

Physical Education Teachers’ Self-Reported Communication of Content Relevance

Collin A. Webster, Sixto González Villora, Rachel Harvey

Abstract

Communicating how class content can satisfy students’ personal interests and goals—referred to as content relevance—is an important teaching behavior that has been linked to numerous indices of student success in school. However, no known studies have examined teachers’ communication of content relevance in K-12 physical education. The purpose of this study was two-fold: (a) to determine the extent to which physical education teachers report communicating content relevance, based on their status as either elementary or secondary teachers, years of teaching experience (< 5 years vs. >10 years) and level of expertise (expert vs. novice), and (b) to identify ways in which the teachers apply this communication behavior when teaching. One hundred and three K-12 physical education teachers attending a state physical education convention were surveyed using an established scale from classroom research. Additionally, participants provided written examples of how they communicated content relevance in their physical education classes. Between-group differences in self-reported communication behavior were analyzed using three separate one-way Analyses of Variance (ANOVA). The teachers’ examples were categorized and organized into themes. Results indicated the only factor accounting for significant differences in teacher communication was teacher expertise, with experts reporting higher frequency of using content relevance strategies than novices. Themes identified in the teachers’ examples served to illustrate multiple ways relevance can be infused into physical education instruction.

Relevance as a pedagogically pertinent concept is woven firmly into the fabric of educational theory and research. In many places, threads in this fabric intersect to form conceptual patterns based on the fundamental idea that students learn best that which they can relate to. Several learning theories clearly illustrate this idea. For instance, expectancy-value theory (Feather, 1982) posits that effort expenditure toward a task is in part a function of the “degree to which learners value participation in the task itself and/or the benefits or rewards that successful task completion will

Dr. Collin Webster teaches at the University of South Carolina, Dr. Sixto González Villora is affiliated with the University of Castilla–La Mancha, and Dr. Rachel Harvey is on the faculty at the University of West Georgia.

bring to them” (Brophy, 1987, p. 41). In Keller’s (1983) ARCS model, attention, relevance, confidence, and satisfaction are considered motivational resources residing in students that must be tapped to stimulate learning. Furthermore, Petty and Cacioppo (1984) proposed the elaboration-likelihood model (ELM), based on the idea that the likelihood that someone will be motivated to think deeply, or elaborate, on information depends on how personally relevant they perceive the information to be (Muddiman & Frymier, 2007).

Research in physical education reflects broad interest in how to make learning experiences relevant to students (e.g., Cothran & Ennis, 1999; Ennis, 1999; Jewett & Bain, 1997; Langley, 1995; Lee & Solmon, 1992). For example, Ennis (1999) drew on Ladson-Billings’ (1994) conception of culturally relevant teaching to investigate the influence of an innovative curricular approach to teaching sports on high school girls’ engagement and satisfaction in physical education. As described by Ennis (1999), “Culturally relevant teaching practices provide opportunities to develop multiple identities that are consistent with personal and social constructions of self” (Ennis, 1999, p. 42). Additionally, Cothran and Ennis (1999) used Wehlage, Rutter, Smith, Lesko, and Fernandez’s (1989) conceptual framework of school membership to investigate high school students’ perceptions of relevance in physical education. School membership was defined as “when a student is attached, committed, involved, and has beliefs in the norms, activities, and people in an institution” (Wehlage, et al., 1989, p. 117). A third example is a study by Chen (1998), which explored high school students’ conceptions of meaningfulness in physical education, defined collectively as the desire to achieve a goal, striving to carry out the action that leads to achieving the goal, and willingness to achieve the goal through continuous engagement in the activity. More recently, several studies have examined students’ situational interest (e.g., Chen, Darst, & Pangrazi, 1999; 2001; Shen, Chen, Scrabis, & Tolley, 2003), which Shen, Chen and Guan (2007) define as the “momentary appealing effect of an activity on an individual in a particular context and in a particular moment [which is] dependent on a diverse personal interpretation of meanings in the activities and learning tasks” (p. 92).

