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Authentic Assessment in Physical Education: Prevalence of Use and Perceived Impact on Students' Self-Concept, Motivation, and Skill Achievement

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The dual purposes of this study are to (a) describe and analyze the extent and type of authentic assessment use in public school physical education, and (b) investigate physical education teachers' perceptions about the impact of authentic assessment on students' self-concept, motivation, and skill achievement. Public school physical education teachers ($N = 210$) completed the Mintah Physical Education Authentic Assessment Inventory. Authentic assessment was found to be used extensively in public school physical education. Teacher observation, self-observation, checklists, peer observation, and event task were the most commonly used forms of authentic assessment; portfolio and essay were the least commonly used techniques. Public school physical education teachers in this study perceived that authentic assessment use enhanced positively the self-concept, motivation, and skill achievement of their students. In this study, male and female physical education teachers from 3 grade levels did not differ on the perceived impact of authentic assessment use on students' self-concept, motivation, and skill achievement.

Key words: Mintah Physical Education Authentic Assessment Inventory, authentic assessment, extent of use

In 1995, when the educational reform movement led to new educational standards, school districts were asked to find ways to improve students' academic achievement (Cleland & Stevenson, 1997). Among the noticeable changes that accompanied the

educational reform movement was the move toward performance-based assessment. As a result, school districts have experimented with new assessment formats (Zhu, 1997). Today, in the public schools, authentic assessment has caught the attention of many educators (Powell, 1993).

Grant Wiggins is credited with the creation of the concept of authentic assessment, which he defined as any assessment task that uses multiple scoring systems to measure students' habits and repertoires on significant tasks related to life outside the classroom (Wiggins, 1989b). Authentic assessment, according to Wiggins (1989a), "replicates the challenges and standards of performance that typically face writers, business people, scientists, community leaders, designers, or historians" (p. 705). In the classroom, authentic assessment enables educators to watch a learner pose and tackle problems, arrange arguments, marshal evidence, and take purposeful actions to address and solve ambiguous problems. With authentic assessment, students' competence is not assessed from one performance, but through a series of activities (Lund, 1997). Students are exposed to different assessment tasks, so that they can demonstrate their competence. Such assessment tasks have contextual significance (Hensley, 1997; Wiggins, 1989a), and authentic assessment is directed at the behavior, knowledge, or feelings that the teacher wishes to measure. Authentic assessment, therefore, focuses on the product, as well as the quality of performance, and students are more actively involved in the learning process. In addition, students know how they will be evaluated ahead of the actual assessment, which often results in higher levels of students' interest and motivation.

Theoretically, authentic assessment follows the constructivist paradigm of teaching and learning. Constructivist learning is based on the idea that children's minds are not blank slates (Von Glasersfeld, 1990). Students have a set of beliefs, theories, and perceptions. Learning happens when these are challenged through conversation, hands-on activity, or experience (Noel, 1993). In constructivism, the learner as a whole person is the focus. Appropriate assessment, according to constructivist learning theorists, will consider individual differences in experience and ability that focus on providing assessment on an individual, ongoing basis (DeVries, 1987; Von Glasersfeld, 1990).

Many types of authentic assessment practices are reported in the literature. In physical education, the types of authentic assessment used include written essays, oral discourses, exhibitions and event tasks, portfolios, checklists, report cards, student logs, peer observation, self-observation, and parental report (Lund, 1997; Parker, 1998). Written essays are used to describe and explain facts in context. Written essays enable students to use analysis, synthesis, and critical thinking skills to present materials logically. Oral discourses or interviews give students the chance to show their competence and knowledge. For example, a student might discuss the merits of a zone-versus-player-marking defense during an oral discourse. Through oral discourse, students synthesize knowledge, draw conclusions,

make decisions, and justify their choices. Exhibitions and event tasks are other authentic assessment practices used in physical education. Exhibitions are extensive demonstrations of a student's skills or performance (Feuer & Fulton, 1993). Event tasks, on the other hand, are exhibitions that can be done in one class period (Lund, 1997). Another type of authentic assessment used in physical education is the portfolio. Portfolios are collections of students' work over a period (Melograno, 1994, 2000) and may include written essays, video tapes of event tasks, and other evidence of the quality of students' work (Jones, 1993; Ryan & Miyasaka, 1995). Portfolios provide students with the opportunity to explore goals (Kirk, 1997), and they can be employed to whatever purpose necessary, because they are very flexible (Hauge, 1997).

