

# An exploratory study of specialist and generalist teachers: predicting self efficacy in delivering primary physical education

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## Abstract

We aimed to determine whether primary school teachers' motivational regulations to exercise and self efficacy in delivering a physical education (PE) lesson are different based on prior PE training. Two groups of qualified primary school teachers were recruited; PE specialists and a group of generalist primary school teachers who also teach PE. All teachers completed the Behavioural Regulation in Exercise Questionnaire-2, International Physical Activity Questionnaire and the Teachers' Sense of Efficacy Scale. PE specialists demonstrated significantly higher levels of intrinsic motivation towards exercise participation and took part in more physical activity in comparison to the generalist teachers. Regression analysis showed that being a PE specialist predicted higher scores in instructional strategies and classroom management in PE. Our findings support the use of Self Determination Theory concepts in understanding teacher's exercise participation motivations. These findings have implications for the modelling role of teachers in encouraging children to be physically active.

Keywords: *Self Determination Theory, Self-efficacy, Physical Education, Exercise participation, Competence*

## Introduction

Health benefits achieved from participation in regular physical activity have been well established (Rippe & Hess 1998; Schnohr, Scharling & Jensen, 2003; Colditz, Dart & Ryan, 2008, Johnson & Plotnikoff, 2007). Despite this a high proportion of children do not meet the recommended physical activity levels to gain health benefits. Less than 25% of primary school children in Northern Ireland achieve the recommended 60 minutes of physical activity per day (Breslin, Gossrau-Breen, McCay, Gilmore, McDonald, & Hanna, 2012), and 22% are considered overweight or obese (Northern Ireland Executive, 2008). To intervene and increase physical activity, the school environment remains the only setting in which interventions aimed at

increasingly daily physical activity can be uniformly applied irrespective of gender, ethnicity or social class. Furthermore during PE lessons children can be afforded the opportunity, through the expertise of the teacher, to become more active (KoKa & Hagger, 2010), as well as develop physical literacy knowledge and physical activity habits that may last beyond childhood (Whitehead, 2010). Despite the potential of PE, pupil interest in the PE subject and physical activity participation has been shown to decrease as children get older (Biddle & Mutrie, 2008). This decrease has been attributed to a number of factors mainly from the personal characteristics of the child, social support and influence of others (family, peers and teachers) or the surrounding environment (Lowry, Kremer & Trew, 2007). Of these factors, one that

may play a part in influencing physical activity participation in younger children is the modelling role of the primary school teacher. For example, a teacher's PE knowledge, their exercise motivations, and the self efficacy they have in delivering an effective PE lesson (Bandura 1977, 1986) may contribute to a positive or negative learning environment for children. According to Bandura's (1986) Social Cognitive Theory, children learn by viewing the behaviour of others and emulating these behaviours. As teachers are role models to children, it would seem plausible that a child's learning in PE will vary dependent upon whether the teacher is a generalist PE teacher or a specialist PE teacher if they demonstrate differing behaviours, efficacy or motivations. It has been suggested that the generalist primary school teacher, a

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qualified teacher but with limited training in physical education, has insufficient expertise and finds physical education with its distinctive content difficult to develop competence in (Talbot, 2008). This is supported by the view that a lack of specialist PE provision in primary schools is perceived to compromise the quality of PE offered (McKenzie, Sallis, Kolodt & Faucette, 1993). It is possible, although there is still a need to explore this prediction with more robust research designs, that children may be more active if they had a specialist primary school teacher who 'modelled' physical activity in an effective way. The effectiveness of viewing a model has been supported, where skill level, training and the self efficacy of the model has been shown to influence motor learning outcomes (Landers & Landers, 1973; for a review see McCullough & Weiss, 2001). The positive effect of modelling on children's behaviour is supported in primary school PE lessons. Those taught by PE specialists have been shown to participate in 57% more moderate - vigorous intensity PA with a concurrent increased emphasis on the promotion of physical fitness (McKenzie et al 1993).