The present study adopted an instructional communication perspective to investigate strategies teachers use to make K-12 physical education content relevant to their students. Content relevance is defined as a student perception that class content satisfies personal needs, personal interests and/or career goals (Keller, 1983). Using Keller’s work on instructional design (1983, 1987a, 1987b), learning theories embedding relevance into their underlying assumptions (Feather, 1982; Petty & Cacioppo, 1981), and literature suggesting strategies for increasing students’ motivation (Brophy, 1987; Keller, 1987a, 1987b; Sass, 1989; Weaver & Cotrell, 1988), instructional communication researchers (Frymier & Shulman, 1995) developed an inventory to query students about their teachers’ use of content relevance strategies in class. Instructional communication research employing Frymier and Shulman’s (1995) scale has connected teachers’ communication of content relevance with students’ perceived level of motivation (Frymier & Shulman, 1995), affective learning and future academic and career intentions (Mottet, et al., 2008). Other research using similar perspectives also supports the utility of communicating content relevance in enhancing student learning (Finney & Pyke, 2008; Frymier & Shulman, 1995; Herndon, 1987; McKeachie,

Pintrich, & Lin, 1985; Newby, 1991; Simons, Dewitte, & Lens, 2003; Visser & Keller, 1990). In physical education, Simons et al. (2003) designed an experiment to test different relevance conditions on college students' motivation, practice, and performance on a dribbling-shooting basketball task. Results indicated that communicating personal and future relevance of the task during instruction increased students' adaptive motivational orientation, time spent practicing and performance on the task. Yet, studies of content relevance are lacking in the K-12 physical education context. Moreover, previous research has not considered teachers' perceptions of their use of content relevance strategies, which represents an important perspective in the instructional communication process as it can provide both scholars and teacher educators with insight into the way teachers think about and make sense of their teaching (Kulinna & Cothran, 2003).

An additional perspective not previously employed in content relevance research is that of professional biography, despite evidence suggesting there may be a relationship between the extent to which teachers' communicate content relevance and the level of K-12 education at which teachers work, how much experience teachers have, and teachers' level of instructional expertise. Behets and Vergauwen (2004) found that elementary physical education teachers placed higher emphasis than secondary teachers on helping students realize their self-direction and autonomous learning through a self-actualization curricular approach. Such an approach, aimed at helping students take ownership of their learning, would seem to lend itself to the teacher's communication of content relevance. Additionally, Housner and Griffey (1985) found that more experienced physical education teachers focused on learners as individuals, whereas less experienced teachers focused on learners as a class unit, which seems to suggest more experienced teachers would be better able to personalize instruction and communicate more relevance. Finally, expert classroom teachers have been shown to construct explanations of new lesson content by establishing links to students' existing knowledge structures whereas novices' explanations lacked such connections (Sánchez, Rosales, & Cañedo, 1999). In this regard, expert sport instructors have demonstrated similar communication tendencies as classroom experts (Baker, Schempp, Hardin, & Clark, 1998; Webster, 2009).

Given the dearth of research on content relevance in K-12 physical education, limited attention to teachers' perspectives of their use of content relevance strategies, and possible implications of professional biography for communicating content relevance, the purpose of this study was twofold: (a) to examine differences in the extent of K-12 physical education teachers' self-reported communication of content relevance by school level, teaching experience and teacher expertise, and (b) to document specific examples of how physical education teachers report having used content relevance strategies in their classes. Overall, this study was designed to provide an initial glimpse of the various applications of content relevance as a pedagogical tool in K-12 physical education and to explore possible dimensions of its structure as a context-specific variable for continued research.

Method

Participants

Participants in the study were 103 physical education teachers attending the 2008 South Carolina Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) Annual Convention in Myrtle Beach. The sample was comprised of 61 elementary teachers and 42 secondary teachers (middle school and high school levels) with between one and 40 years of physical education teaching experience.

Instrumentation

A three-part survey was developed for the study. Section One asked participants to provide background information pertinent to their teaching, including the school level (elementary, middle and/or high) at which they currently and (if different) previously worked, their total years of physical education teaching experience, the types of teaching certifications/credentials they held, and names of any teaching-related awards/honors they had received.

Section Two of the survey asked participants to report how frequently they used each of 10 content relevance strategies. Items and scale design for Section Two were based on the work of Frymier and Shulman (1995). Using a five-point Likert-type scale (0=Never; 4=Very Often), 470 undergraduate students were asked to rate how often their teachers used each of 12 strategies. Frymier and Shulman (1995) found their instrument to satisfy pre-set criteria for unidimensionality (e.g., factor loadings $> .50$ for each item) and to have good alpha reliability (.88). Additionally, the instrument demonstrated good criterion validity ($r = .46$) when the researchers correlated responses to a single item, intended to measure perceived relevance of course content, with summated responses to the 12-item teacher relevancy scale. Further verification of the instrument's conceptual strength was provided in a recent study by Muddiman and Frymier (2009). Using inductive analysis, the researchers had 184 undergraduate students respond to a one-item open-ended questionnaire, which asked participants to generate relevance strategies used by their instructors. Participants' responses were inductively analyzed, resulting in themes that closely aligned with Frymier and Shulman's (1995) scale items.

