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EXPECTANCY-VALUE BASED MOTIVATION FOR LEARNING

Ping Xiang, TEXAS A&M UNIVERSITY, USA

Obesity is epidemic in the United States. It is reported that 16.9% of American children and adolescents from 2 through 19 years of age are considered obese (Ogden, Carroll, Kit, & Flegal, 2012). Physical inactivity is a major contributing factor for obesity during childhood and adolescence. Consequently, school physical education (PE) has been called upon to increase PA levels to help children and adolescents maintain healthy weight, in addition to accomplishing goals of helping students develop movement knowledge and competencies, acquire motor skills, and understand the values and enjoyment of physical activity (PA) (Society of Health and Physical Educators [SHAPE], 2014). How well school PE can address those goals is determined partially by students' motivation. One aspect of students' motivation, expectancy-value based motivation, developed by Eccles and her colleagues (e.g., Eccles et al., 1983; Eccles, Wigfield, & Schiefele, 1998; Wigfield & Eccles, 1992, 2000), refers to individuals' innate desire for success and their belief in their ability to achieve success in these endeavors.

In the last 15 years, expectancy-value theory has emerged as an influential theory in research on student motivation in PE/PA settings (e.g., Chen, Martin, Ennis, & Sun, 2008; Chen & Chen, 2012; Xiang, McBride, & Bruene, 2006; Yli-Piipari & Kokkonen, 2014). In this chapter I will describe three aspects of this theory and emphasize its applications to PE/PA. In the first section I will present the expectancy-value theory from both historical and contemporary perspectives with an emphasis on its four value components. The second section summarizes the empirical studies that have examined expectancy-value theory and its relations to student achievement outcomes (e.g., effort, performance, knowledge, intention for future participation in PE/PA, and learning) primarily in the context of PE. I will highlight current research trends and issues and summarize key findings from this research. In the third section I offer recommendations for future research and implications for evidence-based practice and propose reflective questions to further our understanding of issues around student expectancy-value based motivation for learning in PE.

Expectancy value theory

Understanding student motivation has long been of interest to researchers and practitioners in education and PE. This is because motivation influences student learning and achievement...
in schools. Although there are many definitions of motivation, Eccles and her colleagues (e.g., Eccles et al., 1998) argue that student motivation is best captured by the two most fundamental questions “Can I succeed?” and “Do I want to succeed?” The “Can I succeed?” question deals with students’ expectancy beliefs in performing achievement tasks, whereas the “Do I want to succeed?” question concerns the values that students attach to those achievement tasks. With this belief, Eccles and her colleagues (e.g., Eccles et al., 1983; Eccles et al., 1998; Wigfield & Eccles, 1992, 2000) proposed the expectancy-value theory of achievement choice to explain effort, choice, and achievement-related behavior in achievement settings, including schools. When students’ motivation is examined from the expectancy-value theory lens, it becomes known as expectancy-value based motivation for learning.

**Historic overview of the expectancy-value theory**

Eccles’ expectancy-value theory of achievement choice (e.g., Eccles et al., 1983) is based on Atkinson’s (1957) expectancy-value theory of achievement motivation. Atkinson postulated that achievement behaviors are influenced by achievement motives, expectancies for success, and incentive values. Eccles and her colleagues proposed that students’ performance, persistence, and task choice are directly determined by their expectancy beliefs and task values. Expectancy beliefs include both expectancies for success and beliefs about ability to achieve success. Expectancies for success deal with students’ sense of how well they will perform on an upcoming task or activity, whereas beliefs about ability are defined as students’ perceptions of their ability to successfully complete different tasks or activities. Theoretically, the distinction between expectancies for success and beliefs about ability primarily hinge on the individual’s time frame. For example, expectancies for success focus on the future, while beliefs about ability concern one’s ability in the present. However, considerable empirical work has revealed these two constructs are significantly, positively, and highly correlated when assessed with children and adolescents in many school subject areas, including PE (see Eccles & Wigfield, 2002; Xiang, McBride, Guan, & Solmon, 2003). Factor analyses often identify these two constructs loading on a single factor, suggesting they are not distinguishable, at least not by children and adolescents. As a result, researchers now tend to integrate these two into one construct, often labeled expectancy-related beliefs, expectancy beliefs, or competence beliefs. The term expectancy beliefs will be used throughout this chapter.

