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4   Change in Physical Self-Perceptions across the Transition to Secondary School:

5   Relationships With Perceived Teacher-Emphasised Achievement Goals in Physical

6   Education

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1   **Abstract**

2   *Objectives:* This study aimed to examine the effects of change in perceived teacher

3   achievement goal emphasis in physical education (PE) on physical self-perceptions and self-

4   esteem across the transition to secondary school.

5   *Design & Methods:* A longitudinal design was adopted with three time points, one at the end

6   of primary school and two during the first year of secondary school. Participants ($N = 491$)

7   were cross-classified by primary ($N = 42$) and secondary ($N = 46$) PE class in order to

8   examine the association between perceived class-level teacher-emphasised goals and within-

9   class student goals with self-beliefs.

10 *Results:* Personal approach goals and class perceptions of teacher mastery approach goal

11 promotion were all positively associated with ratings of co-ordination, sport competence,

12 flexibility, and endurance in primary school. More favourable perceptions of coordination,

13 sport competence, strength, flexibility, and endurance during the first year of secondary

14 school were predicted by an increase in performance approach goal emphasis, whereas

15 ratings of sport competence and flexibility were negatively associated with an increase in

16 mastery approach goal emphasis.

17 *Conclusions:* Although not entirely consonant with theoretical predictions, current findings

18 suggest that teacher-emphasised performance approach goals in PE can promote development

19 of several physical self-perceptions in the initial year of secondary school.

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21 *Keywords:* self-perceptions, mastery and performance goals, school transition, physical

22 education, stage-environment fit

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4   The development of positive self-perceptions in young people is recognized as central

5   to well-being and achievement, and experiences at school are argued to influence every

6   aspect of development during adolescence (Eccles & Roeser, 2011). During their educational

7   careers, students typically transfer schools on reaching a specific age e.g., from primary to

8   secondary school at 11 years of age in England. These transfers represent a period of

9   transition whereby young people encounter new school and classroom environments. The

10   move to secondary school also takes place at a time when significant individual and social

11   developmental changes are occurring (see Eccles & Midgley, 1989; Wigfield, Eccles, &

12   Pintrich, 1996). Given that educational research has generally shown school transitions to

13   coincide with maladaptive changes in perceptions of the self (Meece, Anderman, &

14   Anderman, 2006), it is important to understand the motivational and environmental factors

15   that help to explain declining self-evaluations. The purpose of the present study was to utilize

16   achievement goal theory (Elliot, 1999, 2005) within a stage-environment fit framework

17   (Eccles & Midgley, 1989) to identify developmental change in self-perceptions as young

18   adolescents transition from primary to secondary school. Personal and situational

19   achievement goals in curriculum physical education (PE) were assessed longitudinally to

20   determine their relationships with changing evaluations of the physical self and general self-

21   esteem.

22   The PE 'classroom' provides a unique environment for investigating motivational and

23   developmental issues among all young people as they pass through the education system.

24   Because children participate in PE lessons throughout their school careers, PE can contribute

25   to the development of positive physical self-perceptions and self-esteem (Fox, 1991, 1992).

1   The achievement goals that teachers are perceived to value and emphasise via different

2   behaviours and interactions with students represent a particularly powerful influence on

3   student motivation and beliefs (Eccles & Midgley, 1989; Eccles & Roeser, 2011). In

4   particular, the match or mismatch between the perceptions that young people hold about their

5   teachers and their own developmental needs will determine whether positive or negative

6   outcomes ensue (Eccles & Midgley, 1989). Thus, how are teachers' achievement goals

7   perceived before and after school transition, and are changes adaptive or maladaptive for

8   development of beliefs about the self?