In the present study, a modified version of Frymier and Shulman's original scale was used. The following definition of content relevance, adapted from Frymier and Shulman (1995), was provided to participants: "A student perception that what is being taught in PE class (i.e., the lesson content, including fitness, games, sports, dance, or gymnastics) is somehow important to his/her personal goals, interests, or learning needs." Items from the original scale were slightly modified for brevity and to reflect teaching content in physical education. In addition, the wording for each item was changed to neutralize the language for self-reporting by teachers. Two noted content relevance researchers assessed the items for content validity and determined that the items provide a valid measure of the construct. Scale reliability was adequate (Chronbach Alpha = .78).

In Section Three of the survey, participants were asked to respond to two open-ended questions regarding their use of content relevance strategies. The first question asked participants to pick two of the content relevance strategies from Section Two of the survey and provide an example of how they have used each

strategy in the past. Participants were instructed to specifically demonstrate in their examples how they connected the focus of a topic, task or lesson to the personal goals, interests, or learning needs of one or more students in a class. The second question asked participants to list and briefly describe any content relevance strategies they generally used that were not included in Section Two of the survey.

Two versions of the survey were pilot tested with six physical education teachers who were not asked to participate in the study. Piloting was conducted to determine the overall readability of the items and to determine the usefulness of the open-ended questions in capturing responses that yielded useful examples of how the teachers had attempted to communicate content relevance in their classes. Pilot subjects were asked to provide written feedback as to the clarity of the wording for each item and to record how long it took to complete the survey. We anticipated teachers attending the conference would not be interested in participating if the survey took more than 10 minutes to complete.

In the first pilot, subjects reported that some of the wording in the survey directions was too academic and several subjects reported the survey took over 10 minutes to complete. Subjects' responses to the open-ended questions yielded examples that mostly lacked specificity and in some cases misaligned with the concept of content relevance. Based on these results, the directions for each section of the survey and the open-ended questions were rewritten and the revised survey was given to the same pilot subjects, who this time indicated good readability, reported seven to eight minutes survey completion time, and produced richer examples that aligned with the concept of concept relevance. Thus, at this point the survey was deemed acceptable for use in our study.

Procedures

Approval to conduct the study was obtained from the first author's university review board for human subjects research. The survey was administered during two days of the SCAHPERD Convention. During breaks between scheduled sessions, convention attendees were asked to complete the survey if they were inservice elementary or secondary physical education teachers. Participants spent between six and eight minutes completing the survey.

Data Analysis

Responses to the 10 items on the content relevance scale in Section Two of the survey were aggregated to achieve a composite score for each teacher. Then, four separate one-way analyses of variance (ANOVA) were performed to examine mean differences in teachers' communication of content relevance by school level (elementary vs. secondary), physical education teaching experience (< 5 years vs. >10 years) and level of expertise (expert vs. novice). Following previous studies (Baker, et al., 1998; Bond, Smith, Baker, & Hattie, 2000; Webster, 2009), expert teachers were defined as having 10 or more years of physical education teaching experience, having National Board Certification, and having won at least one award for physical education teaching. Novice teachers were defined as having five or fewer years of physical education teaching experience, having any certification below the level of National Board, and having won no

awards for physical education teaching. All teachers with five or fewer years of teaching experience met the criteria for novice. The teachers' examples provided in Section Three of the survey were initially categorized using the 10 strategies from the content relevance scale (Ryan & Bernard, 2000). Four new categories were created to accommodate examples that did not fit any of the 10 preconceived strategies. Within each category, themes were identified, which represented common ways two or more teachers reported having applied the strategy in class.

Results

Mean Differences in Content Relevance Usage

Composite scores indicated 61 (59%) of the teachers reported communicating content relevance either often or very often. The results of the ANOVAs (see Table 1) indicated no significant difference in self-reported communication of content relevance between elementary and secondary teachers or less experienced and more experienced teachers. However, a significant difference was found for teacher expertise, $F(1,40) = 5.17, p < .05, \eta = .11$, with experts reporting higher frequency of communicating content relevance than novices (i.e., inexperienced teachers).