**Task values** are defined as how much students value an activity. This construct directly addresses the issue, “Why should I choose this activity over others?” The task value construct consists of four values: attainment value (importance), intrinsic value (interest/enjoyment), utility value (usefulness), and cost (Eccles et al., 1983, also see Chapter 39 by Chen, this volume). Attainment value represents students’ beliefs about the importance of doing well on a given activity and is associated with their identity, self-image, and core personal goals (e.g., achievement needs and competence needs). For example, some students consider aerobic exercise important when they view it as central to their effort to stay in shape. Intrinsic value refers to how much students enjoy or like an activity. Many elementary students consider parachute activities interesting because they gain much enjoyment or have fun from the activity. Utility value concerns students’ perceptions of an activity’s worthiness in relation to their current and future life. For instance, some students would consider running useful when they believe it is a lifelong, health-related PA. Cost is defined as negative aspects of engaging in an activity, such as loss of time and energy for other activities, and fear of failure. This construct has received much less research attention and, consequently, is not as well elaborated as the other positive values in the expectancy-value theory. It is important to note that these four task values are associated
with different achievement outcomes. (See also Chapter 33 by Solmon in the volume for a summary of expectancy value theory in cognition.)

Although expectancy beliefs and task values (i.e., importance, interest, and usefulness) represent two distinct constructs, scholars assume they are positively related to each other (e.g., Eccles et al., 1983; Eccles et al., 1998). The positive correlation between these two constructs implies that students are likely to consider activities important, interesting, and useful when they feel competent in those activities. Researchers theorize that these two constructs are influenced, either directly or indirectly, by a host of social, cognitive, and cultural variables (e.g., Eccles et al., 1983; Eccles et al., 1998). For example, students’ task-specific beliefs, achievement goals, and self-schemata directly influence their expectancy beliefs and task values, whereas their perceptions of socializers’ attitudes and expectations for them, gender roles, and activity stereotypes have indirect influences on their expectancy beliefs. Additionally, the expectancy-value theory assumes that students’ cultural milieu (e.g., cultural stereotypes of gender role) and their perceived competence characteristics such as their aptitude and their previous performance serve as distal determinants of expectancy beliefs and task values. In short, the influences on students’ expectancy beliefs and task values are complex and require concerted efforts to understand them (e.g., Eccles et al., 1983; Eccles et al., 1998).

Current trends and issues

The expectancy-value theory has become an influential theoretical perspective to understand and explain student motivation and achievement outcomes in PE during the last 15 years (e.g., Ding, Sun, & Chen, 2013; Gao, 2009; Xiang et al., 2003, 2005, 2006; Zhu & Chen, 2013a). The research in this line of inquiry has provided empirical evidence that expectancy-value theory can be utilized to understand issues associated with PE students’ motivation for learning. Findings are primarily consistent with those of classroom research and summarized below. Though this section focuses on the context of PE, findings from other settings necessary to facilitate our understanding of students’ expectancy-value motivation are included as well.

Expectancy beliefs and task values: distinct but related constructs

The expectancy-value theory (e.g., Eccles et al., 1983) originated in the academic domain. Scholars hypothesized that expectancies for success, beliefs about ability, and task values (importance, interest, and usefulness) represented distinct constructs.

