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Turning the Switch On! The Teachers' Ability to Influence Student Motivation in Physical Education

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Student motivation is an area of importance in physical education due to the association with enhanced levels of effort, participation and aspects of learning (Tjeerdsma-Blankenship, 2008; Chen, 2001). Physical education specialists are routinely challenged by students who demonstrate behaviours indicative of low levels of motivation, such as high rates of absenteeism and severely low levels of active participation within the class setting (Ntoumanis, Peensgaard, Martin & Pipe, 2004). Bryan and Solmon (2007) indicate that the teacher is a primary driver for the development and implementation of experiences that support and/or thwart student motivation. Therefore, the purpose of this study was to examine the influence of a motivational intervention on 27 pre-service physical education teacher's (PTs) abilities to develop and implement motivational instruction during a practicum field experience. Motivation and related intervention within this study was grounded in achievement goal theory (AGT); whereby students are motivated when engaged in an educational context that is supportive of their perceptions of competence. Data were collected from PTs narrative lesson plans and actual teaching episodes during the practicum using a pretest/post-test design. Analysis of data utilized a two-pronged approach; content analysis of lesson plans, whilst teaching episodes were systematically observed and analyzed using the Physical Education Climate Assessment Instrument (Curtner-Smith & Todorovich, 2002). Data revealed that an AGT-based intervention could facilitate positive changes in a teacher's ability to design and implement educational experiences that support student motivation.

Introduction

The importance of motivation within physical education has taken centre-stage, due to the strong association with enhanced levels of learning (Tjeerdsma-Blankenship, 2008; Chen, 2001). Physical education teachers are continuously challenged by students who demonstrate behaviours associated with low levels of motivation such as being late for class or not engaging within the learning task (Ntoumanis et al., 2004). A primary influence on student motivation within the physical education setting is the teacher (Bryan & Solmon, 2007; Turner & Patrick, 2004; Deci & Ryan, 2002). Despite this, teachers utilize instructional practices that negatively influence the motivation of their students

(Reeve, 2009). Thus it is imperative that research examines interventions that can facilitate changes in teacher’s abilities to create a learning context that supports student motivation.

Motivational Framework

The term motivation within this study was grounded within achievement goal theory (AGT: Ames, 1992; Nicholls, 1989). AGT hypothesizes that the learning context or climate is a primary factor influencing student motivation (Ames, 1992; Ames & Archer, 1988). The learning context that influences student motivation should support a student’s perception of competence or success (Ames, 1992). Xiang and Lee (2002) indicate that competence within a social setting can be classified into two categories; task or ego. Task oriented or involved climates are supportive of personal measures (e.g. meeting a personal goal), whilst an ego context focuses on success through social comparisons (e.g. winning no matter how well a student plays) (Ames, 1992).

Operational definitions of a task and ego context have been delineated by Epstein (1988; 1989) through the use of an acronym called TARGET. TARGET stands for Task, Authority, Recognition, Grouping, Evaluation and Time. Table 1 provides an overview of the TARGET principles for a task and ego context. Todorovich and Curtner-Smith (2002) suggest that practitioners can utilize the TARGET concepts to create a climate that is supportive of a task or ego climate. It is important to note that task and ego contexts are different yet not dichotomous, meaning a learning context can provide students with a degree of both task and ego support (Roberts, 2001).

Table 1: TARGET Principles by Goal-Orientation

	Task	Ego
Task	Variety of tasks and diverse level of challenge	Singular class-based challenge
Authority	Students are provided a degree of control over learning	Teacher is in control of the learning
Recognition	Conducted privately based on individual performance	Conducted in a public manner
Grouping	Diverse ability groups	Based on the concept of ability
Evaluation	Based on individual performance and/or growth	Based on comparison with peers
Time	Flexibility allow for students to complete a task	Time to complete task is fixed

(Adapted from Ames, 1992; Epstein, 1989)

While task and ego are different, students tend to flourish in a task-oriented learning context (Treasure & Roberts, 2001). For instance, Xiang, Bruene and McBride (2004) found that students demonstrated increased levels of effort when engaged in a highly task-oriented climate. Furthermore, students are more motivated (Theeboom De Knop & Weiss, 1995) and veer toward more challenging activities (Solmon, 1996) within a task climate. On the other hand, Treasure (1997) found that students demonstrated high levels of negative affect within a highly ego climate. Students have also reported a variety of negative outcomes within an ego climate, such as lower levels of motivation (Papaioannou, 1994). As such, it seems that teachers should attempt to create a more task-oriented learning climate.

