

# Accuracy of Peer Assessments Performed by Elementary Physical Education Students

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## Abstract

**Background/Purpose:** The importance of peer assessments within physical education has been increasingly recognized and endorsed within the international physical education community (Hay & Penny, 2009; Johnson, 2004). Despite the recommendation for the increased use of peer assessments in physical education, a lack of research exists that examines the accuracy with which elementary students can perform peer process assessments. Therefore, the purpose of this study was to examine the degree of accuracy with which elementary physical education students performed a peer process assessment of an overhand throwing task.

**Method:** 28 elementary students, in first through third grade, were asked to conduct an assessment of their peers' performance of two skill components (i.e., 'side to target' and 'step with opposite foot') during an overhand throwing task. Students were placed in pairs; the first participant performed five trials of the task while the partner assessed each trial. After five trials, the partners switched roles so that each participant had the opportunity to complete the throwing task as well as the assessment. Sessions were conducted once a week for a total of 4 weeks. All trials were video recorded; videos were later viewed by the researchers who conducted an assessment of each trial to be used as the criterion for comparison. The participants' assessments were then compared to the researchers' and evaluated for accuracy.

**Analysis/Results:** A one-way ANOVA revealed no significant difference in participants' assessment accuracy across weeks ( $F(3,142) = 0.392, p = .759$ ), indicating the participants' accuracy did not change over time. There were, however, significant differences between grades overall ( $F(2,143) = 9.182, p < .001$ ). Post-hoc analyses showed these differences were between 3<sup>rd</sup> ( $M = 91.77\%$ ,  $SD = 13.97$ ) and 1<sup>st</sup> ( $M = 78.95$ ,  $SD = 22.76$ ) grades ( $p = .005$ ), and between 3<sup>rd</sup> and 2<sup>nd</sup> ( $M = 77.17$ ,  $SD = 22.28$ ) grades ( $p < .001$ ).

**Conclusions:** Despite older students performing the assessment significantly better than their younger counterparts, results still indicated that students as young as first grade can still perform a peer process assessment with a relatively high degree of accuracy (i.e., nearly 80% accurate). These results indicate that physical education teachers may be able to implement peer process assessments with lower elementary students with the assumption that they will be completed accurately.

## Background

The push to use a variety of assessment strategies within physical education has gained significant traction over the past several years (Hay & Penny, 2009; Johnson, 2004; Kaardal, 2001). When learning and refining motor skills, students benefit from receiving augmented feedback; assessments can be a direct source of this feedback. However, because of the typical student-to-teacher ratio found in physical education classes, it is difficult to provide substantial feedback to all students in a class using only teacher-directed assessments. Therefore, it is suggested for teachers to also implement peer-assessments where students observe each other performing tasks and fill out a sheet assessing their performance. Then, all students in a class can receive feedback on their performance based on the results of the peer assessment (Johnson, 2004).

## Purpose

It is important for students to receive accurate feedback when learning and refining motor skills. However, despite the rationale and suggested uses of peer assessments within physical education, it is unknown how accurately students can perform peer process assessments. Therefore, the purpose of this study was to examine the accuracy with which elementary physical education students conducted a peer process assessment of an overhand throwing task.

## Method

**Participants:** 28 physical education students in 1<sup>st</sup> through 3<sup>rd</sup> grade


**Procedures:** The researchers met with each grade level once per week for five weeks. During week one, the researcher conducted assessment training where the students learned how to properly perform the assessment (Figure 1). During weeks two through five, participants were placed in pairs and asked to perform the assessment while their partner performed five trials of an overhand throw task. Once five trials were performed and assessed, the students switched roles, allowing each participant to conduct an assessment as well as perform the overhand throw. Each session was video recorded; videos were later observed by one of the researchers who conducted an assessment of each trial. The participants' assessments were then compared to the researcher's criterion assessments and evaluated for accuracy.

Your Name \_\_\_\_\_

Thrower's Name \_\_\_\_\_

Your partner will throw the ball 5 times as far as he or she can. Every time your partner throws the ball, you will make sure he or she is throwing the right way.

Put an X next to each part of the skill your partner does correctly. Leave it blank if he or she does not do that part of the skill.