To apply this theory to the field of PE, researchers first examined whether PE students were able to distinguish these constructs. To this end, Xiang and her colleagues (2003) conducted a study with 414 second and fourth grade elementary school PE students. Students were asked to rate their beliefs about ability, expectancies for success, and task values for PE (as a school subject) and throwing (as a specific movement skill) on questionnaires with five-point scales. Results of exploratory factor analyses revealed a two-factor structure of beliefs about ability, expectancies for success, and separate task values for both PE and throwing. Specifically, items measuring beliefs about ability and expectancies for success loaded on one factor, while items measuring task values (importance, interest, and usefulness) loaded on the other factor. This finding supported previous classroom research indicating that beliefs about ability and expectancies for success were not empirically distinguishable (see Eccles & Wigfield, 2002). It also provided the first empirical evidence that expectancy beliefs and task values are distinct constructs for elementary PE students. Zhu, Sun, Chen, & Ennis (2012) confirmed this finding in a confirmatory factor analysis of expectancy value data for 811 students in grades 3–5.
Xiang et al.'s (2003) results also corroborated Eccles, Wigfield, Harold, and Blumenfeld's (1993) finding that students do not differentiate importance, interest, and usefulness during the elementary school years. However, Xiang, McBride, and Bruene (2004) did not report a similar finding from a factorial structure study of expectancy beliefs and task values among fourth graders in a PE running program. Confirmatory factor analysis yielded a four-factor model, expectancy beliefs, importance, interest, and usefulness, indicating fourth graders in this study were able to differentiate the three task values in running. Zhu and colleagues (2012) conceptualized importance, interest, and usefulness as three differential components underlying the construct of task values in elementary PE and reported that this structure was supported by a confirmatory factor analysis on data provided by 811 third–fifth graders (ages 8–11). The discrepancy in these findings may be a reflection of the difference in the data analysis methods utilized in these studies, exploratory factor analysis versus confirmatory factor analysis. This discrepancy also may be related to the theorization that motivation constructs are specific to domain/content/activity (e.g., Chen et al., 2008). This study is described in the section, “Content specificity of expectancy beliefs and task values” below.

Unlike the mixed findings for elementary school students, research findings regarding the differentiation among the three task values are more consistent for middle school students. In the domain of mathematics, Eccles and Wigfield (1995) reported that confirmatory factor analyses revealed importance, interest, and usefulness were recognized as three distinct constructs among students in grades 5 through 12 (ages 11–18). In PE, Gao (2009) examined differentiation among importance, interest, and usefulness components revealed in a confirmatory factor analysis with a sample of middle school PE students. Zhu and colleagues (2012) also reported this differentiation. Additionally, based on results of a confirmatory factor analysis, Ding and colleagues (2013) reported that Chinese middle school PE students were able to construe importance, interest, and usefulness as three distinct task values.

There are fewer studies documenting high school PE and college PA students’ ability to differentiate among expectancy beliefs, importance, interest, and usefulness. Chen and Chen (2012) reported that high school students (i.e., ninth graders, ages 14–15) differentiated expectancy beliefs, importance, interest, and usefulness based on confirmatory factor analysis. Similarly, Gao and Xiang (2008) reported that college students differentiated these four expectancy-value constructs in weight training as revealed by a confirmatory factor analysis. This differentiation also extended to Chinese college students in PE (Chen & Liu, 2009). Obviously, the differentiation should be more extensively studied among PE high school and college students. Based on cognitive evaluation theories, Deci and Ryan (2000) theorize that older adolescents and adults identify with and integrate desirable values as primary motivation sources.

Though expectancy beliefs and task values are distinct constructs, Eccles and her colleagues assumed they were positively related to each other (e.g., Eccles et al., 1998). Correlations reported in studies with students from elementary to college PE/PA settings provide empirical data to support this assumption (Ding et al., 2013; Gao, 2009; Gao & Xiang, 2008; Gu, Solomon, & Zhang, 2012; Xiang, McBride, & Bruene, 2004). Xiang and colleagues (Xiang et al., 2003) found that the positive relationship between expectancy beliefs and task values (a composite variable) existed not only in PE but also in throwing for both second and fourth graders (ages 7–8 & 9–10, respectively). Positive relationships among expectancy beliefs, importance, interest, and usefulness also were observed in an elementary PE running program (Xiang et al., 2006).

Gao (2009) reported that expectancy beliefs, importance, interest, usefulness were positively related to one another for a sample of middle school PE students in his study. Such a positive link extended to a sample of Chinese middle school PE students (Ding et al., 2013). Chen and Chen (2012) targeted ninth graders in high school PE and made a similar observation that
these expectancy-value constructs were positively correlated with one another. The positive relationships between expectancy beliefs and task values were retained among college students in PA classes (Gao, Kosma, & Harrison, 2009; Gao & Xiang, 2008; Gu, Solmon, Zhang, & Xiang, 2011).