9   **Self-Perceptions and Achievement Goals**

10   Adaptive beliefs about the physical self refer to feelings of "self-confidence, self-worth,

11   self-acceptance, competence, and ability" (Marsh, 2007, p.160). An individual's physical

12   self-concept represents a summative evaluation of specific attributes and abilities such as

13   strength, flexibility and competence at sport (Marsh, Hey, Roche, & Perry, 1997). Studies

14   have shown that a positive physical self-concept, as well as representing a desirable outcome

15   in its own right, has important consequences for individuals (e.g., Crocker, Sabiston,

16   Kowalski, McDonough, & Kowalski, 2006). There is, nevertheless, a dearth of longitudinal

17   evidence pertaining to the motivational processes underpinning the development of self-

18   beliefs, and in particular, physical self-perceptions. PE takes place in a more public

19   environment than typical classroom-based subjects, and thus it is important to determine the

20   motivational determinants of self-beliefs in this unique setting. One contemporary approach

21   to understanding young people's motivation, which may prove useful in understanding the

22   development of self-beliefs, is achievement goal theory (see Ames, 1992; Dweck & Elliott,

23   1983; Nicholls, 1989).

24   Achievement goals refer to the purposes underpinning competence-based striving

25   (Elliot, 2005). Individuals can aim to *achieve success* in self- (mastery) or other-

1   (performance) referenced terms, or they can aim to *avoid failing* in self- or other-referenced

2   terms (approach and avoidance forms of goal pursuit respectively). Four goals have thus been

3   proffered (Elliot, 2005; Elliot & McGregor, 2001): mastery approach (striving for personal

4   improvement), performance approach (striving to do better than other students), mastery

5   avoidance (striving not to make mistakes), and performance avoidance (striving not to do

6   worse than other students). To date, predominantly cross-sectional findings suggest that

7   adopting mastery approach goals is linked with positive consequences, whereas pursuing both

8   types of avoidance goals is associated with negative outcomes in physical contexts. However,

9   the empirical picture is more mixed for performance approach goals. Although links have

10   been found between achievement goals and self-esteem (e.g., Adie, Duda, & Ntoumanis,

11   2008; Kavussanu & Harnisch, 2000), relationships with overall physical self-concept and

12   specific physical competencies remain to be thoroughly investigated. Very few studies have

13   examined change in approach-avoidance goal pursuit among adolescents in school PE,

14   although Warburton and Spray (2008) found preliminary evidence for a linear decline in the

15   adoption of both performance goals and mastery approach goals across the primary-

16   secondary school transition.

17   In addition to personal achievement goals held by individuals, social agents (peers,

18   teachers/coaches, parents) acting within a particular setting such as PE may be perceived to

19   endorse the value of self-improvement and hard work (mastery 'climate') or to endorse the

20   value of beating others and recognizing and rewarding the most talented individuals

21   (performance climate; for a review, see Harwood, Spray, & Keegan, 2008). Moreover, these

22   social agents may be perceived to emphasise the avoidance of failure. Papaioannou and co-

23   workers, for example, showed that Greek students in PE classes perceived their teachers to

24   promote performance avoidance goals (Papaioannou, Tsigilis, Kosmidou, & Milosis, 2007).

25   However, researchers have yet to examine change in the perceived endorsement of approach-

1   avoidance goals by teachers of PE as children transfer schools and the consequences of class-

2   level perceptions on self-beliefs.

3   **Development, School Transition, and Stage-Environment Fit**

4   During their educational careers, young people will encounter significant change in

5   both their own development and the environments of the different schools they attend

6   (Wigfield et al., 1996). For example, changes occur during adolescence related to both

7   pubertal and cognitive development. Of relevance to the current research is the notion of

8   children's understanding of the concepts of effort and ability. Work by Nicholls and

9   colleagues established that it is not typically until around age twelve that individuals can

10   clearly differentiate concepts and adopt a 'mature' perspective whereby the two are inversely

11   related (see Nicholls, 1989). In addition, Marsh has argued that increasing cognitive maturity

12   results in adolescents adopting a more realistic judgement of their competencies in relation to

13   others leading to lower self-evaluations (Marsh, 1989).