Self efficacy is defined as the amount of perceived competence a person may have to achieve certain goals. While self efficacy has been shown to be valuable when determining whether a person will be motivated to take part in certain types of behaviours including physical activity (Biddle & Mutrie, 2008), when interpreted within the context of Physical Education (PE), several studies (Morgan & Bourke, 2005; Carney & Chedzoy, 1998; Xiang, Lowy & McBride, 2002; Morgan, Bourke & Thompson, 2002; Faulkner & Reeves, 2000) have shown the lack of competence primary school teachers perceive they have in teaching PE. These findings support our contention that the teacher's experience of physical activity and perceived competence in delivering PE may influence children's learning. Therefore it is appropriate to examine the motivations of teachers with regard to engaging in PE teaching.

Whilst several theoretical frameworks exist to explain motivation towards physical activity participation (Biddle, Hagger, Chatzisarantis & Lippke, 2007) and in particular, PE participation, little is known about teachers' motivation toward PE. Self Determination Theory (SDT; Deci & Ryan, 1985) has been applied to PE in

several studies that have mainly explored pupil's motivations and their perceptions of teacher's instructional behaviours (Koka & Hagger, 2010). SDT predicts why some people engage in positive health behaviours and others do not by examining the extent to which a person's motivation for a particular behaviour is considered to be relatively autonomous or controlled (Daley & Duda, 2006). SDT outlines a continuum of motivation from autonomous (high self-determination) to controlled (low self-determination). The most autonomous form is intrinsic motivation, this is characterised by participation because of inherent enjoyment, satisfaction and interest in the activity. This is followed by three forms of extrinsic motivation, identified, introjected regulation, external regulation and finally amotivation. These individuals are less self-determined as participation is a prerequisite to reward (reinforcement of self-concept, praise or avoidance of punishment). By fulfilling an individual's basic psychological needs of autonomy, competence and relatedness a person will become more self-determined in their behaviours (Ryan & Deci, 2007).

Previous research has applied SDT to examine pupil's perceptions of teacher's behaviours and teacher's self determined motivation. This research has examined teacher's motivation towards physical activity and has mainly been conducted in secondary and tertiary education (Taylor, Ntoumanis & Smith, 2009; Taylor, Ntoumanis, & Standage, 2008). However we are unaware of any research that has explored whether there are differences in primary school teacher's motivation towards exercise, the amount of physical activity they perform daily and whether self efficacy influences teaching PE. Therefore the purpose of this exploratory study was to examine the relationship between teacher's levels of moderate-vigorous physical activity (MVPA; sufficient intensity to derive health benefits) and their motivations to exercise. We also explored whether primary school teachers who are specialists in PE (received specific PE teacher training) are significantly more self-determined toward physical activity, and have a higher level of self efficacy in student engagement, instructional strategies and lesson management when compared to teachers who are generalist teachers. Furthermore we will explore

if any motivational and physical activity related variables predict the teacher's self efficacy using three separate regression models.

## Methods

### Participants

An opportunistic sample of 22 qualified primary school teachers took part in this cross sectional study. Each respondent was contacted via telephone to take part. After agreeing consent two groups were established. Group 1 (N= 11, males= 5 females= 6, aged  $36 \pm 6.6$ ) were classified as PE specialists (these teachers had undertaken circa 340 hours of training over a four year degree programme and would be considered competent in the planning, delivery and evaluation of all areas of the statutory PE curriculum; McKee, 2010) while Group 2 (N= 11; males= 5 females= 6, aged  $36 \pm 6.6$ ) were generalist primary school teachers with limited training in PE (circa 24 hours, in the second year of a four year degree programme, with a focus on the curricular areas of dance and gymnastics). To control for teaching experience all teachers had an equivalent number of years teaching experience in a primary school setting. Questionnaires were mailed to the teacher's school in February 2011 and on completion returned to the researcher. The study was approved by the University of Ulster's Research Ethics Filter Committee.

