years due to the convenience it offers researchers and participants. Additionally, this approach allows for easy data management and analysis.

Data Analysis Procedures

The Statistical Package for the Social Sciences (SPSS version 27) software program analysed the data. Descriptive and inferential statistics were initially used to analyse the data, with the mean value of each item calculated and interpreted. The Pearson product-moment correlation coefficient was also utilised to assess the magnitude and direction of the relationships between each dependent variable. A multivariate analysis of variance (MANOVA) test was conducted while ensuring all MANOVA assumptions were met for each independent variable to examine gender and experience differences among participants. The significance of the differences among the variables was further assessed using ANOVA Bonferroni correction, followed by a follow-up ANOVA test. These statistical analyses were used to explore and elucidate the findings more comprehensively.

RESULTS

This study examines the relationship between the duration of teaching experience and the conceptions of assessment held by secondary school teachers. Various statistical

techniques were utilised to analyse the survey data, including descriptive statistics to summarise the data, t-tests to compare the means of two groups, and multivariate analysis of variance (MANOVA) to assess the differences between multiple groups. By examining the relationship between years of teaching experience and teachers' conceptions of assessment, this study sought to provide insights into how experience may shape how teachers approach assessment in the PHE classroom.

Research Question 1: The Conception of Assessment (COA)

This study examined the participants' assessment conceptions using descriptive statistics. The mean values of each variable were calculated and analysed, as presented in Table 3. A higher mean value indicated greater agreement with the corresponding statement. It gave a comprehensive understanding of the participants' assessment beliefs and perceptions.

Table 3 presents the participants' conceptions of assessment, which were examined through descriptive statistics. The TCoA-III Scale measured four levels of assessment conceptions: Improvement, Student Accountability, Irrelevance, and School Accountability. The mean values of the variables were calculated, and higher mean values indicate a higher level of agreement. The findings revealed that the Improvement conception had the highest mean value ($M = 3.95$, $SD = .52$), followed by the School Accountability conception ($M = 3.92$, $SD = .57$). Both Improvement

and School Accountability conceptions had a high level of agreement among the participants. The Student Accountability conception was ranked third and still had a high level of agreement ($M = 3.91$, $SD = .51$), while the Conception of Irrelevance held the lowest mean value of all variables ($M = 3.85$, $SD = .57$).

Table 3
Participants overall conceptions of assessment

Conception of Assessment	<i>N</i>	<i>M</i>	<i>SD</i>
Improvement	268	3.95	.52
School Accountability	268	3.92	.57
Student Accountability	268	3.91	.51
Irrelevance	268	3.85	.57

Research Question 2: The Difference between Gender on CoA

In order to investigate potential differences in assessment conceptions between genders, a one-way between-groups multivariate analysis of variance was carried out. The assumptions for this analysis were thoroughly examined, and no significant violations were detected. The results of this analysis (Table 4) indicate no statistically significant difference between males and

females in their combined dependent variables related to assessment conceptions, as demonstrated by the F -value of 1.60 and p -value of .175. Additionally, the effect size of this analysis was determined to be partial eta squared (.024) and the multivariate effect size was calculated using Wilks Lambda (.976), both of which indicate a small effect size. The findings are further presented in Table 3.

Table 4
Wilks' *A* for differences in conceptions among gender

	Wilks' <i>A</i>	<i>F</i>	<i>p</i>	Partial eta ²
Gender	.976	1.60	.175	.024

Note. $p = .05$

Table 5 shows that a Bonferroni-adjusted level of .012 was applied to each ANOVA test for each dependent variable. Results indicated no significant differences between males and females on any of the four conceptions of assessment. For instance, there was no significant difference

between males and females regarding the improvement conception ($F = .514$, $p = .216$, partial eta squared = .006), with females having a slightly higher mean score ($M = 3.97$) compared to males ($M = 3.88$). Similarly, no significant differences were found between males and females on

the student accountability conception ($F = 2.82, p = .094$, partial eta squared = .011), school accountability conception ($F = .608, p = .436$, partial eta squared = .002), and irrelevance conception ($F = 4.81, p = .029$, partial eta squared = .018).