14   Education researchers have also outlined the changing environmental factors that young

15   adolescents encounter when transferring to new schools. These factors include school size,

16   departmentalization of subject areas, subject-specialist teachers, stricter grading practices,

17   provision of material that is less demanding than that encountered in previous schools, less

18   positive teacher-student relationships, and increased adoption of grouping practices according

19   to ability (Wigfield et al., 1996). Of current importance is the change in perceived teacher

20   achievement goal endorsement. Do students perceive a change in the emphasis that secondary

21   teachers attach to self-improvement and normative ability, and to approach versus avoidance

22   forms of striving in PE, relative to their primary teachers? In turn, because goals influence the

23   meaning of an achievement setting for individuals (Dweck & Elliott, 1983; Elliot, 2005;

24   Nicholls, 1989), do perceived achievement goal emphases affect how individuals feel about

25   themselves in the physical sense and globally in the sense of self-worth?

1   Eccles and colleagues (Eccles & Midgley, 1989; Eccles et al., 1993; Meece et al., 2006)

2   have argued that the decline in motivation and self-beliefs often seen at the time of transition

3   is a consequence of the mismatch between needs and environment (stage-environment fit).

4   Many of the changes students encounter in the new school do not facilitate positive

5   developmental outcomes because of their emphasis on competition and social comparison at

6   a time when adolescents are becoming increasingly self-conscious e.g., increased adoption of

7   ability groupings, greater emphasis on, and rewards for, demonstrating normative ability. In

8   the physical domain, there is evidence that school sport and PE environments are perceived to

9   become more performance- and less mastery-focussed in later phases (Chaumeton & Duda,

10   1988; Digelidis & Papaioannou, 1999; Ntoumanis, Barkoukis, & Thogersen-Ntoumani,

11   2009). This evidence is based mainly on cross-sectional studies, however, and may not

12   generalise to education systems in different countries. There is currently an absence of

13   research pertaining to change in perceived teacher-emphasis on approach and avoidance

14   achievement goals in PE across the transition to secondary school, and the consequences for

15   young adolescents' developing self-perceptions (stage-environment fit). Such evidence has

16   implications for fostering teaching practices that facilitate positive developmental outcomes.

17   **The Present Study and Hypotheses**

18   The present study sought to investigate the PE class environment as an important

19   contextual precursor of changes in physical self-perceptions and self-esteem across an

20   educational transition. In line with earlier research on the primary-secondary school

21   transition, we anticipated students' adoption of mastery approach goals to decline over time

22   (Warburton & Spray, 2008). Perceptions of teacher-promoted performance approach goals

23   were anticipated to increase, whereas perceived mastery approach goal emphasis was

24   expected to decline (Ntoumanis et al., 2009). We also expected self-perceptions to decline on

25   average (e.g., Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Marsh, 1989, 2007). On the

1 basis of theory and prior research on relationships between achievement goals and

2 individuals' beliefs about the self, we expected that group-level perceived endorsement of

3 mastery approach goals by teachers of PE would positively predict physical self-perceptions,

4 both in primary school and across the first year of secondary school, taking into account

5 within-class differences in students' goal adoption. The rationale for this hypothesis was

6 based on the proposition that positive self-perceptions should be more recurrent when

7 physical attributes and abilities are underpinned by an emphasis on success-focussed, self-

8 referenced competence striving in PE. We were more hesitant to proffer specific hypotheses

9 relating to class performance approach goals given the mixed empirical picture in the PE

10 domain concerning their consequence profile. On the other hand, we anticipated negative

11 associations between perceived teacher-emphasised performance avoidance goals and

12 evaluations of the physical self and self-esteem.

13 **Method**

14 **Participants and Procedures**

15   Participants for this study were recruited from 22 primary schools in the East Midlands,

16 England. Children were grouped into 42 classes, each with a permanent teacher who taught

17 all, or the majority of, curriculum subjects throughout the school year. At wave 1, which took

18 place toward the end of the academic year, 866 Year 6 children (mean age = 11.29 years, *SD*

19 = 0.30, 51% females) completed a survey assessing their own reported achievement goals in

20 physical education, their perceptions of the goals consistently endorsed by the teacher in PE

21 lessons, and evaluations of their physical selves. The same data were collected on two further

22 occasions during the autumn and spring terms of Year 7 from participants who transitioned to

23 one of six secondary schools. Previous research in education investigating transition effects

24 has typically surveyed participants twice (once in each year of the study; Anderman &

25 Midgley, 1997), or on three or four occasions (e.g., twice in each year; Anderman &

1   Midgley, 2004; Friedel, Cortina, Turner, & Midgley, 2010). The current investigation

2   adopted a similar time frame, in which self-perceptions have been shown to change.

