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Putting Theory Into Practice: How Cognitive Evaluation Theory Can Help Us Better Understand How To Motivate Children In Physical Activity Environments

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Abstract

The importance of intrinsic motivation in children's physical activity environments has been emphasized for a number of decades. According to many theories of intrinsic motivation, if participants are intrinsically motivated, they will be more likely to have a quality experience and want to continue participation (e.g., Csikszentmihalyi, 1990; Deci & Ryan, 1985; Roberts, 1992). However, when children feel their participation is being controlled by an external force (e.g., marks, rewards, command teaching styles), their intrinsic motivation to participate declines (Deci, 1995). The purpose of this paper is to attempt to bridge the gap between research and practice by presenting practical suggestions for motivating children based on research findings from Deci and Ryan's (1985) Cognitive Evaluation Theory (CET). The suggestions presented in this paper are specific to children's physical activity environments and are based on previous research which has examined the determinants and outcomes of intrinsic motivation as defined within CET. More specifically, suggestions pertaining to perceived choice, rewards, feedback, optimal challenge, perceived competence, and goal orientation are presented with reference to their impact on intrinsic motivation.

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“ Wow, during class today, I felt good about myself” ; “ The activities we did were important to me, interesting, and fun” ; “ I felt that I made an important contribution to the class” ; and, “ I can hardly wait until out 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 respond in such a positive manner in our physical education lessons. The basic premise of CET is that if children feel they have some control over activities, have a sense of relatedness to the activity, and feel good about themselves when they participate, they will be intrinsically motivated to participate (Deci & Ryan, 1985). A person is said to be intrinsically motivated when they participate in an activity for its own sake. (Deci & Ryan, 1985). The potential result of children being intrinsically motivated is that they will be more likely to want to participate and; hence, become more actively involved. Sounds easy enough, but how do we make it possible?

The purpose of this article is to illustrate how theory is put into practice. More specifically, Deci and Ryan’s (1985) CET will be used to better understand how we can create physical activity environments which intrinsically motivate children to be

physically active both during instructional classes and outside of class. A brief summary of the theory will be presented, followed by practical suggestions for how to intrinsically motivate participants in the hopes of creating more active children.

What is Cognitive Evaluation Theory?

CET has four main propositions which help to explain and predict a person's level of intrinsic motivation (see Figure 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 choice and control over the process to reach personal goals, intrinsic motivation will be enhanced. Conversely, when individuals participate in an activity, but and feel controlled by some external factor, intrinsic motivation is likely to decrease. Goudas, Biddle, Fox, and Underwood (1995) tested this hypothesis with the use of different teaching styles in a physical education class. The girls reported higher amounts of intrinsic motivation when their track and field instructor offered students a number of choices throughout the lesson as opposed to conditions where the decisions were made only by the instructor. Other studies have demonstrated also that when participants are given more control and choice within the activity environment, intrinsic motivation is likely to be enhanced (Deci & Olson, 1989; Deci & Ryan, 1985).

Proposition II states that intrinsic motivation is enhanced by feelings of competence and optimal challenge. 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 their abilities (Weiss & Bressan,

1985). Deci (1975) first outlined the importance of optimal challenge on intrinsic motivation by suggesting that because humans are motivated to be self-determined and competent, they seek out optimally challenging situations. Previous research has demonstrated that when children are optimally challenged while participating in a task, they are more likely to experience enjoyment, be interested in the activity, and spend longer amounts of time doing the task (Danner & Lonky, 1981; Harter, 1974; Harter, 1978). When individuals take part in such activities which challenge them in a positive way (i.e., the activity is neither too hard nor too easy relative to their skill level) and they feel self-determined in the process, their competence is enhanced. This enhanced competence in turn leads to individuals feeling intrinsically motivated to participate.

Proposition III alludes to the functional significance of extrinsic and intrinsic factors which can be viewed along a continuum as to their impact on intrinsic motivation (Deci & Ryan, 1994). Extrinsic factors which are perceived as being informational with respect to one's perceived competence (i.e., provides positive and constructive feedback in the context of choice) promotes intrinsic motivation; whereas, extrinsic factors which are perceived as being controlling (i.e., are used to control behaviour) and/or amotivational (i.e., are perceived as conveying incompetence and helplessness) undermine intrinsic motivation. Orlick and Mosher (1978) found that when rewards were used to control children's behaviour, they were less likely to

continue with the activity in the absence of rewards than those children who initially performed the activity without rewards. However, not all rewards undermine intrinsic motivation or are perceived the same way. Ryan, Mims, and Koestner (1983) found that when they used rewards which informed participants of their abilities, they were more intrinsically motivated than a group who received a controlling reward (i.e., money) to do well. Similarly, E. Ryan (as cited in Frederick & Ryan, 1995) found that athletic scholarships reduced collegiate football players' intrinsic motivation to play football because they were viewed as being controlling. However, for wrestlers and for female athletes, the scholarships increased intrinsic motivation because it was inferred that the scholarships were informational regarding their ability because at that time, such scholarships were rare for both groups of athletes.