In sum, consistent with the expectancy-value theory, PE students in elementary, secondary, and college were able to differentiate expectancy beliefs, importance, interest, and usefulness as expectancy-value constructs. These constructs were positively related to one another, supporting the hypothesis (e.g., Wigfield & Eccles, 2002; Xiang et al., 2003) that students are more likely to consider achievement activities important, interesting, and useful when they believe they have competence to complete them. Additionally, correlations might further indicate the opposite relationship. That is, once PE students acknowledge the value of tasks, they attempt to motivate themselves through increased positive perception of competence and beliefs of future success in completing the tasks.

Content specificity of expectancy beliefs and task values

Content specificity of motivation constructs refers to the fact that motivation constructs are specific (or sensitive) to the domain, content, or activity in which the individual is participating (e.g., Chen at al., 2008). This is because any given domain, content, or activity requires a unique set of knowledge and skills, that can influence students’ motivation toward learning and their performances. Therefore, students’ motivational variables (e.g., conceptions of ability) should be assessed at the specific domain level of the content or activity (Li & Xiang, 2007; Shen, McCaughtry, & Martin, 2008).

Eccles and colleagues (1993) reported the content specificity of expectancy beliefs and task values in math, reading, music, and sports. Specifically, they assessed 865 first-, second-, and fourth-grade (ages 6–10) students’ expectancy beliefs and task values in these domains and found they had distinct expectancy beliefs and task values for each domain or activity. Other studies also have supported the content specificity of expectancy beliefs and task values in academic settings (e.g., Bong, 2001; Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002).

In PE, content specificity of expectancy beliefs and task values also has become a research focus. In a study with a random sample of elementary school students, Chen et al. (2008) investigated whether students’ expectancy beliefs and task values (i.e., importance, interest, and usefulness) varied as a function of the three content areas: cardiorespiratory fitness, muscular fitness, and traditional skills/games. Multivariate analysis of variance and correlation analyses yielded results that generally support the hypothesis that expectancy beliefs and task values are specific to domain, content, or activity. For example, mean levels of students’ expectancy beliefs, importance, and usefulness were found to be significantly higher for the cardiovascular fitness content than two other content areas. Ding et al. (2013) took this question a step further examining whether expectancy beliefs, task values (along with situational interest), emerged as differential predictors of exercise knowledge, badminton striking skill, basketball dribbling skill, and in-class PA. Though participants in their study were Chinese middle school PE students, results generally support the specificity construct. For example, regression analyses revealed expectancy beliefs predicted badminton striking skill; interest predicted basketball dribbling skill; usefulness predicted exercise knowledge, and situational interest predicted in-class PA.

In sum, expectancy beliefs and task values are specific not only to the content but also to achievement outcomes in PE. Researchers need to keep this in mind when attempting to expand the knowledge base on students’ expectancy-value based motivation. Additionally, they need to consider the nature of motivation specificity when designing motivation strategies for
K-12 students. Additionally, research on content specificity of expectancy beliefs and task values needs to be extended to high school and college students.

**Age and gender differences**

As important demographic variables, students’ age and gender have received considerable attention from PE pedagogy researchers (e.g., Gao & Xiang, 2008; Gu et al., 2012; Xiang et al., 2003; Yli-Piipari & Kokkonen, 2014). This work revealed some inconsistent findings concerning age and gender differences in students’ expectancy beliefs and task values in PE settings. Xiang and colleagues (2003) reported that second (ages 6–7) graders held significantly higher expectancy beliefs and task values in both PE and throwing than did fourth (ages 9–10) graders. In a year-long follow-up study (Xiang, McBride, & Guan, 2004), second grade students now in third grade reported lower expectancy beliefs in PE, whereas the original fourth graders’ expectancy beliefs in PE remained the same as they progressed to the fifth grade. Contrary to expectancy beliefs which increased, task values associated with PE declined as students progressed through grades 2–5. These findings partially support the classroom research that students’ expectancy beliefs and task values generally decreased over the elementary school years (e.g., Eccles et al., 1998; Jacobs et al., 2002). More significantly, this research documented a decline in task values in PE when students transition from primary to intermediate grades.