Table 1

Summary of ANOVAs for School Level, Teaching Experience and Teacher Expertise

	Communication of Content Relevance (Aggregated Score)			
	<i>M</i>	<i>SD</i>	<i>F</i>	η
School Level			.52	.01
Elementary (n=55)	30.87	4.54		
Secondary (n=40)	31.55	4.48		
Teaching Experience			3.57	.08
Less Experienced (n=20)	29.40	4.40		
More Experienced (n=24)	31.92	4.49		
Teacher Expertise			5.17*	.11
Novice (n=20)	29.40	4.40		
Expert (n=22)	32.27	3.80		

Note: * $p < .05$

Examples of Communicating Content Relevance

Overall, the teachers provided 162 examples of how they had communicated content relevance in their classes. Table 2 presents the number of examples categorized for each content relevance strategy and the themes identified within each category. Descriptions of the identified themes are provided below.

Strategy 1: Use examples to make PE content personally relevant to students. One theme emerged in searching the eight examples coded as Strategy 1. The teachers' examples within this category focused mainly on using "experts" as examples to communicate content relevance. Experts included speakers knowledgeable about the lesson content (e.g., community recreational employees), professional athletes, and student athletes. For instance, an elementary teacher claimed to recruit high school athletes as a way to motivate elementary students to learn skills in class.

Strategy 2: Use exercises or explanations that demonstrate the importance of PE content to students. Two themes were identified in the examples coded as Strategy 2. The first theme encapsulated examples in which the importance of fitness was emphasized as a way to communicate content relevance to students. With 16 examples underpinning this theme, it was the second largest of all themes identified across the different strategies. Several of the examples (slightly modified for clarity) supporting this theme were:

"Encourage students to improve on PACER test of Fitnessgram by framing success in the context of basketball tryouts" (middle school teacher)

"Help non-athletes understand importance of fitness by emphasizing its role in daily living activities" (middle school teacher)

"Justify doing fitness testing by explaining that fitness is essential to sport performance" (elementary school teacher)

"Use a nutrition/physical activity journal to discover the principle of caloric intake/expenditure in the context of students' personal lives" (high school teacher)

A second theme was also identified, which represented examples focusing on the importance of being skilled. There were 11 examples supporting this theme, such as:

"Explain the utility of tennis as a tool in business ventures to connect with clients" (high school teacher)

"Indicate how skills learned in physical education are also relevant to success in youth sports" (middle school teacher)

"Explain how goal setting is important not only in physical education but also more generally in successful living" (middle school teacher)

Strategy 3: Use discussion to help students understand the personal relevance of a topic in PE. Three themes were identified in the examples coded as Strategy 3. These included examples which focused on using discussion to communicate the relevance of learning skills, being physically fit, and being physically active. Eight examples (provided by eight different teachers) underpinned the first theme (relevance of learning physical education skills). Some of these included:

"Justify the importance of warming up through discussion focusing on participation in recreational sports" (elementary school teacher)

"Discuss the utility of lifetime sports in promoting lifelong fitness" (elementary teacher)

Table 2*Number of Examples, and Themes Identified, for Each Content Relevance Strategy*

Strategy	Number of Examples	Themes in the Examples
1. Use examples to make PE content personally relevant to student(s).	8 (5%)	Use experts as examples (5)
2. Use exercises or explanations that demonstrate the importance of PE content for student(s).	37 (23%)	Importance of fitness (16) Importance of skillfulness (11)
3. Use discussion to help student(s) understand the personal relevance of a topic in PE.	23 (14%)	Relevance of skills (8) Relevance of fitness (8) Relevance of physical activity (3)
4. Explicitly state how PE content relates to student(s) sport, physical activity or fitness goals.	3 (2%)	(None)
5. Link one content area in PE (e.g., Basketball) to other content areas in PE (e.g., Soccer) that student(s) already enjoy.	3 (2%)	(None)
5A. Link one content area in PE to other content areas in PE.*	31 (19%)	Transferability of motor skills (17) Transferability of concepts/non-motor skills (8) Transferability of tactics (3)
6. Link PE content to content in different subject areas (e.g., Math, Science, English, etc.) that student(s) enjoy.	0	(None)
6A. Link PE content to content in different subject areas.*	16 (10%)	PE and math (6) PE and language arts (6)
7. Ask student(s) to apply PE content to their personal interests.	0	(None)
7A. Ask student(s) to apply PE content to outside of class contexts.*	16 (10%)	Home-related application (5) Community-related application (3)
8. Give assignments that involve the application of PE content to student(s) personal interests.	2 (1%)	(None)
9. Use own experiences to introduce or demonstrate a concept in PE.	18 (11%)	Personal sports experiences (9) Personal fitness experiences (5) Experiences of close acquaintances (2)
10. Use student(s) outside of class experiences to demonstrate or introduce a concept in PE.	4 (2%)	Demonstrate with everyday activities (2)
10A. Use outside of class contexts to demonstrate or introduce a concept in PE.*	2 (1%)	(None)

Note: *Designates a new strategy created to accommodate examples that did not reflect any of the 10 preconceived strategies.