## Outcome Measures

### Physical Activity

Physical activity levels were measured using the short form of the International Physical Activity Questionnaire (IPAQ; www.ipaq.ki.se). The IPAQ is a self-report measure that assesses specific types and intensities of physical activity undertaken during the previous 7 days (such as walking) at a moderate and vigorous intensity (MVPA). Mean minutes spent in MVPA per day and sitting time was calculated for each participant

### Motivation to Exercise

The 19 item Behavioural Regulation in Exercise Questionnaire-2 (BREQ-2; Markland & Tobin, 2004) was used to measure the participant's level of self determination towards exercise. The

BREQ-2 contains five subscales, intrinsic, identified, introjected, external and amotivation. Those particular subscales measured the level of behavioural regulation of the participant towards exercise. Participants responded to each question on a five-point Likert scale ranging from 0= *not true for me* to 4= *very true for me*. Previous research has provided support for the validity and reliability of the BREQ-2 with the questionnaire demonstrating acceptable construct validity and internal reliability with Cronbach's alpha values for the subscales ranging from .73 to .86 (Markland & Tobin, 2004, Wilson and Rodgers, 2004).

**Teachers' Self Efficacy towards teaching PE**

The 12 item short version of the Teachers Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001) was adapted so that questions specifically reflected confidence towards the teaching of PE, rather than being general about teaching. The TSES assesses three main factors: efficacy in student engagement (*How much can you do to motivate students who show low interest in PE*), efficacy in instructional

strategies (*How much can you use a variety of teaching strategies during PE*) and finally efficacy in classroom management (*How much can you do to control disruptive behaviour during PE*). Participants responded on a Likert scale of 1= *Nothing* to 9= *A great deal*. The internal consistency of the three domains of the TSES was considered reliable in our data set, Cronbach's Alpha = .96 student engagement, .99 instructional strategies, and .95 for management of a group.

**Data Analysis**

Group means (M) and standard deviations (SD) were calculated for each variable and displayed for each group of teachers. A bivariate Spearman correlation was applied to the BREQ-2 and physical activity participation levels to determine the suitability of the BREQ-2 subscales for this sample of teachers. A 1-factor between groups MANOVA with four subscales of the BREQ-2 was calculated to determine if there were differences between the specialist and generalist groups of teachers. A similar MANOVA was applied to physical activity levels (IPAQ) and self efficacy (TSES) to explore group differences. As this was an exploratory study, despite the small

sample size we wanted to determine using three stepwise regression models if any motivational or physical activity variables predict self efficacy in student engagement, instructional strategies or classroom management in PE. A significance level of  $p < 0.05$  was adopted and effect sizes for all statistically significant results were reported using the format of partial eta squared ( $\eta^2$ ). All analyses were computed using the Statistical Package for the Social Sciences (SPSS V.17).

**Results**

**Motivations towards exercise**

There were positive significant correlations between the mean time spent in moderate and vigorous activity (MVPA) each day and the motivational subscales of identified regulation and intrinsic regulation; there was a moderate strength relationship between identified regulation and MVPA and a strong relationship between identified regulation and MVPA. Those people who reported higher levels of these motivational components tended to report more time spent in MVPA. In comparison there was a moderate to strong significant negative correlation between external regulation and MVPA; people who reported higher external

	Amotivation	External Regulation	Introjected Regulation	Identified Regulation	Intrinsic Regulation
Mean minutes spent in moderate to vigorous activity per day	-0.286	-.602*	0.032	.376*	.667*

\*indicates statistical significance at the .05 level

**Table 1.** Spearman correlations for the mean minutes spent in MVPA and SDT's motivation regulations.

regulation tended to report lower levels of MVPA.