Focusing on middle school PE students (grades 6–8), Gao (2009) found no age/grade-associated differences in expectancy beliefs. However, sixth and seventh (ages 11–13) graders were found to consider PE more important than eighth graders. Additionally, sixth graders viewed PE as more useful than eighth graders. Similarly, Zhu and Chen (2010) reported that middle school students in their study did not differ significantly in expectancy beliefs; but sixth graders scored significantly higher on the three task values (importance, interest, and usefulness) than their eighth grade counterparts. Contrary to these cross-sectional findings, Yli-Piipari, Jaakkola, Liukkonen, and Nurmi (2013) found that expectancy beliefs declined but task values (as a composite variable) increased for Finnish students who proceeded from the sixth grade (i.e., last grade level in elementary schools) to the ninth grade. It is likely that these discrepant findings may be due to differences in curriculum focus in the U.S. and Finland.

While the longitudinal data reported by Jacobs and colleagues (2002) revealed a rapid decline in expectancy beliefs in sports during high school years, particularly near the end of high school, no data are available concerning whether expectancy beliefs declined among high school PE students. The same observation can be made for the population of college students in PE/PA programs. There is a need to strengthen research with late-adolescent and young-adult populations to further understanding their expectancy-value-driven motivation for life-long PA.

Xiang and colleagues (2003) also examined gender differences in PE students’ expectancy beliefs and task values. They investigated second and fourth graders’ expectancy beliefs and task values in PE and throwing. They found that fourth-grade girls had lower expectancy beliefs in PE than boys. However, no gender differences were observed in fourth graders’ expectancy beliefs and task values in running (Xiang, McBride, & Bruene, 2004; Xiang et al., 2006).

A similar picture was observed in students in secondary school PE. In a study of PE students in grades 6, 7, and 8, Gao (2009) reported that compared to girls, boys held higher expectancy beliefs and higher intrinsic value. In contrast, Gu and colleagues (2012) indicated that middle school boys and girls in their study did not score differently on expectancy beliefs and task values (as a composite variable). Based on longitudinal data with a sample of Finnish students who progressed from the sixth to ninth grade, Yli-Piipari and Kokkonen (2014) reported that grade 9 boys viewed PE as more useful than did girls.
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There have been few studies examining gender differences among college students from the expectancy-value theory perspective. The limited research evidence shows gender differences emerged on expectancy beliefs only. Compared to female students, male students were found to feel more competent in activities such as dart-throwing (Gao et al., 2009) and weight lifting (Gao & Xiang, 2008).

Gender differences observed in expectancy beliefs and task values may reflect gender stereotypes that students hold for different activities. Gender stereotypes are defined as beliefs about the behaviors and characteristics of each sex (Del Boca & Ashmore, 1980). In the expectancy-value model, Eccles and her colleagues (1983) theorized that students’ gender stereotypes are a personal factor that influences their expectancy beliefs, task values (attainment value, intrinsic value, and utility value), and activity choices. Students are more likely to develop positive expectancy beliefs and values for activities they believe are appropriate for their gender. As Lee (2002) pointed out, in PE/PA settings male students tend to have higher expectancy beliefs and values for masculine sports and physical activities (e.g., basketball and football), whereas female students feel more competent and place higher values in feminine sports and physical activities (e.g., dance and gymnastics). These gender differences have a potential to influence students’ PA choices, effort, and willingness to participate. Further, adults’ gender stereotypes also may influence how competently boys and girls perform in non-gender appropriate activities in PE classes.

**Relations among expectancy beliefs, task values, and achievement outcomes**

Much research guided by the expectancy-value theory thus far has focused on how students’ expectancy beliefs and task values are related to their achievement outcomes. PE outcomes can include movement skill learning, performance, persistence, and intention for future participation (e.g., Chen & Chen, 2012; Ding et al., 2013; Gao, 2009; Gao & Xiang, 2008; Gu et al., 2012; Xiang et al., 2003, 2006; Xiang, McBride, & Bruene, 2004; Zhu & Chen, 2013a). This work provides strong evidence that although expectancy beliefs and task values are essential to achievement outcomes in PE settings, they have differential predictive powers.