3   Participants were grouped within 46 PE classes in Year 7 (range = 5 to 22). Students

4   were clustered, therefore, by the specific combination of primary class and secondary PE

5   class i.e., students were nested across two classes rather than within one class. Examination

6   of the distribution of students according to their primary-secondary class combination

7   revealed that less than 1% of cells (42 primary classes x 46 secondary PE classes) contained

8   at least 10 participants. Students encountered a range of activities across the course of the

9   study, consisting mainly of a variety of games, but also gymnastics, swimming and dance. PE

10   classes were co-educational at primary school and single sex at secondary level. Students

11   typically engaged in two PE lessons per week in both schools. Of the children who took part

12   during wave 1, 57% provided complete data for all variables at each of the three time points

13   ($N = 491$). Over 80% of students were White.

14   Ethical approval for the study was gained from a University research ethics committee.

15   Following head teacher consent on behalf of the schools, parents were informed that they

16   could opt to have their child excluded from the investigation. Less than 1% of parents chose

17   this option. On each measurement occasion, participants provided informed assent after being

18   provided with written and verbal explanations of the study purposes. They were told that

19   there were no right or wrong answers and were encouraged to answer honestly. In addition,

20   they were assured of confidentiality of the data and reminded of their right to withdraw at

21   anytime without consequence. A trained research assistant read items aloud and answered

22   students' questions as necessary. Survey administration took between 25-40 minutes.

23   **Instrumentation**

1   *Demographic Information***.** Students provided data relating to their school, class, gender, and

2   date-of-birth on each measurement occasion. These data enabled matching of questionnaires

3   across time points.

4   *Teacher Promoted Achievement Goals in Physical Education*. Twelve items from the

5   Perceptions of Teacher's Emphasis on Goals Questionnaire (PTEGQ; Papaioannou et al.,

6   2007) were used to assess perceived promotion of achievement goals by the teacher of PE.

7   Students responded to the stem "In PE lessons, the teacher ..." using a 5-point Likert scale

8   anchored by 1 (*strongly disagree*) and 5 (*strongly agree*). Example items included

9   "Encourages us to try to improve at any activity" (mastery approach goal), "Encourages us to

10   be better than our classmates" (performance approach goal), and "Often criticises students

11   who are among the worst in the class" (performance avoidance goal). Evidence for the

12   validity and reliability of the PTEGQ (which was not designed to assess the mastery

13   avoidance goal) was initially provided by Papaioannou et al. with Greek adolescents. Because

14   participants in the present study were 10 or 11 years of age at wave 1, careful attention was

15   paid to the wording of items. Pilot testing using a focus group approach led to a number of

16   minor changes to clarify language. Moreover, as explained above, items were read aloud to

17   students as part of the survey administration and the research assistant was able to answer any

18   questions from the children regarding a lack of understanding of the items.

19   *Personal Achievement Goals*. Students' personal goals were assessed by an adapted version

20   of the Achievement Goals Questionnaire – Sport (AGQ-S; Conroy, Elliot, & Hofer, 2003).

21   The stem for the items was "My aim in PE is to ...." and answers were made using a 7-point

22   Likert scale anchored by 1 (*not at all like me*) and 7 (*very much like me*). The AGQ-S

23   measures mastery approach (e.g., "Do the skills and tasks I am set as well as I can"), mastery

24   avoidance (e.g., "Not mess up when I am completing the skills and tasks set during the

25   lesson"), performance approach (e.g., "Do better than most others"), and performance

1   avoidance goals (e.g., "Avoid performing worse than most others"). Evidence for the

2   reliability and validity of the AGQ-S has been provided by Conroy et al. (2003).