The move toward the use of authentic assessment emanated from the view that most traditional assessments are not good representations of subject matter problems or of the students' actual/usable knowledge (Dana & Tippins, 1993). Current tests do not tap many skills and abilities that students need to develop to be successful in later life and schooling. According to Wiggins (1993), most traditional assessments measure common and narrowly defined knowledge that is incompatible with the aim of any robust education for lifelong learning. Furthermore, bona fide intellectual performance is inherently personalized. Because the meanings, strengths, and aspirations derived from education are intrinsically idiosyncratic, using traditional assessment short-circuits the vital educational exchange between an individual and meaning.

Another force behind the use of authentic assessment originates from new views about teaching and learning. Katims, Nash, and Tocci (1993) found recent increases in the emphasis on connection within and across disciplines. To them, such blurs of boundaries between subject matter categories have made learners more active and collaborative and higher order thinkers. With authentic assessment, instruction and assessment are interlaced (Diez & Moon, 1992; Head, 1996; Lund, 1997; Veal, 1988; Wiggins, 1989b). Authentic assessment requires students to apply many skills acquired in class and to use these skills as foundations for further learning.

Today's education demands that students do more than memorize information used to solve problems (O'Neal, 1992). With the rapidly changing educational landscape, traditional psychometric assessment tools may no longer be adequate for assessing learning outcomes (Hensley, 1997). To adequately prepare and assess students' mastery, as well as to improve students' self-concept, motivation, and skill achievement, assessment should require a meaningful task designed to be representative in the field (Lund, 1997). In addition, a large variance in growth and experience exists among young adolescents in school. For example, in middle/junior high school physical education classes, students differ in size and strength. Most traditional assessments in physical education neglect this great variability among these students (Kritt, 1993), which makes it difficult for some students to

keep pace with the physical education activities. For those students, their motivation to learn diminishes, despite the need to compete for better grades. To educate students with varying physical, cognitive, and social-emotional development, as well as to increase students' self-concept, motivation, and skill achievement, physical educators should use different assessment formats.

Although many agree that authentic assessment increases students' self-concept, motivation, and skill achievement, some differences in opinions exist in the literature about its use (Cizek, 1991; Meyer, 1992). For example, the lack of psychometric data about authentic assessment has caused many physical educators to doubt its genuine use in the classroom (Herman & Winters, 1994; Lund, 1997; Worthen, 1993). Authentic assessment tasks are subjective and lack acceptable criteria for comparing measures in physical education. The subjective nature of authentic assessment has created ambiguity when authentic assessment measures are used to make critical decisions or for high-stakes accountability (Madaus & Kellaghan, 1993). Furthermore, in physical education, there is no consensus about the use of the concept of authentic assessment. For example, Herman, Aschbacher, and Winters (1992) acknowledged that authentic assessment, performance assessment, and alternative assessment are synonymous, but Marzano, Pickering, and McTinghe (1993) differentiated among the three. The lack of general consensus about authentic assessment terminologies confuses some physical educators. Finally, authentic assessment requires time to plan and evaluate (Lund, 1997). The time-consuming nature of authentic assessment has made some physical educators think that it is labor-intensive.

Aside from the disagreements and/or lack of consensus about the use of authentic assessment terminologies, the literature strongly suggests that authentic assessment practices in physical education might provide opportunities that will improve students' self-concept, motivation, and skill achievement (Head, 1996; Hensley, 1997; Kirk, 1997; Kritt, 1993; Lund, 1997; Mitchell, 1992); however, there is a lack of empirical evidence to support these claims. This study was designed to (a) describe and analyze the extent and type of authentic assessment use in public school physical education, and (b) investigate physical education teachers' perceptions about the impact of authentic assessment on students' self-concept, motivation, and skill achievement.

METHOD

Participants

Public school physical educators ($N = 396$) were randomly sampled and surveyed; 210 (53.0%) returned the questionnaire. Included in the sample were 102 (48.6%) women and 108 (51.4%) men. For the teachers surveyed, 80 (38.1%) taught at the

elementary school level, 70 (33.3%) taught at the middle/junior high school level, and 60 (28.6%) taught at the high school level. The participants' total teaching experience ranged from 1 to 34 years ($M = 18.12$, $SD = 9.03$). Years of physical education teaching ranged from 1 to 34 years ($M = 16.24$, $SD = 9.60$). The teachers' years of authentic assessment use ranged from 1 to more than 10 years ($M = 3.60$, $SD = 1.38$). The teachers' educational level ranged from the bachelor's to the doctorate degree levels, with most of them between the bachelor's and master's degree levels.

