Putting Theory into Practice: How Cognitive Evaluation Theory Can Help Us Motivate Children in Physical Activity Environments

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"Wow, during class today, I felt good about myself!"

"I felt that I made an important contribution to the class."

"The activities we did were important to me. Interesting and fun."

"I can hardly wait until our next class!"

Hearing such comments would warm the heart of any physical educator. According to Cognitive Evaluation Theory (CET), a humanistic theory of intrinsic motivation, it is possible to have students who respond in such a positive manner to our physical education lessons. The basic premise of CET is that children will be intrinsically motivated to participate in an activity if (1) they believe they have some control over it, (2) feel a sense of relatedness to it, and (3) feel good about themselves while engaging in it (Deci & Ryan, 1985). Individuals are said to be intrinsically motivated when they participate in an activity for its own sake (Deci & Ryan, 1985). The potential benefit of intrinsic motivation is that children will be more likely to become actively involved in their own physical education. Sounds easy enough, but how do we make it work?

The purpose of this article is to illustrate how CET can be put into practice. More specifically, Deci and Ryan's (1985) CET will be used to help us better understand how we can create environments that intrinsically motivate children to be physically active both during and outside of their classes. A brief summary of the theory will be presented, followed by practical suggestions for how to intrinsically motivate participants in the hope of creating children who are more active.

What Is Cognitive Evaluation Theory?

CET has four main propositions, which help to explain and predict a person's level of intrinsic motivation (table 1). Proposition I states that intrinsically motivating activities are autonomous or self-determined (Frederick & Ryan, 1995). When individuals participate in an activity in which they feel they have some control over how they achieve personal goals, their intrinsic motivation will be enhanced. Conversely, when individuals participate in an activity in which they feel controlled by external factors, intrinsic motivation is likely to decrease. Goudas, Biddle, Fox, and Underwood (1995) tested this hypothesis with the
Proposition II states that feelings of competence and optimal challenge enhance intrinsic motivation. Competence refers to how children feel about themselves with respect to certain domains of their life (e.g., physical abilities), while optimal challenge refers to situations where the challenge of an activity is balanced with children's abilities (Weiss & Breslin, 1985). Deci (1975) first outlined the importance of optimal challenge by suggesting that people tend to seek out optimally challenging situations because they are motivated to be self-determined and competent. Previous research has demonstrated that when children are optimally challenged by an activity, they are more likely to enjoy it and spend longer amounts of time engaging in it (Danner & Lonky, 1981; Harter, 1974; Harter, 1978). When individuals take part in activities that challenge them in a positive way (i.e., the activity is neither too hard nor too easy relative to their skill level) and make them feel self-determined in the process, their competence is enhanced. This enhanced competence in turn increases intrinsic motivation.

Proposition III describes the functional significance of extrinsic and intrinsic factors that can be viewed along a continuum as to their impact on intrinsic motivation (Deci & Ryan, 1994). Extrinsic factors that provide positive and constructive feedback with respect to one's perceived competence promote intrinsic motivation, whereas extrinsic factors that are controlling or motivational (i.e., that convey a sense of incompetence and helplessness) undermine intrinsic motivation (Crick and Mosher, 1979) found that when rewards were used to control children's behavior during an activity, they were less likely to continue with the activity in the absence of rewards than those children who initially performed the activity without rewards.

Proposition IV suggests that individuals' mental orientation with respect to a particular activity influences their intrinsic motivation. Individuals who are task-involved will likely be more intrinsically motivated because they take part in an activity for enjoyment's sake, while those who are ego-involved will likely exhibit less intrinsic motivation because they feel controlled by an internal pressure to appease their self-esteem. Within the CET framework, ego-involved individuals put undue pressure on their performance in a competitive situation in an effort to prove their self-worth to others (Ryan & Deci, 1989). In a soccer game, for instance, people who are ego-involved may feel as if they have to score goals so that others will think they are skilled players. Alternatively, individuals who are task-involved play the game to the best of their abilities because they enjoy it.

<table>
<thead>
<tr>
<th>Proposition</th>
<th>Enhances Intrinsic Motivation</th>
<th>Undermines Intrinsic Motivation</th>
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<tbody>
<tr>
<td>Proposition 1</td>
<td>Feels in control</td>
<td>Feels controlled by external factor</td>
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<td>Proposition 2</td>
<td>High perceived competence</td>
<td>Low perceived competence</td>
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<td>Proposition 3</td>
<td>Rewards are informational</td>
<td>Rewards are controlling or motivating</td>
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<td>Proposition 4</td>
<td>Task-involved</td>
<td>Ego-involved</td>
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Table 2. Practical Suggestions for Enhancing Motivation Derived from Cognitive Evaluation Theory.