Intrinsic motivation and perceived competence can also be enhanced when teachers and coaches provide feedback that contains information about a participant's performance and how to improve upon it the next time. Feedback provided to participants that is perceived as being controlling will serve to undermine intrinsic motivation (Ryan & Deci, 1989). Horn (1985) observed the feedback provided by five interscholastic softball coaches to their players and examined the impact that the feedback had on their perceptions of competence. The results demonstrated that when coaches provided informative feedback to their players that helped correct their performance, perceptions of physical

competence were enhanced. Praise without the informative content (e.g., “ Good job Jill!”) did not enhance the athletes’ perceptions of competence.

Proposition IV suggests that individuals’ motivational states towards the activity influence their intrinsic motivation. Individuals who are task-involved will likely be more intrinsically motivated because they take part in an activity for the enjoyment of the activity while those who are ego-involved will likely not be intrinsically motivated because they feel controlled by an internal pressure to appease their self-esteem. Within the CET framework, ego-involved individuals put more pressure on their performance in a competitive situation so that they can prove their self-worth to others (Ryan & Deci, 1989). People who are ego-involved in a soccer game may feel as if they have to score a goal so that others will think they are a good player. Alternatively, individuals who are task-involved play the game to the best of their abilities because they enjoy it. These sources of motivation are often influenced by experience. If a children are continually being told that their self-worth is contingent upon their performance in an activity, they will soon adopt an ego orientation. Conversely, if children are allowed to participate in freely chosen activities for the sake of participating in the activity, a task orientation is more likely to emerge (Duda, Chi, Newton, Walling & Catley, 1995; Goudas et al., 1995; Vallerand, Gauvin, & Halliwell, 1986).Therefore, activities which encourage participants to be task-involved will

be more likely to foster feelings of intrinsic motivation. Practical suggestions to offer task-involved activities are presented later in this paper.

Suggestions to Promote Intrinsic Motivation

What has the research on CET taught us in terms of how to intrinsically motivate children in physical activity environments? The following are practical suggestions that should be kept in mind to help intrinsically motivate children to participate. A summary of these practical suggestions are presented in Appendix A.

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

Providing children with a perception of choice not only increases the likelihood of intrinsically motivating children, it also increases the chances that children will be optimally challenged. Chalip, Csikszentmihalyi, Kleiber, and Larson (1984) 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 pleasure of activities (Harter, 1974; 1978). However, simply allowing choice does not always guarantee increased motivation. Allowing captains to choose teams provides some choice, but often has a negative effect on those children chosen last. Therefore, teachers play a major role in facilitating appropriate scenarios in which choice can be optimized.

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

Horn's (1985) research suggested that if feedback is to have a positive impact on competence, it should contain information on how the individual is doing and how they can improve their ability rather than serve to control the participants' actions. Simply praising the child without telling them what they did right or how to improve it may in fact have a negative influence on perceived competence because it can be perceived as trying to control their actions. Initial feedback should focus on positive reinforcement followed by corrective feedback (if needed) and ending with some positive comments (the " Sandwich Approach"). Using this method of providing feedback helps to foster a positive attitude towards constructive criticism and learning, rather than a negative punitive environment in which only mistakes seem to be recognized.

Optimally challenge students through individualized instruction. Optimal challenge refers to trying to balance the challenge of the activity to the skill level of the individual. If an activity is harder than an individual's skill level, they may become frustrated and experience anxiety. Conversely, if the challenge of the activity is lower than the individual's skill level, they will become bored (Csikszentmihalyi, 1990). Finding the appropriate balance, however, is easier said than done. Within each class there are individuals at different cognitive, affective and physical developmental levels. Being able to create an environment which optimally challenges each child based on their abilities therefore, is very difficult. Station work which

allows children to modify tasks according to their own abilities may help in reaching this balance. As well, small sided games in which the ability levels of students are matched also increases the likelihood of ensuring children within a game context are optimally challenged. In large-sided games (e.g., 11 versus 11 soccer), the ability levels within and between each team are likely 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. 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, wherever possible, teachers should attempt to match children based on their abilities.

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 capabilities of being able to focus on more than one thing at a time (Brustad, 1998). In terms of affective development, most grade 6 children enjoy participating with other children and it is a necessary part of their social development. By always doing individual activities, children may become bored because they have the social abilities to work well with other students. Hence a solid understanding of children’s physical, social, and cognitive development is crucial to create optimally challenging activities.