Instrumentation

For this study, the Mintah Physical Education Authentic Assessment Inventory (MPEAAI) was developed to collect data. The MPEAAI contains two sections. Section A requested the teachers to rate the extent with which they use each of 15 authentic assessment techniques in their physical education classes. The respondents' ratings were from 5 (*always use*) to 1 (*never use*). Therefore, section A of the inventory was tabulated using a 5-point rating scale.

Section B of the MPEAAI requested the physical education teachers who use authentic assessment to rate their perceptions about the impact authentic assessment use has made on their students' self-concept, motivation, and skill achievement. Section B had three rationally derived subscales. Subscale items 3, 4, 8, 12, and 13 measured perceptions of effect on students' self-concept; subscale items 2, 6, 7, 11, and 15 measured perceptions of effect on students' motivation; and subscale items 1, 5, 9, 10, and 14 measured perceptions of effect on students' skill achievement. Directions for section B of the MPEAAI indicated that participants should respond to the questions with answers ranging from 5 (*strong agreement*) to 2 (*strong disagreement*). Section B of the MPEAAI yielded three separate scores: one each for self-concept, motivation, and skill achievement. The range for each subscale was from a high of 25 points to a low of 10 points. Section B of the MPEAAI was completed only by those who were identified as users of authentic assessment in section A.

Pilot Testing

Two pilot tests were conducted to provide evidence for the validity and reliability of the data collection instrument. The two pilot tests are discussed in the sections that follow.

Pilot test 1. Four physical educators took part in the first pilot test. Three of the participants taught physical education to undergraduate and graduate physical education students. The fourth participant was the head of a physical education

department in a high school. In this pilot test, the participants were told that it was a practice run and that they should feel free to comment on the inventory items. Separate interviews were conducted with each participant, to discuss each one's comments, reactions, and responses. The first pilot test ensured that the inventory included relevant content areas of interest (Converse & Presser, 1986). In addition, the first pilot test helped identify duplicate items and allowed for clarification of those that were confusing to the participants.

Pilot test 2. The second pilot test was conducted during an annual physical education PK–12 learning/sharing conference. Practicing physical educators ($N = 35$) who attended the conference participated in this pilot study. Internal consistency reliability for the three subscales on the MPEAAI was calculated. For the participants in this study, the alpha coefficients were .74 for self-concept, .55 for motivation, and .64 for skill achievement, indicating moderate levels of internal consistency.

Procedure

Approval to collect data was received from an institutional human subjects review board, and the mailing list of the potential participants was obtained from the state department of education. A cover letter, teacher demographic questionnaire, the MPEAAI questionnaire, and a self-addressed prepaid envelope were mailed to the selected physical education teachers. The cover letter requested the voluntary participation of the physical education teachers, and assured complete confidentiality of the responses. No information that could identify the individual teachers was requested.

RESULTS

Extent of Authentic Assessment Use

The extent of authentic assessment use was defined as the proportion of teachers who use authentic assessment. To determine the extent with which physical education teachers use authentic assessment, frequency statistics were calculated. Results of the frequency statistics were calculated, with the finding that 158 (75.2%) of the physical educators in this study used authentic assessment. Included in the sample of teachers who used authentic assessment were 82 (51.9%) women and 76 (48.1%) men. Of these teachers, 71 (44.9%) taught at the elementary school level, 47 (29.7%) taught at the middle/junior high level, and 40 (25.3%) taught at the high school level.

The remaining 52 (24.8%) physical educators indicated that they did not use authentic assessment techniques. The teachers' rationales for not using authentic

assessment varied. For some (28.8%), authentic assessment techniques consumed too much time. One participant revealed that, “because my physical education classes meet once every week, it is difficult to incorporate authentic assessment practices into my programs.” Others (30.8%) said that the number of physical education teachers in their programs had been reduced. Also, some (19.2%) teachers said they teach every hour of the school day and supervised students during lunch. When the reduction in the number of physical education teachers and/or the large class sizes are taken together, it is not surprising that the teachers find it difficult to incorporate authentic assessment practices in their programs. For the rest (21.2%), authentic assessment techniques were reportedly very new and they did not have the opportunity to use them in their teachers’ preparation programs. Thus, they felt uneasy in using authentic assessment.