Currently, research on TARGET has been focused on the applied students benefits of text with limited investigation into interventions focused on changing teachers toward adopting a more motivationally supportive context. To date, one study has examined changes in teacher instruction from a TARGET perspective (Perlman & Goc Karp, 2007). Perlman and Goc Karp (2007) found that providing pre-service physical education teachers with a TARGET intervention could facilitate a small level of change in implementation of a task climate. Results of the Perlman and Goc Karp (2007) study demonstrated that change in instructional practices could occur yet further investigation is needed. Limitations within this study were identified as examination of changes in classroom teachers with a noticeable absence investigating pre-service teachers (PTs) pursuing a physical education specialist degree. Therefore, the purpose of this study was to examine the changes in PTs ability to design and implement a motivational climate. Specifically, this study was guided by the following research questions:

1. Does a TARGET intervention change PTs ability to design a task-oriented motivational climate?
2. Does a TARGET intervention change PTs ability to design an ego-oriented motivational climate?
3. Does a TARGET intervention change PTs ability to implement a task-oriented motivational climate?
4. Does a TARGET intervention change PTs ability to implement an ego-oriented motivational climate?

Methods

Participants & Settings

Participants within this study were 27 (Male=17; Female=10) physical education PTs enrolled in a required 3-credit physical education methods course. The methods course was grounded in the *Children Moving* (Graham, Holt/Hale & Parker, 2004) textbook and lasted 16 weeks. In addition, PTs

were exposed to a combined lecture and field experience model. 4th-6th grade students from a local private school were transported to the university as part of the field experience.

During the field experience, PTs were required to design and implement a total of 4 lessons. Each lesson lasted 30 minutes and focused on a pre-determined skill theme (e.g. striking). The field experience was conducted in two phases (weeks 5-8 and 12-15) of the academic term. PTs were required to teach a total of 2 lessons during each field experience phase. It is important to note, that each PT was required to design and submit a narrative lesson plan one week before each teaching day. Furthermore, each teaching day was video and audio recorded for later analysis.

Before data collection, PTs were randomly assigned to either the treatment or control group. As a result, 14 (Male=9; Female=5) PTs were assigned to the treatment group and 13 (Male=8; Female=5) PTs to the control group. PTs engaged in the treatment group were exposed to an online TARGET intervention while PTs assigned to the control group were provided no additional information or learning module.

TARGET Intervention

PTs engaged in the TARGET training program were provided an overview of AGT (Ames, 1992), benefits of a task climate (Ames, 1992; Ames & Archer, 1988) and instructional practices for creating a motivational climate as espoused by TARGET (Epstein, 1988; 1989). The intervention was delivered online via the regular course website and delivered during weeks 9-10.

Within the online module, PTs developed sample lesson plans, mini-tasks and instructional statements that illustrated their ability to plan a lesson while infusing TARGET principles. An expert in development of a TARGET-based motivational climate unaffiliated with the study provided a secondary check that all information was appropriate and accurately represented the intent of the intervention. In addition, during implementation, the same expert supported PTs in their understanding of content and successful completion of the online intervention.

Data Collection and Analysis

Before beginning the study, university research approval and participant consent was provided. This study employed a pretest/posttest design. All data collected within week 5-8 were considered as pretest data, while posttest data were collected during the week 12-15 phase of the field experience.

Analysis of each narrative lesson plan was conducted using a quantitative content analysis approach (Rourke & Anderson, 2004). The researcher coded and analyzed each lesson plan using pre-

assigned codes of the TARGET principles. This provided each lesson plan with a frequency of task and ego-involved components. Furthermore, due to each PT designing and teaching two lessons per phase (i.e. pretest and posttest) frequencies were averaged over the two lesson plans.

Video recordings of teaching were analyzed using the Physical Education Climate Assessment Instrument (PECAI: Curtner-Smith & Todorovich, 2002). Observational analysis of each taught lesson using the PECAI coded each TARGET structure whether the element established a task or ego-involved climate for each lesson task (e.g. warm-up). A neutral code was utilized if elements of a task or ego climate were absent (See Table 2 for a sample data collection sheet).

Table 2: *Sample Data Collection Sheet for Observation of Instruction*

	Task: 1	Description: Warm-up	
TARGET Element	Task	Ego	Neutral
Task	X		
Authority	X		
Recognition		X	
Grouping		X	
Evaluation	X		
Time	X		

It should be noted that for the purpose of this study, neutral codes were omitted from the analysis as they provided no additional information related to the development of a motivational climate. Coding of each lesson plan continued until all lesson tasks (e.g. warm-up, skill-drill, etc.) were presented. Analysis of each lesson plan provided each teacher with a total frequency of task and ego elements. Frequencies were averaged across two lesson plans (i.e. pretest and posttest) and provided an overall level of a task and ego climate implemented within PTs instruction. Todorovich and Curtner-Smith (2002) recommend that data be collapsed to illustrate the overall degree of a motivational climate developed by a teacher. Validity and reliability for the PECAI for use in physical education is well established (Todorovich & Curtner-Smith, 2002). Inter-rater reliability check was conducted with one lesson per PT and was deemed acceptable (92% agreement).