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<th>Motivational Factor</th>
<th>Practical Suggestion</th>
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<td>Give children choice and control in activities.</td>
<td>• Implement learner-centered teaching styles where children are involved in decision-making.</td>
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<td>• Use brainstorming sessions with students to generate ideas for creative dance.</td>
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<td>• Ask students to create a movement sequence in gymnastics by combining skills.</td>
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<td>• Ask students to add one rule to a game to make it more enjoyable.</td>
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<td>• Ask students to create a game that incorporates pre-determined skills and strategies (e.g., zone defense).</td>
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<td>Minimize the use of controlling external factors.</td>
<td>• When providing grades to students, add informative comments about the students’ competencies and suggestions for improvement.</td>
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<td>• Provide informative feedback to students in addition to praise. Tell them what they did correctly and what they can improve.</td>
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<td>Optimal challenge students through individualized instruction.</td>
<td>• Use an inclusive style of teaching where various difficulties of the same task are set out and students can choose their own entry level. For example, when developing and refining the forehead stroke in badminton, use a balloon instead of the birdie for beginners, use an indoor tennis ball for intermediate performers, and use the birdie itself for advanced performers. Each student is working on the forehead stroke, but it is modified to suit individual developmental levels.</td>
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<td>• Ask students to think of one way to make a game or activity “more challenging” for them.</td>
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<td>• Use small-sided games where students are matched according to their ability levels. For example, playing 4 versus 4 soccer increases the chances that all the players will touch the ball and be part of the game.</td>
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<td>• Gradually introduce abstract game rules, tactics, and strategies.</td>
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<td>Enhance perceived competence.</td>
<td>• Have children set personal goals using self-competitive activities. For example, have students count how many times they can hit a wall target in a row and then have them attempt to beat their score. Or have students determine how many times they can sprint to a pylon and back within a predetermined time frame. Ask them to do it again and try to beat their own times.</td>
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<td>• Use a Teaching Games for Understanding approach whereby students learn skills, game appreciation, and tactical awareness using game-like scenarios.</td>
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<td>Stress the importance of personal improvement.</td>
<td>• Use the TARGET principles, where self-improvement is stressed over comparisons to others. For example, allow students to develop their stick-handling skills in field hockey at their own rate by setting a number of difficulty levels to which students can proceed once they feel ready.</td>
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These sources of motivation are often influenced by experience. If children are continually being told that their self-worth depends on their performance in an activity, they will soon adopt an ego orientation. Conversely, if children are allowed to participate in freely chosen activities, a task orientation is more likely to emerge (Duda, Chi, Newton, Walling, & Cailey, 1995; Goudas et al., 1995; Vallecand, Cavelin, & Hallwell, 1986). Therefore, activities that encourage participants to be task-involved will be more likely to foster feelings of intrinsic motivation.

Practical suggestions for offering task-involved activities are presented later in this article.

Suggestions to Promote Intrinsic Motivation

The following practical suggestions, based on the CET research, should enhance children’s intrinsic motivation to participate in physical activity. A summary of these suggestions appears in Table 2.

Optimize choice and control. Generally, children have to participate in school physical education lessons as part of the required program of study. Hence, it becomes increasingly important to create a physical education environment in which students feel they can make choices and exercise control over their actions. The use of less direct teaching styles will help foster more democratic environments. Teaching styles that provide more student-centered decision-making (Moston & Ashworth, 1986) are more likely to produce positive motivational climates (Goudas et al., 1995). Teachers can create opportunities for children to choose their own equip-
ment, make suggestions to modify rules, create their own sequences in gymnastics and dance, and help plan activities during class towards an agreed goal. When possible, teachers should provide children with alternative activities involving different levels of difficulty and allow the children to select the activities appropriate for themselves.

Providing children with an atmosphere of choice not only increases the likelihood of their becoming intrinsically motivated, it also increases the chances that they will be optimally challenged. Chalip, Coikszentmihalyi, Kleiber, and Larson (1994) found that when children had more control over their physical activity environment, they were more likely to feel that the challenge of the activity balanced with their ability level. Such a balance has been found to increase children’s enjoyment and enjoyment of activities (Harter, 1974, 1978). However, simply allowing choice does not always guarantee increased motivation. For example, allowing captains to choose teams provides some choice, but often has a negative effect on those children chosen last. Therefore, teachers should offer a variety of appropriate scenarios in which choice can be optimized. 

Minimize the use of controlling external factors. Extrinsic rewards that serve to control individuals’ behavior tend to undermine children’s intrinsic motivation. If rewards are to be used, they should provide information on how the child is doing rather than controlling the child’s participation. Rather than just giving a student a mark for performing an activity, the teacher should stress the good things that the student did, explain why they were good, and, if necessary, provide information on how to improve. Harter (1978) has found that when children are allowed to choose the difficulty of a task, they are more likely to choose optimally challenging tasks if they are not being graded based on performance.

Horn’s (1985) research suggested that if feedback is to have a positive impact on competence, it should contain information about the individual’s performance and advice for improvement, rather than serving only to control the participants’ actions. Simply praising children without telling them what they did right or how to improve may in fact have a negative influence on perceived competence, because such praise is often seen as an attempt to control their actions. Initial feedback should begin with positive reinforcement, continue with corrective feedback (if needed), and end with some positive comments (the “sandwich approach”). Rather than surrounding children with a negative environment in which only mistakes seem to be recognized, this method of providing feedback helps children develop positive attitudes towards constructive criticism and learning.