Table 5
MANOVA for differences in conceptions of assessment based on gender

Conceptions	Male	Female	<i>F</i>	<i>p</i>	Partial eta ²
Improvement	3.88	3.97	1.54	.216	.006
Student Accountability	3.82	3.94	2.82	.094	.011
School Accountability	3.88	3.93	.608	.436	.002
Irrelevance	3.71	3.90	4.81	.029	.018

Research Question 3: The Difference Between Years of Teaching on CoA

To explore the impact of years of teaching on teachers’ conceptions of assessment, a one-way between-groups multivariate analysis of variance was conducted after testing the preliminary assumptions of normality, linearity, univariate and multivariate outliers, homogeneity of variance-

covariance matrices, and multicollinearity. The results showed a significant difference between years of teaching on the combined dependent variables, with a significant *F* value of 2.69 and *p*-value of .001, along with a Wilks Lambda value of .851, as presented in Table 6. These findings suggest that years of teaching significantly influence the conceptions of assessment teachers hold.

Table 6
Wilks’ A for differences in conceptions among years of teaching

	Wilks’ A	<i>F</i>	<i>p</i>	Partial eta ²
Years of Teaching	.851	2.69	.001	0.108

Note. *p* = .05

Subsequent univariate ANOVAs, as shown in Table 7, demonstrated significant differences in student accountability ($F = 5.76, p = .001$, partial eta squared = .080) across different years of teaching experience. Specifically, teachers with more than 20 years of teaching experience had higher mean scores on student accountability conceptions ($M = 4.33,$

$SD = .42$ respectively) compared to those with fewer years of teaching experience. Meanwhile, there were no significant differences in improvement ($F = 3.36, p = .010$, partial eta squared = .049), school accountability ($F = 1.29, p = .276$, partial eta squared = .019) and irrelevance ($F = 3.29, p = .012$, partial eta squared = .048) across different years of teaching experience. These

findings suggest that experience may play a role in shaping teachers' conceptions of assessment, particularly in the domain of student accountability.

Since there is a significant difference in student accountability across different years of teaching experience, the post hoc (Games-Howell) was executed. The Games-Howell

post-hoc test is used when the assumption of homogeneity of variance is violated, and it performs pairwise comparisons of group means while controlling for Type I error rates. Moreover, this test is more conservative than other post-hoc tests, such as Tukey's HSD, and is useful when the sample sizes are unequal.

Table 7

MANOVA for differences in conceptions of assessment based on years of teaching

Conceptions	1 – 5 years	6 – 10 years	11 – 15 years	16 – 20 years	> 20 years	<i>F</i>	<i>p</i>	Partial η^2
Improvement	3.86	3.97	3.95	4.09	4.20	3.36	.010	.049
Student Accountability	3.85	3.88	3.88	3.90	4.33	5.76	.001	.080
School Accountability	3.86	3.97	3.90	3.92	4.11	1.29	.276	.019
Irrelevance	3.76	3.86	3.78	3.99	4.16	3.29	.012	.048

The Games-Howell post-hoc test was conducted to examine the mean differences in years of teaching experience between the different groups of teachers (Table 8). The results indicated no significant differences in mean years of teaching experience between the groups of STUA, 1 – 5 years, 6 – 11 years, 11 – 15 years, and 16 – 20 years, at a significance level of 0.05. However, there was a significant difference in the mean years of teaching experience for teachers

with more than 20 years of experience compared to all other groups, as indicated by the statistically significant *p*-values ($* < 0.05$). Thus, the Games-Howell post-hoc test suggests that while there are no significant differences in mean years of teaching experience between most groups, teachers with more than 20 years of experience have significantly different mean years of teaching experience compared to all other groups.