	CUES	Throw 1	Throw 2	Throw 3	Throw 4	Throw 5
	Side to target					
	Step toward target with opposite foot					

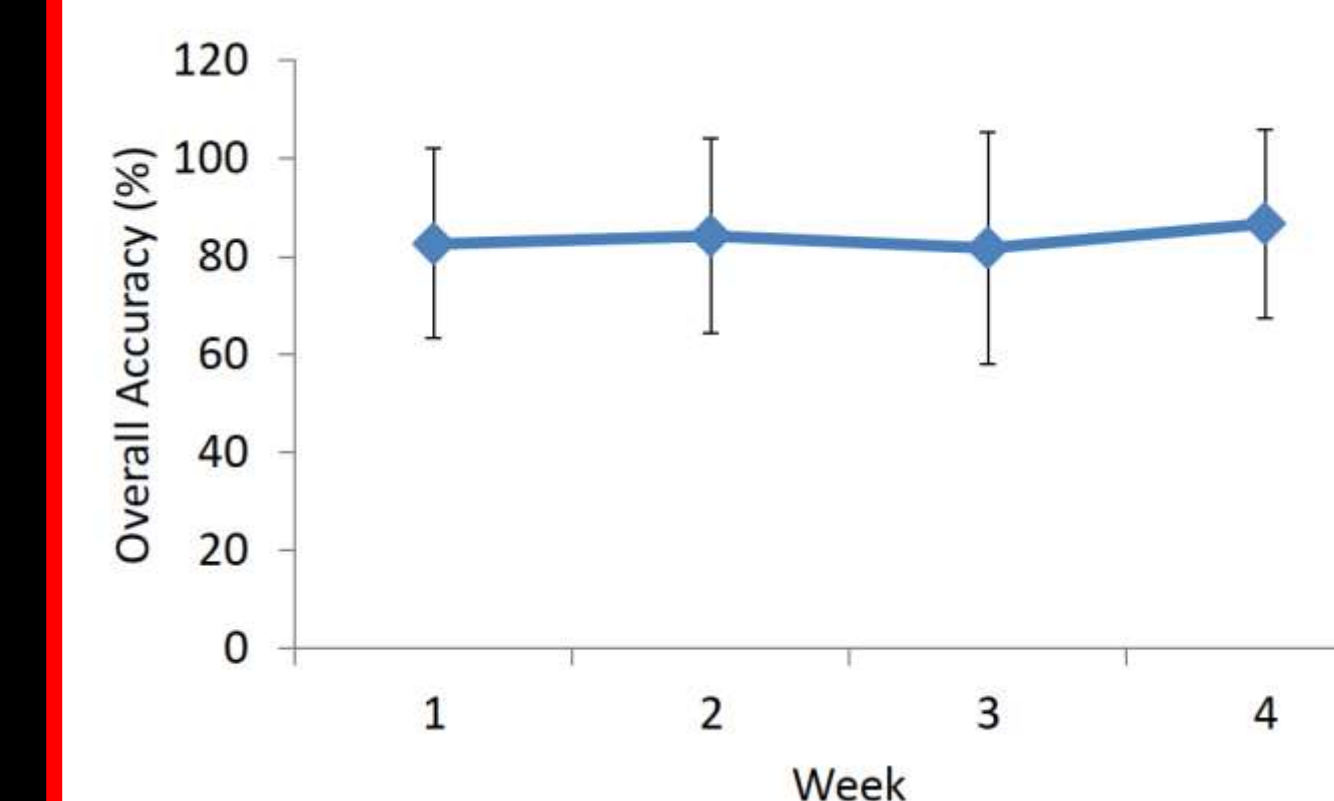
**Figure 1.** Peer process assessment for the first two components of the overhand throw.

**Interrater Reliability:** A second researcher viewed 25% of the sessions to check for interrater reliability; overall agreement was 96.1%, while agreement across 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> grades was 96.0%, 94.6%, and 97.3%, respectively.