Reported Use of Individual Authentic Assessment Techniques Among Users, by Grade Level

Extent of authentic assessment use was calculated on each of the 15 assessment techniques, by grade level (see Table 1). Results of the analysis showed that 100% of the physical education teachers who use authentic assessment reported using

TABLE 1
Reported Use of Individual Authentic Assessment Techniques Among Users by Grade Level

<i>Assessment</i>	<i>Elem.^a (%)</i>	<i>Mid/Jr.^b (%)</i>	<i>High^c (%)</i>
Teacher observation	100 (71)	100 (47)	100 (40)
Self observation	98.6 (70)	93.6 (44)	92.5 (37)
Checklists	98.6 (70) _a	91.5 (43)	87.5 (35) _a
Demonstration	93.0 (66)	91.5 (43)	85.0 (34)
Peer observation	94.4 (67)	83.0 (39)	90.0 (36)
Event task	85.9 (61)	87.2 (41)	87.5 (35)
Group project	77.5 (55)	72.3 (34)	80.0 (32)
Student project	71.8 (51)	72.3 (34)	82.5 (33)
Oral discourse	76.1 (54)	78.8 (37)	65.0 (26)
Parental report	74.6 (53)	72.3 (34)	65.0 (26)
Video	63.4 (45)	74.5 (35)	70.0 (28)
Student log	53.3 (38)	55.3 (26)	57.5 (23)
Anecdotal record	59.2 (42)	51.1 (24)	50.0 (20)
Portfolio	40.8 (29)	36.2 (17)	55.0 (22)
Essay	33.8 (24)	51.1 (24)	50.0 (20)

Note. Elem. = elementary school; Mid/Jr. = middle school/junior high school; High = high school. Percentages in the same row that share subscripts differ at $p < .05$.

^a $n = 71$. ^b $n = 47$. ^c $n = 40$.

teacher observation. In addition, large percentages of the teachers, across all grade levels, reported using self-observation (95.6%), checklists (93.7%), demonstration (90.5%), peer observation (89.9%), and event tasks (86.7%). Overall, only a small number of the physical education teachers, at all grade levels, reported using the essay (43.0%) and the portfolio (43.0%) techniques. Thus, most of these physical education teachers used many of the authentic assessment techniques that are patently appropriate for overt physical performance and in “real game” situations.

With further examination of the data in Table 1, few statistically significant differences were found in the proportions of authentic assessment use across grade levels. A chi-square test of comparison of the proportion of usage showed a significant difference between the elementary and the high school physical education teachers for use of checklists, $\chi^2(1) = 3.87, p < .05$. A higher proportion of elementary physical education teachers use checklists than the high school teachers. No significant differences were found among grade levels for any of the remaining assessment techniques.

Perceived Impact of Authentic Assessment Use on Self-Concept, Motivation, and Skill Achievement

The second phase of this study was designed to examine whether physical education teachers perceived authentic assessment to have an impact on students’ self-concept, motivation, and skill achievement. In section B of the MPEAAI, respondents indicated their perceptions about the impact of authentic assessment use on a Likert scale from 5 (*strongly agree*) to 2 (*strongly disagree*). Section B of the MPEAAI consisted of three subscales of five items each. Because there were equal numbers of items in each subscale, the subscale score was obtained by summing the ratings in each scale. The range for each subscale was from a high of 25 points to a low of 10 points, with 17.5 as the neutral score. The neutral score was obtained by multiplying the midpoint value of 3.5 by 5, the number of items in each subscale. To assess whether the teachers perceived authentic assessment use had positive, negative, or no impact on students’ self-concept, motivation, and skill achievement, three separate one-sample *t* tests were calculated, to determine if the mean ratings for each of the subscales was significantly different from 17.5—the neutral score.