Enhance perceived competence. Perceived competence refers to how children feel about themselves compared to other people. When a participant feels they have the technical and tactical skills to perform an activity, they are more likely to continue participation because they feel competent about their abilities (Biddle, 1997). Therefore, providing children with a chance to improve their skills in a context which 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 which give personal meaning to activities. One way to achieve this is by taking a self competitive application approach. For example, ask students to set their own goal in a given time for an activity, such as " how many passes can you 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 nor will it enhance perceived competence. Students need to understand why they are practicing the skill in order for them to value the activity. Emerging evidence exists to support the benefit of learning through the Teaching Games for Understanding (TGFU) approach on children's perceived competence (c.f., Werner, Thorpe, & Bunker, 1996). At the center of this model is the learner and hence, it adopts a

child-centered philosophy. Children learn tactics, skills, and develop game appreciation by playing the game first (often a modified lead-up game) rather than through repetitive drills. Such an approach provides a 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 skills and abilities. More traditional approaches which use drills to improve skills can often lead to feelings by the participants that they are being controlled. 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 could be introduced in a small-sided (e.g., 4 Vs 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 the ball. What they will soon learn is that dribbling the ball in the defensive zone is very dangerous, however, dribbling the ball 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, but it also introduces offensive tactics such as maintaining possession and creating a scoring chance while fostering an appreciation for certain places on the pitch where dribbling should and should not take place (Holt & Mandigo, in press).

Stress the importance of personal improvement. Teachers should attempt to create a mastery-orientated climate in which

personal improvement for its own sake is stressed. Strategies such as defining success as personal progress and improvement, valuing effort, 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 " who feels they played their best today?" or " who in class tried to improve on something they found a bit hard?" Theeboom, De Knopp, and Weiss (1995) used the TARGET principles to create a mastery oriented environment in a sports camp for children between 8 and 12 years of age. TARGET refers to an acronym representing: 1) Task; 2) Authority; 3) Recognition; 4) Grouping; 5) Evaluation; and, 6) 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. The results showed that participants reported higher levels of enjoyment at the end of the program.

Conclusion

The strategies put forth in this paper are an attempt to bridge the gap that often exists between theory and practice. The research to date using CET has helped increase our knowledge of

how to intrinsically motivate individuals based on personal characteristics and make up of the environment. 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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Figure 1. Factors that enhance and undermine intrinsic motivation according to Cognitive Evaluation Theory.

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	Enhances Intrinsic Motivation	Undermines Intrinsic Motivation
Proposition 1	• Feels in Control • Has Choice	• Feels Controlled by External Factor
Proposition 2	• High perceived competence • Challenge = skill	• Low Perceived Competence • Challenge ≠ skill
Proposition 3	• Rewards are Informational • Feedback is Informational	• Rewards are Controlling or Amotivating • Feedback is Controlling or Amotivating
Proposition 4	• Task Involved	• Ego Involved

Appendix A

Practical Suggestions to Enhancing Motivation by Implementing Strategies from Cognitive Evaluation Theory

5

Motivational Factor	Practical Suggestion
1. Importance of choice and control	• Learner-centered teaching styles where children are involved in the decision making. • Use brainstorming sessions with students to generate ideas for creative dance. • Ask students to create a movement sequence in gymnastics by combining skills together. • Ask students to add one rule to a game to make it more enjoyable. • Ask students to create a game that incorporates pre-determined skills and strategies (e.g., zone defense).
2. Minimize the use of controlling external factors	• When providing grades to students, add informative comments about the students' competencies and areas they could improve upon and suggestions for how to improve • Provide informative feedback to students rather than just praise them all the time. Tell them what they did correctly and what they can improve up for next time.
3. Optimally challenge students through individualized instruction.	• Use an inclusion 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 forehand stroke in badminton, for beginners, substitute the birdie with a balloon to hit; for intermediate, use an indoor tennis ball; for more advanced, use the birdie. Each student is working on the forehand stroke, but it is modified to suit their own developmental level. • Ask students to think of one way to make a game or activity " more challenging" for them. • Use small-sided games where students are matched according to their ability levels. For example, playing 4 Vs 4 soccer increases the chances that all the players will touch the ball and be part of the game. • Gradually introduce abstract game rules, tactics, and strategies to children.
4. Enhance perceived competence.	• 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 beat their score. Another example might be to see how many times they can sprint to a pylon and back within a pre-determined time frame. Ask them to do it again and try and beat their times. • Use a Teaching Games for Understanding approach whereby students learn skills, game appreciation, and tactical awareness using real game-like scenarios.

5. Stress the importance of personal improvement.	• Use the TARGET principles where self-improvement is stressed over comparison of abilities 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 whereby the student can proceed to once s/he feels ready.