“Discuss how balance is needed in different types of professional work, such as that done by the students’ parents (e.g., firefighting, construction) (elementary school teacher)

The second theme (relevance of fitness) was also represented by eight examples (provided by six different teachers), such as:

“Discuss how the different components of health-related fitness function to enhance sport performance” (middle school teacher)

“Discuss how aerobic activities affect students’ bodies” (elementary school teacher)

“Have students discuss ways physical fitness has been useful in maintaining/achieving their overall health” (elementary school teacher)

Three examples comprised the third theme, which focused on using discussion to communicate the relevance of physical activity to students. The teachers reported discussing how physical activity affects the body, the importance of physical activity to disease prevention, and different ways physical activity affects students’ daily lives.

Strategy 5A: Link one content area in PE to other content areas in PE.

Three themes were identified in the examples coded as Strategy 5A. The first theme represented examples illustrating the different ways teachers linked motor skill characteristics in one content area to another in physical education. With 17 examples, this was the largest theme identified across all the strategies. Several of the examples fitting this theme were:

“Link the Frisbee toss to a tennis backhand” (elementary school teacher)

“Have students identify transferability of techniques and movement forms from pickleball to badminton” (middle school teacher)

“Link importance of following through to multiple sports” (middle school teacher)

“Link throwing pattern in softball to underhand volleyball serve” (elementary school teacher)

Teachers also gave examples of how they communicated the transferability of concepts/non-motor skills from one content area of physical education to another. Eight examples provided by eight teachers fit this theme. Some of these examples included:

“Discuss how perceptual skills transfer to performance in different sports, such as from football to basketball” (elementary school teacher)

“Link basketball to weightlifting through the concept of strength: strength is needed to pull and press weights and also to box out and rebound in basketball” (high school teacher)

“Connect timing and rhythm in dance to timing in sports like basketball and football” (elementary school teacher)

The third theme, comprised of three examples, focused on the transferability of tactics across different content areas in physical education. Tactics, including cutting to get open and creating space, were highlighted in comparing sports like basketball, soccer, field hockey, and Ultimate Frisbee.

Strategy 6A: Link PE content to content in different subject areas. Two themes were identified in the examples coded as Strategy 6A. These were defined by links between physical education content and two different subject areas: math

and language arts. Six examples represented the first theme (physical education and math). Some of these examples included:

“Reinforce adding in math by tallying scores in an archery unit” (middle school teacher)

“Reinforce the concept of quadrants, which is supported in the curriculum standards in math, by dividing the gym into separate areas using the gym lines” (middle school teacher)

“Link the concept of percentages to the physical education context by having students calculate individual and class percentages of successful/unsuccessful free throws” (high school teacher)

The second theme (physical education and language arts) was also underpinned by six examples. Some of these examples included:

“Make a word wall in physical education which reinforces a concept learned in science, such as energy” (elementary school teacher)

“Explain how hand-eye coordination is not only important to performance in physical education but also to handwriting in language arts” (middle school teacher)

“Relate the function of exercise to a healthy body to the function of reading to a healthy mind” (high school teacher)

Strategy 7A: Ask students to apply PE content to out-of-school contexts.

Two themes were identified in the examples coded as Strategy 7. The first theme was comprised of five examples in which the teachers described asking students to apply physical education content in home-related contexts, such as at a family reunion or in a nearby park. Some examples included:

“Identify family situations (e.g., a reunion) as an opportunity to apply games learned in physical education, such as volleyball” (elementary school teacher)

“Include ‘at-home’ activities in a fitness circuit done in PE to introduce ways to work on fitness at home” (high school teacher)

The second theme was comprised of three examples in which the teachers described asking students to apply physical education content in organized community settings, such as in a recreation program or afterschool activity (e.g., “Indicate how learning soccer can be applied to participation in recreational programs” (middle school teacher)).

Strategy 9: Use own experiences to introduce or demonstrate a topic in PE.