3   *Physical Self-Perceptions*. A shortened version of the Physical Self Description

4   Questionnaire (PSDQ; Marsh, Richards, Johnson, Roche, & Tremayne, 1994) was used to

5   measure participants' evaluations of specific aspects of their physical selves, overall physical

6   self-concept, and global self-esteem.[1] More specifically, the PSDQ assessed perceptions of

7   Appearance ("Compared to other children, I have a good (fit)-looking body"), Co-ordination

8   ("Controlling movements of my body comes easily to me"), Sport Competence ("Other

9   children think I am good at sports"), Strength ("I am stronger than most children my age"),

10   Flexibility ("I am good at bending, twisting and turning my body"), Endurance ("I can run a

11   long way without stopping"), Physical Self-Concept ("Physically, I am happy with myself"),

12   and Self-Esteem ("Overall, I have a lot to be proud of"). Answers were made using a 6-point

13   scale ranging from 1 (*false*) to 6 (*true*). The majority of these factors are viewed as abilities

14   and the subscales of the PSDQ include perceptions of whether the attribute in question has

15   been developed from an absolute viewpoint, how it compares with peers, and how others

16   would view it. Within- and between-network studies have supported the reliability and

17   validity of the PSDQ (see Marsh, 2007; Marsh et al., 1994; Marsh, Martin, & Jackson, 2010).

18   **Data Analytic Strategy**

19   Descriptive statistics and internal reliability coefficients (Cronbach's alpha) were first

20   calculated for all study variables across all measurement waves. Next, random intercept

21   models were examined to ascertain the intraclass correlations of all study variables i.e., to

22   determine the proportion of variance explained at different levels. Subsequently,

23   unconditional growth models were tested to identify average patterns of change across the

24   study for each variable. The main study analyses addressed whether physical self-

25   evaluations and self-esteem could be predicted by perceptions of the goals endorsed by the

1   PE teacher aggregated at the class level, controlling for student-level differences in personal

2   goals. We used MLwiN 2.24 (Rasbash, Steele, Browne, & Prosser, 2005) to test random

3   intercept, unconditional growth, and conditional models. Following procedures outlined by

4   Hox (2010), separate multilevel models were tested for each dependent variable. In these

5   models, measurement occasions (time: level 1) were nested within students (level 2) who

6   were cross-classified by both primary class and secondary PE class (level 3). Variances and

7   standard errors are fixed for one of the cross-classified groups; in this case the 'dummy'

8   level was denoted as the secondary PE class. Time was centered at wave one and gender was

9   controlled for in all models. Intercepts were allowed to vary randomly across levels.

10   Students' personal achievement goal scores were class-mean centered to obtain pure student-

11   level effects of individual goals (Enders & Tofighi, 2007), whereas class mean scores of

12   students' perceptions of goals promoted by the teacher were grand-mean centered.

13   Regression slopes for personal goals were tested one at a time (due to model complexity) to

14   determine whether allowing random slopes improved the fit of the model. Where

15   improvement in fit was not forthcoming (as denoted by the change in log-likelihood

16   deviance and associated chi-square difference test), each slope was fixed.

17   Thus, for each dependent variable, the model tested the fixed effects of individual

18   goals and class aggregated perceived teacher goals at the start of the study (initial status) and

19   over time (rate of change). For example, for Sport Competence, the following composite

20   model was examined with fixed slopes for both personal goals and class averaged perceived

21   teacher goals:

22   $$SCOMP_{ij(kl)} = \gamma_{00} + \gamma_{10}TIME_{ij(kl)} + \gamma_{01}SEX_{j(kl)} + \gamma_{11}SEXTIME_{ij(kl)} + \gamma_{02}MAp_{ij(kl)} +$$
23   $$\gamma_{03}PAp_{ij(kl)} + \gamma_{04}PAv_{ij(kl)} + \gamma_{05}TeacherMAp_{ij(kl)} + \gamma_{06}TeacherPAp_{ij(kl)} + \gamma_{07}TeacherPAv$$
24   $$_{ij(kl)} + \gamma_{12}MApTIME_{ij(kl)} + \gamma_{13}PApTIME_{ij(kl)} + \gamma_{14}PAvTIME_{ij(kl)} + \gamma_{15}TeacherMApTIME$$
25   $$_{ij(kl)} + \gamma_{16}TeacherPApTIME_{ij(kl)} + \gamma_{17}TeacherPAvTIME_{ij(kl)} + f_{0l} + v_{0(kl)} + u_{0j(kl)} + e_{0ij(kl)}$$
26