Xiang and colleagues (2003, 2004, 2006) conducted several studies to examine expectancy beliefs and task values in relation to elementary school students’ intentions for future participation in PE, intention for future participation in running, persistence/effort in running, and performance in a timed one mile run. Some findings converged: expectancy beliefs emerged as a stronger predictor of students’ persistence/effort in running and timed one mile performance, whereas task values served as a stronger predictor of students’ intention for future participation in PE and intention for future participation in running. Particularly, in the context of running programs in elementary school PE, the intrinsic value (interest) in running consistently emerged as a stronger predictor for students’ intention for future participation in running than the expectancy beliefs and other task values.

Gao (2009) targeting students in grades 6, 7, and 8 reported that expectancy beliefs predicted cardiovascular fitness (measured by PACER), whereas expectancy beliefs, importance, and interest predicted PE engagement and satisfaction. In their study, Gu and colleagues (2012) also assessed sixth, seventh, and eighth grade students’ cardiovascular fitness (measured by the PACER), PA engagement as a percentage of time engaged in MVPA (measured by accelerometers), and expectancy beliefs and task values. They found that expectancy beliefs emerged as predictors of students’ cardiovascular fitness and PA engagement but not of task values (importance, interest, and usefulness).
Zhu and Chen (2010) examined middle school students’ expectancy beliefs and task values in relation to their achievement of health-related fitness knowledge and badminton striking skills. Knowledge and skills were conceptualized and calculated as the change in student performance from pretest to posttest. They found that students’ health-related fitness knowledge and badminton striking skills significantly improved over the course of one school year, but neither expectancy beliefs nor task values emerged as predictors of such improvements.

Although other researchers have focused on students’ knowledge and movement skill, they did not assess achievement. For example, in their study of Chinese middle school students, Ding and colleagues (2013) reported that expectancy beliefs were predictive of students’ badminton striking skill and basketball dribbling skill, whereas task values were predictive of their knowledge about exercise principles and benefits. In contrast, Chen and Chen (2012) found that neither expectancy beliefs nor task values predicted PE students’ energy balance knowledge among a sample of 195 ninth graders.

Similar to findings observed in elementary and secondary school PE settings, expectancy beliefs and task values were found to predict a number of achievement outcomes in college PE/PA programs. Gao and Xiang (2008) reported that importance and interest were predictive of students’ intention for future participation in weight training and in-class engagement (as measured by the workout logs recorded by students over the course of the semester). Conversely, expectancy beliefs were the only predictor of students’ skill test performance. Focusing on college female students, Gu and colleagues (2011) found that expectancy beliefs predicted female students’ class attendance, whereas importance, interest, and usefulness all predicted students’ exercise choice (i.e., intention for future participation in PA classes). Chen and Liu (2008) extended the expectancy-value theory research to a sample of 368 Chinese college students and reported that interest and usefulness predicted students’ decisions to continue PE, while importance predicted students’ daily self-initiated PA. Surprisingly, expectancy beliefs were found not predictive of either outcome.

**Implications for evidence-based practice**

Research reviewed in this chapter has at least two important implications for evidence-based practice in PE. First, students’ expectancy beliefs and task values are influential for their motivation and achievement outcomes. Students are more likely to value physical activities when they have positive ability beliefs and have high expectancies for success in those activities. Therefore, PE teachers might consider using motivation strategies to nurture students’ expectancy beliefs and developing their task values to help children accomplish a range of achievement outcomes. One strategy for teachers to enhance PE students’ expectancy beliefs is to adopt a differentiated learning perspective in task design. This strategy can provide opportunities for students to choose tasks at a difficulty and complexity level most appropriate to their competence optimizing success. Doing so will increase students’ chances to succeed which in turn will facilitate the formation and maintenance of positive ability beliefs. Maximizing students’ practice time in class is another strategy to enhance competence and positive ability beliefs. Although instructional time is a proxy variable for learning, using effective instruction to optimize student instructional time increases their opportunities to learn and master skill, sport, and fitness tasks. Mastery is a powerful tool to enhance PE students’ ability beliefs and their expectations for performance success.