Three themes were identified in the examples coded as Strategy 9. The first theme was comprised of eight examples in which the teachers described using their own experiences in sport (e.g., being on a team) to introduce or demonstrate a concept or skill. Some of these examples included:

“Use own sport experiences on teams to demonstrate good sportsmanship” (elementary school teacher)

“Draw from personal experiences playing high school/college basketball, with emphasis on developing and following a free throw routine, to demonstrate the concept of ‘focus’” (elementary school teacher)

“Share stories from own sport participation experiences to demonstrate how participation has cultivated personal affective development” (elementary school teacher)

The second theme was comprised of five examples in which the teachers described referring to themselves as role models for fitness. For instance, some

teachers recalled comparing themselves to other members of their family to demonstrate the importance of being physically fit. These teachers had identified personal dietary and exercise behaviors they believed had prevented or delayed the health problems (e.g., high blood pressure, overweight) that other members of their immediate or extended family had experienced.

The third theme was comprised of two examples, which focused on making content relevant by either disclosing information about or referencing significant others (non-family members) to demonstrate the importance of physical education content. For instance, one teacher (middle school) advocated for students to adopt a physically active lifestyle by sharing a story of a friend who had heart failure due to poor health habits. Another teacher (elementary school) referenced a former coach to justify the importance of learning certain skills in volleyball and basketball.

Strategy 10: Use students' outside-of-class experiences to demonstrate or introduce a topic in PE. One theme was identified in the examples coded as Strategy 10. Two of the teachers (one who taught all levels and one who taught elementary) described using their students' everyday experiences (e.g., unloading a car, doing yard work) as examples to underscore the importance of health-related fitness.

Discussion

The purpose of this study was to examine physical education teachers' self-reported communication of content relevance. This is the one of the first known studies to investigate content relevance as an instructional communication variable in K-12 physical education teaching. The findings indicate that the majority of the teachers in the sample believe they frequently use content relevance strategies as part of their instructional repertoire. This is encouraging, given the results of previous research indicating teacher communication of content relevance plays an important role in numerous indices of successful educational experiences in a wide range of educational contexts, including physical education (e.g., Frymier & Shulman, 1995; Mottet, et al., 2008; Simons, et al., 2003).

This study did not support the hypothesis, built on past research comparing value orientations of elementary and secondary physical education teachers (Behets & Vergauwen, 2004), that elementary teachers communicate more content relevance than secondary teachers. Behets and Vergauwen (2004) found elementary teachers scored higher than secondary teachers on the self-actualization value orientation, which focuses on personal development. It would seem that learning experiences designed around this orientation to curriculum and instruction would incorporate increased use of teacher attempts to relate physical education subject matter to students' personal experiences, interests and goals. This study did not examine the teachers' value orientations and it is possible the patterns identified in previous research were not apparent in the present sample. Future research examining differences in elementary and secondary teachers' communication of content relevance should also assess the teachers' value orientations to better understand the influence of such orientations on instructional communication behavior.

The hypothesis that experience would be a significant factor in how frequently the teachers reported communicating content relevance was also not supported. Housner and Griffey (1985) found that more experienced physical education teachers focused their planning and instruction more on students as individual learners whereas less experienced teachers focused more on the class holistically. These different approaches to teaching seem important to communicating content relevance, as increased attention to individual students would likely enhance teachers' awareness and understanding of, as well as instruction tailored to, each learner's specific needs. It should be noted, however, that Housner and Griffey's (1985) sample included only 16 teachers, eight of whom had five or more years of teaching experience and eight of whom were at the preservice level. It is possible that the individual versus group teaching approaches found in that study were not representative of the more versus less experienced teachers in the present study, given that findings with 16 teachers may not generalize to larger samples and also none of the teachers in the present study were in training. We recommend that future research directly assess the relationship between teachers' communication of content relevance and their approach to planning and instruction.

The sole factor accounting for differences in self-reported communication behavior was teacher expertise. Similar to previous research indicating expert teachers construct instructional messages to fit students' existing knowledge structures (Baker, et al., 1998; Sánchez, et al., 1999; Webster, 2009), this study suggests experts more frequently connect what they are teaching to students' frames of relevance than novices. The effect size (.11) for this finding, though small, is not negligible. This seems to indicate a meaningful difference exists between expert and novice physical education teachers' use of content relevance messages. Coupled with the finding that teaching experience did not by itself account for differences in communication behavior, this study strengthens the argument others have made (Siedentop & Eldar, 1989) that experience is not a sufficient factor to distinguish expert from nonexpert teaching performance.