Optimally challenge students through individualized instruction. If an activity is too advanced for an individual’s skill level, the student may become frustrated and experience anxiety. Conversely, if the challenge of the activity is lower than the individual’s skill level, the student will become bored (Coikszentmihalyi, 1990). Finding the appropriate balance is difficult. Within each class there are individuals at different cognitive, affective, and physical developmental levels, so creating an environment that optimally challenges each child can be problematic. Station work that allows children to modify tasks according to their own abilities may help in reaching this balance. Small-sided games in which students are matched by skill level also increase the likelihood that they will be optimally challenged. In large-sided games (e.g., 11 versus 11 soccer), the ability levels within and between each team are often very different. Within the team, one or two players may dominate play because of their higher skill level, thus excluding other teammates and decreasing their chances of improving. Similarly, if one team is more skilled than the other, it may dominate play, thus decreasing the chance of improvement for individuals on the other team. Therefore, teachers should attempt to match children based on their abilities whenever possible.

It is also necessary to consider the cognitive and affective abilities of individuals. Abstract concepts such as moving into and creating space (important tactics in all team invasion sports) are not developmentally appropriate for younger children because of their limited cognitive ability of being able to focus on more than one thing at a time (Brustad, 1998).
As for affective development, by grade six, most children enjoy participating with other children and find it to be a necessary part of their social development. If they are constantly pursuing individual activities, children may become bored; they need to use their social abilities to work well with other students. Hence a solid understanding of children’s physical, cognitive, and affective development is crucial to create optimally challenging activities.

Enhance perceived competence. When participants feel that they have the technical and tactical skills to perform an activity, they are more likely to continue participation because of this sense of competence (Biddle, 1997). Therefore, giving children a chance to improve their skills in a context that they value will increase intrinsic motivation (Fox, 1991). As mentioned previously, perceived competence is enhanced when an individual takes part in an optimally challenging task. This can be achieved by working with children to help them set individually challenging goals that give personal meaning to activities. One example of this method is the use of a self-competitive application approach. Have students set their own goals for a given activity (e.g., ask them how many passes they can do in a minute). Once a benchmark has been set, students should be encouraged to try and beat their own score. Students can then alter their goals according to their skill level after each trial.

Simply doing drill after drill to improve skill, however, will not sustain motivation or enhance perceived competence. Students need to understand why they are practicing the skill in order for them to value the activity. Emerging evidence indicates that the Teaching Games for Understanding (TGfU) approach benefits children’s perceived competence (Werner, Thorpe, & Bunker, 1996). This model has a distinctly child-centered philosophy. Children learn tactics and skills and develop game appreciation by playing a modified lead-up version of a game from the start, rather than beginning with repetitive drills. Such an approach provides an immediate context for children to understand how their skills are used in game situations. As a result, children are more likely to be motivated to practice and improve their game-playing abilities. More traditional drill-intensive approaches can often lead participants to feel that they are being controlled.

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Because the learner is at the center of the TGfU model, feelings of autonomy, relatedness, and competence can often be fostered. For example, dribbling skills in soccer can be introduced in a small-sided (e.g., 4 versus 4) game context and developed by dividing the field into “defensive,” “neutral,” and “offensive” zones. Initially, ask players to dribble the ball every time they get it. What they will soon learn is that dribbling the ball in the defensive zone is very dangerous, while dribbling it in the neutral and offensive zones can create a scoring opportunity. Not only does the game help develop participants’ dribbling skills in a realistic situation, it also introduces offensive tactics (e.g., maintaining possession and creating a scoring chance), and fosters an understanding of where dribbling should and should not take place (Holt & Mandigo, 1999).

Stress the importance of personal improvement. Teachers should attempt to create a mastery-oriented climate in which personal improvement for its own sake is stressed. Strategies such as defining success as personal improvement, evaluating participants on the basis of their progress and effort, viewing mistakes as learning opportunities, and providing choice have all been put forth as ways to enhance mastery orientation in physical activity environments (Biddle, 1997). Teachers could ask children questions such as, “Who feels they played their best today?” and, “Who tried to improve on something they found a bit hard?” Theboom, De Knopp, and Weiss (1995) used the TARGET principles to create a mastery-oriented environment in a sports camp for children between eight and 12 years of age. The results showed that participants reported higher levels of enjoyment at the end of the program. TARGET is an acronym for task, authority, recognition, grouping, evaluation, and time. Components of the mastery-oriented program included: using a variety of optimally challenging movement activities; allowing children to be involved in the decision making process; recognizing participants’ effort and improvement; allowing for partner and group tasks and performances; providing various mechanisms of self-evaluation to encourage perceived competence; and allowing participants to develop their skills at their own developmental rate. Valentini, Radishill, and Goodway (1996) recently published a guide to the use of the TARGET approach.

Conclusion

The strategies put forth in this paper are an attempt to bridge the gap that often exists between theory and practice. CET research has helped increase our knowledge of how to intrinsically motivate individuals based on environment and personal characteristics. Applied research is needed to examine the impact of implementing these strategies in children’s physical activity environments. Until then, the evidence has given us a clear path to follow if we hope to create a generation of children who are intrinsically motivated to be physically active.
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References


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