PE teachers should help students develop beliefs that PE is important, interesting, and useful by explicitly explaining the benefits of PE/PA activities. Understanding PE/PA benefits may help connect students’ innate desire to move (intrinsic value) with their development of a value base centered on attainment value and utility value. With these connections in mind, students
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may realize the value of PE, especially those intrinsic values beyond immediate enjoyment. Providing students with a variety of interesting, enjoyable, relevant, meaningful, and challenging learning activities can be an effective approach to developing such a value system. These learning activities may create an experiential environment to strengthen students’ beliefs that PE is not only interesting and enjoyable but also personally meaningful, important, and useful. According to the expectancy-value theory, this belief-value system will eventually begin to form the basis for learners’ motivational decisions.

Second, it is important to realize that expectancy beliefs and task values play different roles in students’ achievement outcomes. It is imperative for teachers to be aware of content specificity associated with learners’ expectancy beliefs and task values and to use this knowledge to guide teaching practices. For example, if the goal is to help students perform well on a one-mile run test at the end of the school year, teachers can provide students with a variety of running activities throughout the school year. These activities can develop and enhance students’ positive beliefs about their ability to perform the final running test successfully. On the other hand, if the goal is to strengthen students’ intention to participate in future running activities, teachers can structure running activities in a way that students find them useful, important, and interesting. Suggested activities might include: Allowing students to talk with their friends and/or listen to music as they run, having them run through obstacle courses, and using pedometers to record distances covered in other activities such as in soccer scrimmages or orienteering.

Future directions

Student motivation is a multifaceted construct that holds potential for enhancing students’ experiences in PE and physical activities. Because motivation can derive from multiple sources, researchers should investigate multiple theoretical perspectives to gain a more complete picture of student motivation in PE. Although this chapter focuses primarily on the expectancy-value theory, several scholars (e.g., Ding et al., 2013; Gao, 2009; Gao et al., 2008; Xiang, Liu, McBride, & Bruene, 2011; Xiang, McBride, & Bruene, 2004; Zhang, Solmon, & Gu, 2012) have examined expectancy beliefs and task values along with constructs drawn from achievement goal theory, interest theory, self-efficacy theory, and self-determination theory in PE. Their work reveals that students are likely driven by different sources of motivation for different achievement outcomes. For example, in the study of Ding et al. (2013), task values predicted students’ knowledge of exercise principles and benefits; expectancy beliefs predicted their movement skills performance; and situational interest predicted their engagement (as measured by accelerometers). Similarly, Zhang et al. (2012) conducted a study examining PE students’ motivation using both self-determination and expectancy-value theories to look more broadly at a range of factors impacting performance.

Except for these efforts, research using multiple theoretical perspectives is scarce. For both theoretical clarification and practical effectiveness, more multidimensional studies are needed to provide a basis for enhancing student motivation in PE. As Chen (Chapter 39, this volume) has pointed out, both achievement goal theory and expectancy belief components in expectancy-value theory share an important underlying tenet, perceived competence, as the driving force for learner motivation. A better understanding of achievement goal-related issues and an ability to plan lessons and curriculum using these related strategies can help motivate students. For example, in studies (e.g., Xiang & Lee, 2002) investigating achievement goal theory, perceived motivation climate, defined as student perceptions of the achievement goals addressed by the teacher, was found to influence student motivation, performance, engagement, and learning. Unfortunately, little information is available concerning the relationships among
expectancy beliefs, task values, and perceived motivational climate as they interact to influence PE students’ expectancy beliefs.

Self-determination theory (Deci & Ryan, 2000; Ryan & Deci, 2002) is another example of an overarching motivation theory to address the multidimensional complexity of student motivation. SDT proposes that a critical source of students’ motivation lies in their basic needs for autonomy, competence, and relatedness. How well school environments address these needs can determine, in part, students’ motivation for learning and achievement. Therefore, the constructs of autonomy and competence may well be conceptually and functionally associated with the constructs of expectancy beliefs, and relatedness may be theoretically linked with task values. Multidimensional research programs in these areas can expand our knowledge about students’ expectancy-value based motivation for learning.