A 1-factor MANOVA, with four subscales of the BREQ-2 as dependent variables, was conducted to investigate the difference in PE specialists versus non-specialists in self determination levels towards exercise. There was a significant multivariate group effect between PE specialists and non-specialists ( $F(5,16) = 4.082$ ;  $p = .014$ ;  $\eta^2 = 0.561$ ), further analysis revealed there were significant main effects between PE specialists and non-specialists on the external regulation ( $F(1,20) = 12.405$ ;  $p = 0.002$ ;

$\eta^2 = 0.383$ ), identified regulation ( $F(1,20) = 5.625$ ;  $p = .028$ ;  $\eta^2 = 0.220$ ) and intrinsic regulation subscales ( $F(1,20) = 14.534$ ;  $p = 0.001$ ;  $\eta^2 = 0.421$ ). The PE specialist teachers reported significantly higher mean scores in external regulation, identified regulation and intrinsic regulation in comparison to the non-specialist teachers. (Table 2)

**Physical Activity levels**

A 1-factor MANOVA was calculated with the four classifications of physical activity as measured by the IPAQ as dependent variables and whether the

teacher was a specialist or non-specialist as the independent variable. There was a significant multivariate effect between the groups ( $F(4,17) = 3.037$ ;  $p = .046$ ;  $\eta^2 = 0.417$ ). Although the specialist PE teachers reported higher levels of moderate activity, higher levels of walking and lower levels of sitting in comparison to the non-specialist teachers these differences were not statistically significant. The only significant main effect between groups was for vigorous activity levels ( $F(1,20) = 11.576$ ;  $p = .003$ ;  $\eta^2 = 0.367$ ); the specialist teachers reported participating in four times more

Variable	Specialists	Generalists
	Mean (SD)	Mean (SD)
Amotivation	0.07 (0.23)	0.34 (.59)
External Regulation	0.16 (0.28)	1.11 (.85)*
Introjected Regulation	2.06 (1.27)	1.49 (1.0)
Identified Regulation	3.41 (.38)	2.73 (.88)*
Intrinsic Regulation	3.64 (.38)	1.91 (1.45)*
Efficacy in Student Engagement	7.05 (.77)	6.47 (1.21)
Efficacy in Instructional Strategies	7.30 (.67)	6.32 (1.13)
Efficacy in Lesson Management	7.75 (.51)	7.10 (1.32)
Average Moderate Physical Activity (Mins per day)	15.58 (19)	10.71 (12.68)
Average Vigorous Physical Activity (Mins per day)	34.09 (23.8)	7.57 (10.02)*
Average Walking (Mins per day)	118.92 (188.99)	69.03 (133.26)
Average sitting (Min per day)	196.36 (76.31)	210 (69.71)

\* p < .05

Table 2: Displaying mean and standard deviation scores for the BREQ-2, TSES and IPAQ in PE specialists and generalist groups.

vigorous activity than the non-specialist teachers. On further examination of the MVPA levels achieved 72.7% of the specialist group met the recommended physical activity guidelines compared to 36.4% in the non specialist group.

### Self Efficacy

A 1-factor MANOVA, with the three subscales of the TSES as dependent variables, was conducted to investigate the difference in PE specialists versus non-specialists in self efficacy teaching PE. Although the specialist PE teachers demonstrated higher self efficacy in all three subscales there was no significant multivariate effect between the groups. Three regression models were calculated with the IPAQ subscales as the criterion variables in order to explore if any motivational (amotivation, external regulation, introjected regulation, identified regulation and intrinsic regulation) and physical activity related (met 30 minutes of MVPA guidelines) variables predicted the teacher's self efficacy. In each case backwards stepwise regression was utilised to develop the

most parsimonious model.

For efficacy in student engagement in PE, the final model explained 47% of the variance (adjusted R<sup>2</sup> = 0.47) and was statistically significant [F(3,18) = 7.2089, p = .002]. The three remaining predictors, in order of importance, were meeting the recommended physical activity guidelines or not, identified regulation and introjective regulation. Meeting the minimum recommended physical activity guidelines, lower scores on identified regulation and higher score on introjective regulation predict higher efficacy in student engagement in PE. (Table 3.)