Table 8

Post Hoc (Games-Howell) tests based on years of teaching

Dependent Variable	Demographic Information		<i>MD</i>	<i>Std. Error</i>	<i>Sig.</i>
STUA	1 – 5 years	6 – 10 years	-0.0346	0.07316	.990
		11 – 15 years	-0.0333	0.07507	.992

Table 8 (Continue)

Dependent Variable	Demographic Information	MD	Std. Error	Sig.
	16 – 20 years	-0.0575	0.09958	.978
	More than 20 years	-.4873*	0.09752	<.001
6 – 10 years	1 – 5 years	0.0346	0.07316	.990
	11 – 15 years	0.0013	0.07001	1.00
	16 – 20 years	-0.0229	0.09583	.999
	More than 20 years	-.4527*	0.09368	<.001
11 – 15 years	1 – 5 years	0.0333	0.07507	.992
	6 – 10 years	-0.0013	0.07001	1.00
	16 – 20 years	-0.0242	0.0973	.999
	More than 20 years	-.4540*	0.09518	<.001
16 – 20 years	1 – 5 years	0.0575	0.09958	.978
	6 – 10 years	0.0229	0.09583	.999
	11 – 15 years	0.0242	0.0973	.999
	More than 20 years	-.4298*	0.1155	0.005
More than 20 years	1 – 5 years	.4873*	0.09752	<.001
	6 – 10 years	.4527*	0.09368	<.001
	11 – 15 years	.4540*	0.09518	<.001
	16 – 20 years	.4298*	0.1155	.005

DISCUSSION

The study aimed to investigate how physical education (PHE) teachers at secondary schools perceive the purpose and goals of assessment and to explore any possible gender and experience-related differences in their views. The study utilised descriptive statistics to examine the participants’ conceptions of assessment purposes: improvement, school and student accountability, and irrelevance. The results indicated that improvement was the most commonly endorsed purpose,

with participants believing that assessment should enhance teaching and learning processes and outcomes ($M = 3.95$). This finding is consistent with prior research, which has also shown that improvement is the most favoured purpose among teachers (Mat Yusoff, Leng, et al., 2022). Moreover, previous studies have shown that when students view assessment as a way to account for their learning, their performance is more likely to improve (Yang et al., 2022).

The finding that improvement was the most commonly endorsed purpose

of assessment among PHE teachers is particularly noteworthy given the unique nature of the subject. Physical and health education encompasses a wide range of knowledge and skills, from physical fitness to nutrition and health promotion. Thus, practical assessment in PHE requires a nuanced understanding of cognitive, psychomotor, and affective domains (Davis & Wash, 2019). In this context, the endorsement of improvement as the primary purpose of assessment suggests that PHE teachers are focused on enhancing students' learning outcomes across all domains. This finding aligns with the goals of PHE, which aim to develop students' physical literacy, improve their health-related knowledge and behaviours, and promote positive attitudes towards physical activity and wellness (Gleddie & Morgan, 2021).

The study also investigated the conception of school accountability among the participants and found that it ranked second in importance ($M = 3.92$). This result contrasts previous research findings (Mahasneh & Al-Zou'bi, 2021; Mat Yusoff et al., 2022). Gelfand et al. (2017) have introduced the concept of 'felt accountability' to explain how individuals respond to the tightness-looseness of social and cultural norms, especially the trade-offs involved in acting in relation to their expectations that their decisions and behaviours will be scrutinised and evaluated. It is argued that having assessments for school accountability can positively empower teachers in the teaching and learning process (Law et al., 2019). In the context of physical

and health education, the conception of school accountability may have different implications. While school accountability can empower teachers, it may also lead to unintended consequences, such as teaching to the test or narrowing the curriculum to focus solely on tested content (Knoester & Parkison, 2017). It could limit the scope of the subject and reduce the emphasis on promoting lifelong physical activity and health. Moreover, given that physical and health education is often not tested in the Malaysian context, the use of assessments for school accountability may be limited, which could further marginalise the subject (Richards et al., 2018). Therefore, while school accountability may have some benefits, it is essential to carefully consider its implications for the teaching and learning of physical and health education.

Other than that, the study also found that participants had a moderate level of agreement with the Student Accountability concept, with a mean value of 3.91. It was close to the mean values of the Improvement and School Accountability conceptions. However, the Irrelevance conception had the lowest mean value of all the conceptions, with moderate agreement among the participants ($M = 3.85$). The moderate agreement with Student Accountability suggests that teachers recognise the importance of holding students accountable for their learning in this subject area (Winstone et al., 2021). Physical and health education is a subject that requires active participation from students, and holding them accountable for their learning

can motivate them to engage in physical activities and adopt healthy behaviours. It is particularly important given the increasing prevalence of sedentary lifestyles and related health issues such as obesity and diabetes (Hadi, 2021).