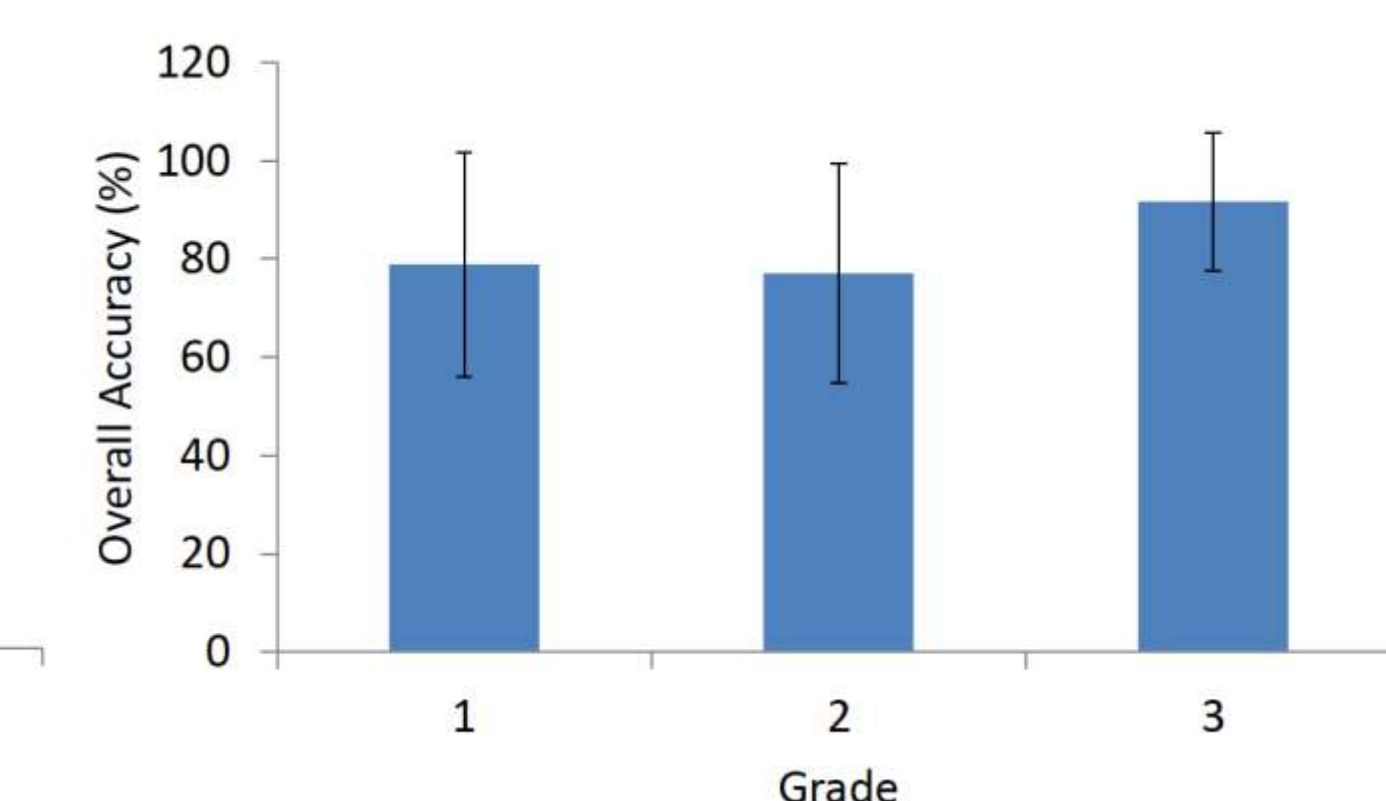
**Data Analysis:** One-way ANOVAs were conducted to examine differences in assessment performance across grades, across each of the four weeks for all participants, and across each of the four weeks within each grade level.

## Results

Across all four weeks, the overall accuracy with which participants assessed their peers' performance for 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> grade students was 79%, 77%, and 92%, respectively. One-way ANOVA results indicated no significant differences in the participants' accuracy across weeks [ $F(3,142) = 0.392, p = .759$ ], indicating the participants' accuracy did not change over time (Figure 2). There was also no difference in 1<sup>st</sup> grade [ $F(3,34) = 0.327, p = .806$ ], 2<sup>nd</sup> grade [ $F(3,42) = 0.112, p = .953$ ], or 3<sup>rd</sup> grade [ $F(3,58) = 1.814, p = .155$ ] across all weeks, indicating all grade levels remained consistent in their accuracy over time. There were, however, significant differences between grades overall [ $F(2,143) = 9.182, p < .001$ ] (Figure 3). Post-hoc tests show these differences were found between 3<sup>rd</sup> ( $M = 91.77\%$ ,  $SD = 13.97$ ) and 1<sup>st</sup> ( $M = 78.95$ ,  $SD = 22.76$ ) grade ( $p = .005$ ), and 3<sup>rd</sup> and 2<sup>nd</sup> ( $M = 77.17$ ,  $SD = 22.28$ ) grade ( $p < .001$ ); 3<sup>rd</sup> grade students were able to conduct the assessment more accurately than their younger counterparts.



**Figure 2.** Overall assessment accuracy for all grades across four weeks



**Figure 3.** Overall assessment accuracy by grade level.

## Conclusions

Lower elementary physical education students were able to perform a peer process assessment of the overhand throw with a relatively high degree of accuracy; although the older students performed the task more precisely, younger students were still able to assess at nearly 80% accuracy. Further, the students were able to perform the assessment with consistency over time; that is, they were as accurate on week one as they were on week four, indicating students can correctly perform the assessment immediately after one short training session. These results all indicate that peer assessments can be used with lower elementary students and teachers can be relatively certain their students are receiving accurate feedback via the assessment.

## References

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