1   *SCOMP* represents the outcome Sport Competence; γ_{00} represents the expected mean Sport

2   Competence score across classes for classes with average perceived teacher-emphasised

3   goals; *TIME* signifies measurement occasions; *SEX* represents the differential in Sport

4   Competence associated with being a male student; *MAp/PAp/PAv* are the slopes for

5   individual class mean-centered goals; *TeacherMAp/PAp/PAv* are grand mean-centered class

6   aggregated slopes for perceptions of teacher promoted goals; and *f/v/u/e* represent variance

7   components at secondary PE class, primary class, student, and within-person residual levels

8   respectively. The subscripts *(kl)* are written between parentheses to denote that primary and

9   secondary class are at the same level conceptually, although variance associated with each is

10   estimated separately in MLwiN (see Hox, 2010).

11   **Results**

12   **Preliminary Analyses**

13   *Missing Data.* Examination of the data from participants who completed all three

14   measurement waves showed little missing data ($< 1\%$), probably as a consequence of

15   completing each item as it was read aloud by the research assistant. Missing values were

16   imputed using the expectation maximization method available in the Statistical Package for

17   the Social Sciences. Personal goals ($F(3, 862) = 0.24$, $p > .05$), perceived teacher endorsed

18   goals ($F(3, 862) = 0.64$, $p > .05$), and physical self-perceptions ($F(8, 857) = 0.45$, $p > .05$) did

19   not differ between participants included in the final sample and those participants who took

20   part only at the first wave.

21   *Descriptives.* Mean scores, standard deviations, and internal consistency estimates for each

22   variable were calculated at each time point (see Table 1). Cronbach alpha values were close

23   to or exceeded .70 for all variables at each wave except for individual mastery avoidance

24   goals which exhibited unacceptable consistency scores at each measurement occasion (alphas

25   ranged from .38 to .42). Consequently, the mastery avoidance variable was omitted from all

1 subsequent analyses. High mean scores for personal mastery approach goals were observed at

2 each time point, whereas moderately high scores were found for personal performance

3 approach and performance avoidance goals. Scores for perceived teacher endorsement of

4 mastery approach goals were moderate over time, whereas mean scores below the scale

5 midpoint were observed for both performance goals on nearly all occasions.

6 ***Intraclass Correlations and Unconditional Growth Models.*** Unconditional means models

7 were calculated to determine the intraclass correlation (ICC) for each variable at the class

8 level. ICCs ranged from .06 to .19 at the cross-classified (combined primary and secondary

9 class) level. The proportion of explained variance at the class level exceeded 10% for all but

10 one (Flexibility) of the eight self-perceptions, suggesting that non-trivial amounts of variance

11 in the key developmental outcomes could be explained at the higher level (Julian, 2001). The

12 majority of variance in the study variables was attributable at the student-level.

13   Unconditional growth models, with time serving as the predictor, were conducted to

14 ascertain linear and quadratic change patterns for each variable. Results showed that personal

15 mastery approach goals, class level perceptions of mastery approach goals promoted by the

16 teacher, Flexibility, and Endurance, and overall Physical Self-Concept declined linearly

17 across the three assessment occasions. On the other hand, both personal performance goals,

18 and class scores for perceived teacher endorsement of both performance goals showed a

19 linear increase. Only Co-ordination evidenced non-linear change, declining across the

20 immediate transfer to Year 7 (between time 1 and 2) but subsequently plateauing during the

21 secondary school year (between time 2 and 3). Appearance, Sport Competence, Strength, and

22 Self-Esteem remained stable across waves.

23 **Main Analyses**

24 ***Predicting Self-Perceptions Across The School Transition.*** Final models showed that

25 individual level predictors accounted for between 14% and 41% of the individual level