For efficacy in instructional strategies in PE, the final model explained 52.6% of the variance (adjusted R<sup>2</sup> = 52.6) and was statistically significant [F(3,18) = 8.763; p=.001]. The three remaining predictors, in order of importance were; meeting the recommended physical activity guidelines, scoring low on intrinsic regulation and being a member of the PE specialist group (see table 3).

Finally, for efficacy in classroom management, the final model explained 47.6% of the variance (adjusted R<sup>2</sup> = 47.6) and was statistically significant [F(4,17) = 5.761; p=.004]. The four remaining

predictors of classroom management, in order of importance were scoring low on intrinsic regulation, meeting the recommended physical activity guidelines, scoring low on amotivation and being in the PE specialist group (Table 3).

Finally, for efficacy in classroom management, the final model explained 47.6% of the variance (adjusted R<sup>2</sup> = 47.6) and was statistically significant [F(4,17) = 5.761; p=.004]. The four remaining predictors of classroom management, in order of importance were scoring low on intrinsic regulation, meeting the recommended physical activity guidelines, scoring low on amotivation and being in the PE specialist group (Table 3). Discussion

The purpose of the current study was to explore the relationship between primary school teacher's moderate-vigorous physical activity (MVPA) levels and their motivations to exercise. More specifically, to see whether primary school teachers who are specialists in PE delivery are more likely to be motivated to be active themselves, participate in more physical activity, and have a higher level of self efficacy in student

<i>Regression model with Efficacy in Student Engagement as the criterion</i>				
	Unstandardized Co-efficients	Standardized Co-efficients	t	Sig.
Constant	.5.131			
Recommended levels of Physical Activity Reached	1.745	0.86	4.488	<.001
Identified Regulation	-0.549	-0.395	-2.011	0.06
Introjective regulation	0.345	0.386	2.237	0.038

Adjusted R<sup>2</sup>= 47%; F(3,18) = 7.209; p=.002

<i>Regression model with Efficacy in Instructional Strategies as the criterion</i>				
	Unstandardized Co-efficients	Standardized Co-efficients	t	Sig.
Constant	3.812			
Recommended levels of Physical Activity Reached	1.626	0.8	3.939	0.001
Intrinsic Regulation	-0.538	-0.708	-2.848	0.011
Specialist Teacher group	1.321	0.653	3.282	0.004

Adjusted R<sup>2</sup>= 52.6%; F(3,18) = 8.763; p=.001

<i>Regression model with Efficacy in Classroom Management as the criterion</i>				
	Unstandardized Co-efficients	Standardized Co-efficients	t	Sig.
Constant	.6.037			
Intrinsic Regulation	-0.455	-0.601	-2.279	0.036
Recommended levels of Physical Activity Reached	1.108	0.547	2.414	0.027
Amotivation	-1.008	-0.45	-2.545	0.021
Specialist Teacher group	0.762	0.378	1.76	0.096

Adjusted R<sup>2</sup>= 47.6%; F(4,17) = 5.761; p=.004

**Table 3:** Regression models predicting self efficacy in student engagement, instructional strategies and classroom management.

engagement, instructional strategies and lesson management when compared to generalist teachers. Furthermore we explored if any motivational and physical activity related variables were able to adequately predict the teacher's self efficacy using three regression models.