The result of the one-sample *t* test on perceived impact on self-concept was significant, $t(157) = 9.26, p < .05$. The magnitude of the difference was large, $d = 0.74$ (see Cohen, 1969; Howell, 1997; Thomas, Salazar, & Landers, 1991). The overall mean ($M = 19.36, SD = 2.52$) was significantly higher than 17.5; therefore, the physical education teachers in this study perceived authentic assessment use to have a positive impact on students’ self-concept. The result of the one-sample *t* test on perceived impact on motivation was significant, $t(157) = 9.02, p < .05$. Estimate of Cohen’s magnitude of the difference was large, $d = 0.72$. The total mean ($M = 19.27, SD = 2.46$) for motivation was higher than the neutral score of 17.5. In general, the physical education teachers in this study perceived that authentic

assessment positively influenced students' motivation. The result of the one-sample t test on perceived impact on skill achievement was significant, $t(157) = 10.33, p < .05$. The magnitude of the difference was large, $d = 0.82$. The overall mean ($M = 19.44, SD = 2.36$) for skill achievement was above the neutral value of 17.5. Apparently, the physical education teachers who used authentic assessment perceived it to have a positive influence on students' skill achievement. When the means, standard deviations, and the magnitude of the differences were taken together, physical education teachers perceived authentic assessment to have a positive impact on students' self-concept, motivation, and skill achievement.

Differences in Perceptions About Impact of Authentic Assessment Use on Students' Self-Concept, Motivation, and Skill Achievement

To investigate the correlations among the physical education teachers' perceptions about the impact of authentic assessment use on students' self-concept, motivation, and skill achievement, the three subscales of the MPEAAI (self-concept, motivation, and skill achievement) were entered into a bivariate correlation analysis. Correlations of the MPEAAI subscales were moderate, $r = .42$ to $.63$ (Huck & Cormier, 1996). The intercorrelations of the MPEAAI subscales suggested that the researcher use the multivariate analysis of variance (MANOVA) to test differences in one or more categorical independent variables for three related dependent variables. In addition, the technique can manage unequal sample sizes and missing data (Howell, 1997). To investigate gender and grade-level differences in the physical education teachers' perceptions about the impact of authentic assessment on self-concept, motivation, and skill achievement, a 2×3 (gender \times grade level) MANOVA was calculated. The three perceived impact scores were the dependent measures (see Table 2).

For the 2×3 multivariate analysis, no significant interaction effect was found for gender and grade level on perceived impact on self-concept, motivation, and skill achievement, Wilks's lambda, $\lambda = .96$, approximate $F(6, 300) = .89, p > .05$. Also, no significant main effect was found for grade level, $F(6, 300) = 0.36, p > .05$, or the main effect for gender, $F(3, 150) = 1.63, p > .05$. In this study, male and female physical education teachers from three grade levels did not differ on the perceived impact of authentic assessment use on students' self-concept, motivation, and skill achievement.

DISCUSSION

In many ways, the findings of this study are not surprising, because other investigators (Hensley, 1997; Melograno, 1994; Weinberg, 1996) have revealed that authentic assessment is becoming more accepted by professionals in physical

TABLE 2
Means and Standard Deviations of Perceived Impact of Authentic Assessment Use on
Self-Concept, Motivation, and Skill Achievement by Gender by Grade Level

Gender	Elem. ^a		Mid/Jr. ^b		High ^c	
	M	SD	M	SD	M	SD
Female						
Self-concept	19.73	2.28	20.00	2.93	19.47	1.69
Motivation	19.78	2.29	19.04	3.56	19.05	2.70
Achievement	19.41	2.89	19.79	1.91	19.41	3.44
Male						
Achievement	19.66	1.84	19.13	2.00	19.17	1.80
Motivation	18.96	2.02	19.04	2.22	19.39	2.03
Self-concept	19.00	2.76	19.00	2.33	18.78	2.82

Note. Elem. = elementary school; Mid/Jr. = middle school/junior high school; High = high school. No significant differences were found: all $ps > .05$.

^a $n = 71$. ^b $n = 47$. ^c $n = 40$.

education. What is interesting in this study was the extensive use of authentic assessment in physical education. In this study, 75.2% of physical education teachers used authentic assessment techniques. Demographic data revealed that the teachers in this study ranged in physical education teaching experience from 1 to 34 years. One possible reason for the teachers' extensive use of authentic assessment may be that these teachers were probably exposed to authentic assessment techniques in their teacher education programs or from inservice training programs to update professionals. A possible explanation for the extensive use of authentic assessment is the very practical nature of public school physical education. Placek (1983) and Tousignant and Siedentop (1983) indicated that physical education teachers are primarily concerned with students' outward behaviors, which are easily assessed with authentic assessment. Physical education teachers need to assess students on behaviors with different assessment techniques, other than with the traditional paper and pencil tests.