The teachers' examples of using content relevance strategies in their teaching provided a rich illustration of the various ways this communication construct can be applied in physical education. Previous content relevance research has not explored the unique applications of content relevance to specific subject areas. The data yielded in the present study provide a practical guide for teachers seeking ways to make their physical education class more personally meaningful for their students across a wide range of instructional foci, including health and fitness, sport, conceptual knowledge, fundamental motor skills, tactical skills and appreciation for physical activity. In essence, the teachers' examples indicate communicating content relevance is a viable pedagogical tool physical education teachers can employ at both elementary and secondary grade levels and within virtually any lesson designed to help students meet objectives that are aligned with the National Association for Sport and Physical Education's (NASPE) curriculum content standards (NASPE, 2004).

A limitation of this study is its use of self-reports, which may provide an inaccurate portrayal of the teachers' actual use of content relevance strategies. For instance, whereas this study indicated a high frequency of teachers' self-reported use of content relevance, research using student reports in the classroom indicated teachers seldom used content relevance strategies (Frymier & Shulman, 1995).

Therefore, further research using proxy reports by students and observational methods is needed to validate the findings reported in this study. Other directions for future research include examining relationships between physical education teachers' communication of content relevance, students' motivation to learn the class content, and desired outcomes such as skill acquisition and the application of skills learned in class to outside-of-class activities and the pursuit of personal goals.

In conclusion, this study builds on an important knowledge base in the physical education literature, which focuses on teaching as a vehicle for conveying meaningful learning experiences to students (e.g., Bain & Ennis, 1987; Cothran & Ennis, 1999; Ennis, 1999; Shen, et al., 2003). The findings suggest physical education teachers do communicate how class content can satisfy students' personal interests and goals, with experts perhaps engaging in this communication behavior more frequently than novices. What remains to be seen is the extent to which students perceive their physical education teachers to use content relevance strategies, how observational data would portray teachers' use of these strategies and how important content relevance is to student outcomes in K-12 physical education.

References

- Baker, K., Schempp, P., Hardin, B., & Clark, B. (1998). The rituals and routines of expert golf instruction (pp. 271-281). *Science and Golf III: Proceedings of the World Scientific Congress of Golf*. Champaign, IL: Human Kinetics.
- Behets, D., & Vergauwen, L. (2004). Value orientations of elementary and secondary physical education teachers in Flanders. *Research Quarterly for Exercise and Sport*, 75(2), 155-164.
- Bond, L., Smith, T., Baker, W. K., & Hattie, J. A. (2000). *The certification system of the National Board for Professional Teaching Standards: A construct and consequential validity study*. Greensboro, North Carolina. Center for Educational Research and Evaluation, University of North Carolina at Greensboro.
- Brophy, J. (1987). On motivating students. In B.C. Berliner & B.V. Rosenshine (Eds.), *Talks to teachers* (pp. 201-245). New York: Random House.
- Chen, A. (1998). Meaningfulness in physical education: A description of high school students' conceptions. *Journal of Teaching in Physical Education*, 17, 285-306.
- Chen, A., Darst, P. W., & Pangrazi, R. P. (2001). An examination of situational interest and its sources. *British Journal of Educational Psychology*, 71, 383-400.
- Chen, A., Darst, P. W., & Pangrazi, R. P. (1999). What constitutes situational interest? Validating a construct in physical education. *Measurement in Physical Education and Exercise Science*, 3, 157-180.
- Cothran, D. J., & Ennis, C. D. (1999). Alone in a crowd: Meeting students' needs for relevance and connection in urban high school physical education. *Journal of Teaching in Physical Education*, 18, 234-247.
- Ennis, C.D. (1999). Creating a culturally relevant curriculum for disengaged girls. *Sport, Education, and Society*, 4, 31-49.