The positive correlation (table 1) between MVPA and types of motivations to exercise show, a strong relationship between MVPA and self determined motivations. This supports previous studies where the BREQ-2 has been applied in other populations (Deci & Ryan, 1985; Koka & Hagger, 2010; Ryan & Deci, 2007). Examining differences between the groups, PE specialists showed significantly more self-determination in their reasons for being physically active than the generalist teachers. This was evident in the PE specialist group being more self determined towards participating in physical activity through scoring higher on intrinsic, identified and external regulation compared to the generalist group (see table 2). The higher levels of intrinsic motivation reported by the PE specialist group suggests that they are motivated to participate in exercise for its own sake which satisfy important personal goals that are symbolic of their self identity as exercisers (Daley & Duda, 2006). The higher scores in identified regulation in the specialist group would suggest that their exercise is motivated by an appreciation of valued outcomes of participation such as rewards from achieving personal goals set by the individual. As the PE specialists group also scored higher on external regulation this would suggest that they are motivated to exercise by other external rewards or to avoid threat in not taking part in exercise. This appears to be contradictory to previous research (Reeve, 2009) which would suggest that external regulation is associated with less self-determined behaviour (less involvement in exercise). However, it could be possible that exercise for career exercisers (in this case PE specialists) is both intrinsic and extrinsically regulated (Andersen & Hagger, 2010). Participation may reflect enjoyment, achievement and challenge but at the same time it may reflect environmental incentives such as recognition and status (Reeve, 2009). This is perhaps a good example of a common misconception that intrinsically motivated behaviour is good and extrinsically motivated behaviour is bad.

The relationship is more subtle than this, in that extrinsic motivation can result in participation but maintained participation is more likely if intrinsic motivation is present (Andersen & Hagger, 2010). Further research is required to explore the sources of external regulation for this group. There were no differences in groups for introjection regulation which suggests that both groups may have been exercising, in part for appearance and fitness reasons (Ryan, Frederick, Lepes, Rubio & Sheldon, 1997), although both groups were not all exercising equally to the same intensity.

The majority of the specialist group (72.7%) met the adult recommended physical activity intensity guidelines, this was not the case for the generalist teachers (36.4%). The PE specialists performed four times more vigorous activity than the non specialists. There was a non significant difference in moderate levels of physical activity between the PE specialist and generalist groups. The generalist group report an average of 14 minutes more sitting time per day compared to the specialist group, while the specialist group spend 49 more minutes a day walking than the generalist group. The trends between motivation and physical activity levels in this study reflect previous findings (Wang, Chatisarantis, Spray & Biddle, 2002), that low motivated individuals tend to take less physical activity. However we were unable to determine how much of the sitting and walking took place during the school day.

There were no significant differences between specialist and generalists PE teachers for self efficacy however it should be noted that medium effect sizes ( $f^2 = .082-.105$ ) suggested that the small sample employed may have resulted in insufficient power (type II error). Specialist teacher's efficacy in student engagement, efficacy in instructional PE strategies and efficacy in PE lesson management were higher than non specialists, with the generalists scoring lowest in efficacy in instructional strategies during PE (Generalist  $M=6.32$ ,  $SD=1.13$ , Specialist  $M=7.3$ ,  $SD=.67$ ). This finding suggests non specialists did not perceive that they had high amounts of competence to differ their teaching strategies during PE. A number of factors can be suggested here to account

for the significantly lower perceived competence levels, one of which is the time allocated to PE during initial teacher training (Carney & Armstrong, 1996), or the lack of belief in ability to perform the activities and skills competently (Carney & Chedzoy, 1998; Xiang, Lowy & McBride, 2002). Negative experiences in school PE whilst growing up (Morgan & Bourke, 2005), lack of teacher or mentor support when qualified as a teacher (Woolfolk Hoy & Burke Spero 2005), negative attitudes towards PE (Faulkner & Reeves, 2000), or preferences to teach subjects other than PE (Morgan & Bourke, 2004) are additional explanations. Morgan and Bourke (2008) went further to suggest that those who personally do not enjoy or are not interested in a particular activity may not feel competent or attracted to deliver the lessons in that area. In contrast it appears reasonable to assume that the specialists had positive experiences in PE, higher perceived competence, and a positive attitude towards the subject as they made the voluntary decision to study the area in depth for four years. Morgan and Bourke's (2008) view is consistent with our findings: the generalists indicated lower intrinsic levels of motivation and lower physical activity levels when compared to the specialist group, which may contribute to relatively lower perceived competence in teaching PE. It is worth mentioning that the highest self efficacy variable for the generalist teacher was classroom management during PE ( $M=7.10$   $SD=1.32$ ). Thus although the non specialists may not have as much pedagogical knowledge in PE as the specialists or have not received as much training time acquiring these skills they were able to control and effectively manage the behaviour of the pupils during the PE lesson. This finding could be attributed to the respondents forming relationships with the pupils on a daily basis through other curriculum topics and previous training in general classroom management, therefore enhancing the teacher's familiarity and ability to control pupil behaviour.