By emphasising the importance of physical activity and healthy behaviours through assessment, students may be more motivated to engage in these activities within and outside the classroom. Furthermore, student accountability in physical and health education can help to develop essential life skills such as self-discipline, responsibility, and goal setting. Students held accountable for their learning may also develop a sense of ownership over their health and well-being, leading to lifelong healthy living habits (Sierra-Díaz, 2019). Therefore, physical and health education teachers need to consider how assessment can promote student accountability and foster healthy habits and behaviours.

On the other hand, the moderate level of agreement with the Irrelevance conception may indicate that physical and health education teachers do not view assessment as irrelevant to their teaching and learning process. This finding is consistent with physical and health education, which often involves practical and experiential learning (Bentsen et al., 2022). As such, assessment in this subject area may take different forms, such as performance-based assessment, deemed more relevant and meaningful by teachers and students. The high response rate for Improvement and the low response rate for Irrelevance suggest

that participants believe that assessment helps improve the teaching and learning process. However, they do not see it as an accurate measure of their qualifications. This finding aligns with previous research, such as that by Broadfoot (2007), who argued that assessment should be viewed as a tool for improving learning outcomes rather than just as a measure of student achievement. Therefore, the study suggests that teachers see assessment as a valuable tool for improving the teaching and learning process. However, they may need more clarification about its accuracy in measuring student qualifications. These findings have important implications for designing and implementing assessment practices in secondary school physical education. The study results also indicate no significant difference in assessment conceptions between male and female secondary school PHE teachers, encouraging the promotion of equity and gender equality in education. Physical and health education, as a subject that promotes physical activity and healthy lifestyles, should not be limited to any particular gender (Cárcamo et al., 2021). This study's findings indicate that both male and female teachers perceive assessment as a crucial tool to improve teaching and student learning in PHE, regardless of gender. It suggests that promoting equitable access to PHE education and encouraging gender equality in the classroom is vital for the overall development of students. Moreover, the finding that both male and female teachers value assessment as a critical element in improving teaching and learning

outcomes is consistent with previous studies in the field of education (Mat Yusoff, Leng, et al., 2022). Carpenter et al. (2020) noted that assessment is an essential component of the teaching and learning process, and its effectiveness can significantly impact students' learning outcomes. Therefore, developing effective assessment strategies in PHE that can promote both male and female students' engagement, motivation, and learning outcomes is crucial. These findings highlight the importance of assessing PHE students' learning and developing effective assessment strategies. The lack of significant differences in assessment conceptions between male and female teachers suggests that gender should not be a determining factor in the assessment process, and equitable access to PHE education should be promoted.

The current study also explored whether there were differences in the conceptions of assessment among secondary school PHE teachers based on their years of teaching experience. The researchers conducted a multivariate test and found a statistically significant difference in the conceptions of assessment among teachers with varying years of experience. The Games-Howell post-hoc test was performed to compare the mean years of teaching experience of different groups of teachers. The results showed a significant difference in the mean years of teaching experience for teachers with more than 20 years of experience compared to all other groups, indicating that teaching experience impacts teachers' conceptions of assessment. This finding

is consistent with research by Moinvaziiri (2015), who also found a significant relationship between teaching experience and school accountability. However, the result of the current study contradicts the findings from Mat Yusoff, Leng, et al. (2022) and Mahasneh and Al-Zou'bi (2021), who found no significant difference in teaching experience and the conceptions of assessment variables.

Experienced teachers may have a deeper understanding of the subject matter and the needs of their students, which can influence how they perceive the role of assessment in teaching and learning. For example, teachers with more years of experience may have developed a greater appreciation for continuous improvement and feedback, which could influence their endorsement of the Improvement conception of assessment (Wang, 2016). Besides, experienced teachers may have more confidence in their abilities to design and implement practical assessments, which could affect their views on the School Accountability and Student Accountability conceptions (Deneen & Brown, 2016). Furthermore, experienced physical and health education teachers may have developed a greater awareness of the unique challenges and opportunities in the subject area. This awareness may lead them to value assessment more highly to promote physical activity, health literacy, and overall wellness among their students (Sentell et al., 2020). Therefore, the significant difference in the mean years of teaching experience among teachers with more than 20 years of experience, as found in the current study,

may reflect the growing importance of physical and health education assessment to promote healthy lifestyles and behaviours.