Another explanation for the teachers' extensive use of authentic assessment may be the emphasis placed on the use of authentic assessment techniques in the 1995 National Physical Education Standard (NASPE) publication, *Moving into the Future*. The guidelines in this book recommend that physical educators use different authentic assessment techniques to assess students' learning. Because the physical education teachers in this study rely on the NASPE guidelines to meet the demands of their programs, it is possible that the suggested assessment techniques in the NASPE guidelines have influenced assessment practices. Additional plausible explanation for the extensive use of authentic assessment may be the increase of accountability in public schools. Today, public school physical education

teachers are required to provide data on students' fitness levels and information on students' progress to the state and parents, respectively. To meet the demands of accountability in the public school and at the same time provide direct evidence of students' achievement to parents, physical education teachers rely on authentic assessment techniques (Lund, 1997).

Three fourths (75.2%) of the public school physical education teachers in this study used authentic assessment, but reasons why the remaining one fourth (24.8%) did not are important to study. About 28.8% of the teachers who indicated they did not use authentic assessment said, "It consumes time." Authentic assessment requires time to plan, implement, and evaluate (Kirk, 1997; Lund, 1997). The time-consuming nature of authentic assessment might have become a barrier to the use of such techniques. Also, in most public school physical education programs, the number of teachers has been reduced. All 14 high school teachers who indicated they did not use authentic assessment stated that the number of teachers in their programs had been reduced from seven to three. For example, one of the high school teachers wrote, "I cannot do much these days because we are only three teachers here and I have so many students in my class. I try to accomplish my goals for the day but it is just like get them in and get them out." The reduction in the number of teachers, especially in high school, may be one of the explanations why these teachers do not use authentic assessment. Furthermore, some public school physical education teachers often operate under difficult circumstances, and many problems exist that prevent them from utilizing all the techniques that they know (Veal, 1988). For example, all the teachers who indicated they did not use authentic assessment reported they teach every hour of the school day and supervise students during lunch. The problems physical education teachers face in their schools become magnified when students come to class only one or two times in a week, often in classes that are very large. When the teachers' reasons and complaints are taken together, they may be justified for not using authentic assessment techniques in their programs.

All the physical education teachers who used any authentic assessment technique used teacher observation. One factor, which might lead to the unusual use of teacher observation, is that physical education classes in the public school systems deal with overt behaviors, and focus on student learning and active participation (Lund, 1997). In addition, many physical performances are fast-paced. No single assessment technique can capture all the component parts into a whole unit for a single score. Furthermore, physical education classes provide students with many opportunities to exhibit behaviors that may be directly observed by their teachers (Hensley, 1997). Therefore, the teachers rely on observation and professional knowledge to assess students' performances.

In this sample, elementary teachers used checklists more than did high school teachers. A plausible explanation may be that elementary physical education teachers are more concerned with the development and documentation of

students' fundamental skills and progress than the high school teachers. The higher proportion of use of checklists at the elementary level supports Gronlund and Linn (1990), who suggested checklists as one of the useful ways to record students' progress, especially in the elementary level.

The essay and the portfolio, both considered important, were the least used authentic assessment techniques. Relatively few indicated that they use these assessment techniques. According to Lund (1997), essays are used to describe and explain facts in context. Portfolios, on the other hand, are collections of students' work over time (Melograno, 1994, 2000). Both the essay and the portfolio are authentic assessment techniques that are continuous and require time to implement. Because the number of contact days in public school physical education has been reduced, it is possible that physical education teachers have difficulty finding the time to use these forms of assessment techniques with greater frequency, especially when they see students not more than twice in a week. Another possible explanation for the limited use of portfolio may be that the portfolio is relatively new in physical education (Killoran, 1992).

Another factor to consider is the nature of the physical education teachers' perceptions about the impact authentic assessment use has made on students. The physical education teachers in this study perceived that authentic assessment has positive influences on students' self-concept, motivation, and skill achievement. As the physical education teachers use different teaching methods and assessment techniques that enable students' to demonstrate their competence, they see positive changes and improvements in students' self-concept, motivation, and skill achievement.

Authentic assessment is currently becoming more commonly used in public school physical education. Physical education teachers perceive that authentic assessment positively influences students' self-concept, motivation, and skill achievement. Results should be viewed as preliminary, until additional evidence for the validity of the MPEAAI is provided through further research. Finally, given that this study was focused on teachers' perceptions, further research investigating students' perceptions about authentic assessment is recommended.

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