The variables that predicted self-efficacy were explored in the regression analysis. The main factors that predicted student engagement in PE included teachers meeting the recommended physical activity guidelines, and scoring low on identified and high on introjected regulation. This would suggest that the

more active teachers are, the more likely they will be to engage children in activities during a PE lesson. Furthermore teachers who are highly motivated by identified regulation (participate in an activity because the activity is considered of high value), are less likely to engage children in PE. However those teachers who are scoring highly on introjected regulation, that is who are motivated to exercise to avoid negative feelings or guilt, are more likely to engage children in PE.

Predictors of self-efficacy in instructional strategies in PE included meeting the recommend physical activity guidelines followed by a low intrinsic motivation and being a specialist PE teacher. These finding lead us to suggest that meeting the recommended physical activity guidelines predicts efficacy in instructional strategies in PE, however the link between intrinsic motivation to exercise and providing instructional strategies is less straightforward than first imagined. It may be the case that those with high intrinsic motivation to exercise themselves do not necessarily have the instructional strategies to show others, or self-interest in exercise does not translate directly to teaching. Being a PE specialist seems to moderate this effect providing evidence for the importance of the role of PE training in developing instructional strategies and not relying on teacher's intrinsic motivations alone.

The predictors of self-efficacy in classroom management included a low score on intrinsic motivation, followed by meeting the recommended physical activity guidelines, a low score on amotivation and being a specialist PE teacher. Similar to the prediction of instructional strategies, teachers do not have to score highly in intrinsic regulation to predict classroom management, but being physically active themselves is a predictor of classroom management in PE as is being motivated and being trained as a specialist PE teacher.

Bandura's Social Cognitive Theory (1977) is of relevance to the current findings. Bandura predicts that a model, in this case a teacher who is more skilled, will have a greater influence on learning than a less skilled model/teacher. Therefore, it seems logical that if the non specialists have lower perceptions of competence about teaching PE this may affect the modelling process and overall learning

of the benefits of PE to physical health and development. Whether this effect transfers to the pupil's experience is uncertain from our findings as children's physical activity was not assessed, however this warrants further study.

### Summary and Conclusion

This study applied SDT (Deci & Ryan 1985) to PE specialists and generalist primary school teachers and demonstrated that PE specialists had a higher level of self determination toward exercise, were more autonomous in their decisions to be active, were more physically active and had a higher level of perceived competence in delivering a PE lesson. These findings were interpreted within the context of Social Cognitive Theory (Bandura, 1977, 1986) that predicts a role-model who is more skilled will have a greater influence on learning than a less skilled model. Limitations to the study included the self report measure of physical activity, the small sample size, although relative to the number of specialist primary school PE teachers in Northern Ireland this could be debated. Despite these limitations this exploratory study that has focused on two 'types' of trained primary school teachers highlights the need for consideration to be given to the amount of PE training generalist primary school teachers receive in order to develop skills in the delivery of PE to children at primary level. Furthermore, SDT has been shown here to be a useful framework for exploring teacher's physical activity motivations and involvement and understanding how motivations can predict self efficacy in PE delivery in primary schools. Future research could further explore with a larger sample size how a teacher's physical activity involvement and motivation to be active ameliorates the relationship between self efficacy and effective PE delivery. This research would provide further understanding of what motivations are required by teachers to promote children's physical activity levels which will have a positive influence on health and wellbeing.

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