CONCLUSION

The current study presents a new perspective on how secondary school PHE teachers perceive assessment and what factors shape these viewpoints. The most prevalent conception of assessment was the belief that it improved teaching and learning outcomes, followed by school and student accountability notions. The irrelevance of the assessment received the most minor support from the teachers. There was no discernible difference in these conceptions between male and female teachers. Nevertheless, a notable disparity was found between teachers with over 20 years of experience and their less experienced peers, indicating that teaching experience significantly impacts teachers' understanding of assessments. The insights obtained from this study make a valuable contribution to the existing body of knowledge on teachers' conceptions of assessment. They may prove beneficial in shaping educational policies and practices. It also underscores the necessity for additional research to probe other potential influencers of teachers' conceptions of assessments.

Limitations and Recommendations for Future Research

Even though this study has yielded valuable insights, it is essential to recognise the limitations that may affect the validity and generalizability of the findings. A primary concern relates to the data collection

method, which relied on disseminating questionnaires within a limited time frame. This time constraint may have hindered participants' comprehensive comprehension of the questionnaire items, resulting in responses that may have been needed to adequately capture the nuances of their beliefs and experiences regarding assessments. Consequently, there may be an element of response bias, which could affect the overall reliability and validity of the collected data. In addition, while the quantitative design of the study provided valuable statistical insights, it may have limited the depth of understanding regarding the underlying causes and motivations that shape teachers' perceptions of assessments.

In addition, it is essential to note that the sample size for this study was relatively small and limited to secondary school PHE teachers from only two districts. Although this sample provides unquestionably valuable insights into the perspectives of these particular educators, it may be somewhat representative of the population of PHE educators as a whole. A mixed-method research design should be considered to address these limitations and improve the comprehensiveness and applicability of future research in this area. Combining quantitative data collection with qualitative methods such as interviews or focus groups would enable a more comprehensive examination of teachers' conceptions of assessments using this method. This mixed-method design would allow researchers to collect quantitative data and probe deeply into the qualitative insights

that can reveal the underlying rationales and contextual nuances underlying teachers' assessment beliefs.

In addition, future research endeavours should include a larger and more diverse sample size, including participants from various states and districts and teachers instructing various PHE-related subjects. By expanding the scope and reach of the study, researchers can gain a more comprehensive understanding of teachers' perceptions of assessments, considering regional and subject-specific differences that may influence these perceptions. Future research can provide a stronger foundation for educational policymakers and practitioners to make informed decisions and implement effective strategies for enhancing assessment practises in Physical and Health Education.

Implication of the Study

The findings of this study demonstrate the critical importance of incorporating teachers' perspectives and conceptions of assessments into educational practices and policymaking. This analysis urges educational institutions at both the macro and micro levels to re-evaluate and reimagine the role of assessment as a fundamental tool for improving teaching and learning outcomes. The study's findings highlight the necessity of adapting assessment strategies and training programmes to teachers' varying experience levels. Recognising that novice and experienced educators may have different conceptions and requirements regarding assessments, it is necessary to provide differentiated support and professional development opportunities to

ensure the teachers' learning trajectories in the community of practice of the assessment reform. This approach can result in a more efficient implementation of assessment practices in the classroom. In addition, as this study points out the complexity of teachers' assessment-related conceptions, the necessity of the qualitative method integrated into this study helps explore the underlying causes, motivations, and beliefs that influence teachers' perspectives on assessments. These insights can contribute to a deeper comprehension of the factors that influence assessment conceptions and inform the development of targeted interventions. Last but not least, this study can bear profound implications for bridging the gap between policy planning and policy implementation in the context of Malaysian education reform. Recognising and addressing teachers' conceptions of assessments is crucial to effectively implementing educational policies. Education reform initiatives can become more effective and sustainable by incorporating teachers' insights and aligning policies with their perspectives.

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