- Feather, N. (Ed.). (1982). *Expectations and actions*. Hillsdale, NJ: Erlbaum.
- Finney, S., & Pyke, J. (2008). Content relevance in case-study teaching: The alumni connection and its effect on student motivation. *Journal of Education for Business*, 83(5), 251-267.
- Frymier, A. B., & Shulman, G. M. (1995). "What's in it for me?: Increasing content relevance to enhance students' motivation. *Communication Education*, 44(1), 40-50.
- Herndon, J. N. (1987). Learner interests, achievement, and continuing motivation in instruction. *Journal of Instructional Development*, 10(3), 11-14.
- Housner, L. D., & Griffey, D. C. (1985). Teacher cognition: Differences in planning and interactive decision making between experienced and inexperienced teachers. *Research Quarterly for Exercise and Sport*, 56, 45-53.
- Jewett, A. E., & Bain, L. L. (Eds). 1987. The Purpose Process Curriculum Framework: A personal meaning model for physical education [monograph]. *Journal of Teaching in Physical Education* 6(3): 195-366.
- Keller, J. M. (1983). Motivational design of instruction. In C.M. Reigeluth (Ed.), *Instructional design theories: An overview of their current status* (pp. 383-434). Hillsdale, NJ: Lawrence Erlbaum.
- Keller, J. M. (1987a). Strategies for stimulating the motivation to learn. *Performance and Instruction*, 26(8), 1-7.
- Keller, J. M. (1987b). Development and use of the ARCS model of instructional design. *Journal of Instructional Development*, 10(3), 2-10.
- Kulinna, P. H., & Cothran, D. J. (2003). Physical education teachers' self-reported use and perceptions of various teaching styles. *Learning and Instruction*, 13, 597-609.
- Ladson-Billings, G. (1994). *The dreamkeepers: Successful teachers of African-American children*. San Francisco: Jossey-Bass.
- Langley, D.J. (1995). Examining the personal experience of student skill learning: A narrative perspective. *Research Quarterly for Exercise and Sport*, 66(2), 116-128.
- Lee, A. M., & Solmon, M. A. (1992). Cognitive conceptions of teaching and learning motor skills. *Quest*, 44(1), 57-71.
- McKeachie, W. J., Pintrich, P. R., & Lin, Y. (1985). Teaching learning strategies. *Educational Psychologist*, 20, 153-160.
- Mottet, T. P., Garza, R., Beebe, S. A., Houser, M. L., Jurrells, S., & Furler, L. (2008). Instructional communication predictors of ninth grade students' affective learning in math and science. *Communication Education*, 57(3), 333-355.
- Muddiman, A., & Frymier, A.B. (2009). What is relevant? Student perceptions of relevance strategies in college classrooms. *Communication Studies*, 60(2), 130-146.
- National Association for Sport and Physical Education (NASPE, 2004). *Moving into the future: National standards for physical education* (2nd ed.). Boston: McGraw-Hill Publishers.

- Newby, T. J. (1991). Classroom motivation: Strategies of first-year teachers. *Journal of Educational Psychology, 83*, 195-200.
- Petty, R. E., & Cacioppo, J. T. (1984). The effects of involvement on responses to argument quantity and quality: Central and peripheral routes to persuasion. *Journal of Personality and Social Psychology, 46*, 69-81.
- Ryan, G. W., & Bernard, H. R. (2000). Data management and analysis methods In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (2nd Ed.) (pp. 769-802). Sage Publications.
- Sánchez, E., Rosaes, J., & Cañedo, I. (1999). Understanding and communication in expository discourse: An analysis of the strategies used by expert and pre-service teachers. *Teaching and Teacher Education, 15*, 37-58.
- Sass, E.J. (1989). Motivation in the college classroom: What students tell us. *Teaching of Psychology, 16*(2), 86-88.
- Shen, B., Chen, A., & Guan, J. (2007). Using achievement goals and interest to predict learning in physical education. *The Journal of Experimental Education, 75*(2), 89-108.
- Shen, B., Chen, A., Scrabis, K., & Tolley, H. (2003). Gender and interest based motivation in learning dance. *Journal of Teaching in Physical Education, 22*, 396-409.
- Siedentop, D., & Eldar, E. (1989). Expertise, experience, and effectiveness. *Journal of Teaching in Physical Education, 8*(3), 254-260.
- Simons, J., Dewitte, S., & Lens, W. (2003). "Don't do it for me. Do it for yourself!" Stressing the personal relevance enhances motivation in physical education. *Journal of Sport & Exercise Psychology, 25*, 145-160.
- Visser, J., & Keller, J. M. (1990). The clinical use of motivational strategies: An inquiry into the validity of the ARCS model of motivational design. *Instructional Science, 19*, 467-500.
- Webster, C.A. (2009). Expert Teachers' Instructional Communication in Golf. *International Journal of Sport Communication, 2*, 205-222.
- Weaver, R. L., II, & Cottrell, H. W. (1988). Motivating students: Stimulating and sustaining student effort. *College Student Journal, 22*(1), 22-32.
- Wehlage, C. C., Rutter, R. A., Smith, C. A., Lesko, N., & Fernandez, T. R. (1989). *Reducing the risk: Schools as communities of support*. New York: Falmer Press.