A number of factors, such as gender roles, activity stereotypes, short- and long-term goals, and significant socializers’ beliefs and behaviors influence expectancy beliefs and task values. Nevertheless, researchers have not examined these variables extensively in PE. This information can provide valuable insights into designing and implementing effective interventions to enhance students’ expectancy beliefs and task values associated with physical activities.

With the exception of the work by Xiang and colleagues (Xiang et al., 2006), and Yli-Piipari et al. (2013), no research has addressed developmental changes in PE students’ expectancy beliefs and task values over the school years. Additional longitudinal PE research is needed to understand how students’ expectancy-value based motivation evolves as they progress from elementary through high school into college.

Because the expectancy-value model has not been extensively examined in high school and college PE/PA settings, there is a need for future research to target these two student populations. Additional research is needed to better understand critical ways that gender differences and cultural influences act on students’ expectancy beliefs and task values. This line of inquiry can have important implications for PE instruction. This is particularly true as student populations grow ever more diverse and PE teachers work to respond to the increasing need for globalized education and PE.

As a task value, cost is assumed to have a compromising impact on student motivation. Although PE researchers (e.g., Chen & Chen, 2012; Chen & Liu, 2008, 2009; Zhu & Chen, 2013b) have conducted research to examine cost, this task value has not received the same level of research scrutiny in comparison to three other task values, importance, interest, and usefulness. As a result, there is little externally valid research evidence available concerning the types of costs that can compromise student motivation to participate in PE. More importantly, little is known about counter-measures teachers may use to address students’ negative perceptions and barriers. Methodologically, cost has been assessed exclusively through open-ended questions (e.g., Chen & Chen, 2012; Chen & Liu, 2008, 2009; Zhu & Chen, 2013b). Consequently, the generalizability of these findings is limited. Future research is needed to develop measures with improved generalizability, permitting PE researchers to compare the four task values in relation to their predictive power for achievement outcomes.

**Summary of key findings**

- Despite some inconsistencies, the literature reviewed above generally points to several key findings.
- Consistent with the expectancy-value theory, expectancy beliefs, attainment value, intrinsic value, and utility value are distinct but related motivation sources, particularly for middle school PE students.
• Expectancy beliefs, attainment value, intrinsic value, and utility value are specific not only to
the content/activity but also to educational outcomes in PE, supporting the concept of the
content specificity of motivation constructs (e.g., Chen et al., 2008).
• Expectancy beliefs when measured objectively were predictive of students’ performances
and engagement, while task values were predictive of students’ self-reported intention for
future participation in PE, exercise choice, and engagement.
• Research that integrates expectancy-value theory with other theoretical frameworks is rare
but necessary to further our understanding of student motivation in PE.
• To date, there are no consistent age or gender differences in students’ expectancy beliefs or
task values. Gender differences in students’ expectancy beliefs and task values are most prev-
alent in perceptions of gender stereotyped physical activities.
• Multicultural, multiethnic frameworks are essential to expand our repertoire of strategies to
motivate every child in this country and the world for life-long PA.

Reflective questions for discussion

1. How might PE teachers use expectancy–value theory to increase student PA intensity in PE?
2. How can teachers and curriculum developers use the relationship between expectancy
belief and task values to enhance student motivation and achievement outcomes?
3. Discuss possibilities for using expectancy–value theory to motivate difficult to engage stu-
dents in PE. Propose three general strategies appropriate for students with diverse percep-
tions of competence and task value.
4. Can motivation be taught? Some argue that motivation is a mental process that may not be
 teachable. What do you think? Take a position and provide your reasoning.
5. What strategies can teachers use to assist students to form and maintain positive ability
beliefs in PE?
6. How might teachers use content specific motivation strategies to teach the (a) overload
principle, (b) overhand throwing, and (c) line-dancing. Construct your answer based on
expectancy-value theory and research findings about its content specificity.
7. Based on the author’s discussion of future research directions related to expectancy-value
theory, propose two research questions to move the field forward. Explain your rationale for
studying your questions.

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