Analysis of data began with descriptive statistics (Mean and Standard Deviations) of all dependent variables on pretest and posttest scores. Next, each research question was analyzed using

separate (2 X 2) (Group X Time) repeated measures ANOVA. Due to the use of multiple ANOVA calculations within the implementation aspects of this study, a Bonferroni adjustment was calculated ($p \leq 0.0125$).

Results

Table 3 provides results for descriptive statistics and reliability analysis.

Table 3: Descriptive Statistics (Mean and Standard Deviations)

	<u>Treatment</u>		<u>Control</u>	
	M	SD	M	SD
<i>Design</i>				
Task – Pretest	17.57	4.83	17.69	3.63
Task – Posttest	21.07	3.87	17.03	3.89
Ego – Pretest	16.00	4.99	19.69	5.57
Ego – Posttest	15.42	4.48	18.23	5.42
<i>Implementation</i>				
Task – Pretest	16.07	5.38	16.53	4.40
Task – Posttest	20.64	2.24	17.00	5.01
Ego – Pretest	13.64	5.07	13.15	4.31
Ego – Posttest		9.35 2.24		12.84 4.94

ANOVA calculations revealed significant main (Time) and interaction (Time X Treatment) effects for design (Time) $F(1,25)=8.995$, $p \leq 0.0125$, $\eta^2=.265$, (Time X Treatment) $F(1,25)=8.00$, $p \leq 0.0125$, $\eta^2=.199$ and implementation (Time) $F(1,25)=9.147$, $p \leq 0.0125$, $\eta^2=.268$, (Time X Treatment) $F(1,25)=7.210$, $p \leq 0.0125$, $\eta^2=.196$ of a task-involved learning climate with PTs engaged in the TARGET intervention demonstrating higher levels of each measure compared with the control group. In addition, a significant result associated with implementation of an ego-involved learning climate (Time) $F(1,25)=8.015$, $p \leq 0.0125$, $\eta^2=.243$, (Time X Treatment) $F(1,25)=6.011$, $p \leq 0.0125$, $\eta^2=.194$ whereby, PTs engaged in the treatment group demonstrated a decrease in the amount of ego elements within their teaching compared with the control group. Results indicated a lack of significance in

regards to design (Time) $F(1,25)=0.036$, $p \leq .0125$, $\eta^2=.001$, (Time X Treatment) $F(1,25)=3.946$, $p \leq .0125$, $\eta^2=.136$ of an ego-involved climate.

Discussion

The primary emphasis of this research was to examine the influence of a TARGET intervention on the design and implementation of a motivational climate. Specifically, this study was interested in investigating PTs ability to design and apply their instructional practices towards a task-oriented climate. Results of this study indicated that an intervention brought about significant change in the development and implementation of a motivational climate within primary physical education. Specifically, PTs exposed to the TARGET intervention were significantly more able to design and implement a task-involved learning climate.

The significant findings associated with both design and implementation of a task-involved climate was most interesting. These results are supportive of the Perlman and Goc Karp (2007) study that indicated that primary general education PTs were more efficacious in their design and implementation of a task climate following an AGT-based intervention. A reason for the significance within the treatment group may have been the clarity of translating the TARGET structures into practice. For instance, PTs were taught that designing a single task might not provide an adequate level of challenge for all students. Thus PTs were advised to create multiple tasks with diverse levels of challenge that focused on a single learning goal (i.e. support for the Task element of TARGET). This led to PTs creating tasks that allowed students to progress in difficulty (e.g. making 30%, 50% and 70%) within a specific skill theme.

It is also important to note the significant change in the implementation of ego elements within PTs teaching. The significant decrease from the PTs in the treatment group illustrates the focus on developing a task climate, thus omitting elements of an ego-climate. While task and ego are not dichotomous, PTs may not have been able to delineate the difference and viewed each climate at polar ends of the spectrum and followed a framework whereby omission of an ego element is important to the development of a task climate.

Conclusion

These findings suggest that it is possible to change PTs abilities to design and implement a task-oriented motivational climate. Results may lend support for the claim that teachers commonly utilize instruction that is unsupportive of student motivation (Reeve, 2009). Teachers may not be provided a working framework that can be easily translated to the diverse educational settings. As such, professional development and teacher training may utilize TARGET as a guiding framework for

assisting professionals in the K-12 physical education setting. This study is not without limitations, as the relatively small sample size does not allow for results to be generalized. Future studies may utilize a larger sample size, as well as, take into account the influence of factors such as school setting and units of study that may influence the pedagogical practices (e.g. development of the motivational climate).

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