1   variance in self-perceptions, whereas between 9% and 32% of the class level variance was

2   accounted for by group-level perceptions of teacher promoted goals. Table 2 reports the fixed

3   effects for personal and class goals in predicting self-perceptions, controlling for gender

4   differences. Variance components, partitioned according to level, are also presented. At the

5   end of primary school (i.e., at time one), personal mastery and performance approach goals

6   were positively associated with the majority of self-perceptions. Moreover, group-level

7   perceptions of teacher mastery approach goals were positively linked with individual

8   perceptions of Flexibility and Endurance. Personal performance avoidance goals did not

9   predict outcomes, nor did class perceptions of performance approach and performance

10   avoidance goals, except for a negative association between teacher-promoted performance

11   approach goals and Flexibility.

12   Table 2 also shows the effects of predictors over time. No association across

13   measurement waves between personal and class goals with perceptions of Appearance and

14   Physical Self-Concept emerged. Personal goals did not predict physical self-perceptions

15   across time, although a positive link was found between pursuing mastery approach goals and

16   ratings of Self-Esteem. Consistent patterns emerged where significant relationships were

17   evident. More specifically, higher group-level scores for teacher mastery approach goals were

18   linked with lower scores for two self-perceptions during Year 7 (Sport Competence,

19   Flexibility). On the other hand, higher group performance approach goals predicted higher

20   scores on five self-perceptions over the course of the study (Co-ordination, Sport

21   Competence, Strength, Flexibility, Endurance). Higher class performance avoidance goals

22   were not associated with any outcomes over time with the exception of lower ratings of

23   Flexibility.

24   **Discussion**

1   One of the many changes that young adolescents may encounter when transferring to

2   secondary or junior high school relates to their perceptions of teachers' emphasis on

3   achievement goals relative to primary or elementary teachers (Eccles & Midgley, 1989;

4   Eccles & Roeser, 2011). Eccles and colleagues contend that these changes are often

5   inappropriate for adolescents' well-being and emotional development. The current study

6   examined change in young people's physical self-perceptions and self-esteem as they

7   transferred schools, and assessed the association of change with personal and teacher-

8   emphasised goal striving in physical education. PE is experienced by all children and

9   adolescents and, therefore, seems a particularly pertinent setting in shaping individuals'

10   physical evaluations. The self-system, as well as being linked with a host of behaviours and

11   outcomes, is also viewed as an important indicator of well-being and adjustment in youth

12   (Crocker et al., 206; Fox, 1997; Marsh, 2007). Discussion will focus initially on the evidence

13   for stability and change in the focal constructs as children move schools, followed by an

14   evaluation of the role of achievement goals in helping to explain instability of self-beliefs. To

15   conclude, potential study limitations will be identified with a view to conducting further

16   research in this area.

17   **Change in Achievement Goals and Self-Perceptions Across the School Transition**

18   The present investigation found evidence for change in some of the variables across the

19   school transition. Specifically, on average, both personal mastery approach and perceived

20   teacher-promoted mastery approach goals declined, as did ratings of flexibility, endurance,

21   co-ordination, and overall physical self-concept. On the other hand, both personal

22   performance approach and perceived teacher-promoted performance approach and avoidance

23   goals increased. Findings relating to change in personal goals varied from past research

24   (Warburton & Spray, 2008) and provide initial evidence of increased adoption of personal

25   and perceived teacher-emphasised performance goals as children move to secondary PE

1   classes. Students' ratings of their appearance, sport competence, strength, and self-esteem

2   remained stable. These results suggest that some perceptions of the physical self are more

3   malleable than others over the duration of the current investigation.

4   Further research, employing interview and focus group methods, could ascertain why

5   and how certain physical attributes (i.e., co-ordination, flexibility, endurance) are less highly

6   rated across this transition, and why attributes (i.e., appearance, competence, strength) are

7   perceived in a more or less consistent fashion. Such work should also seek to identify the

8   changes in specific teaching behaviours that students notice which lead them to view their PE

9   teachers as promoting performance approach goals more, but mastery approach goals less,

10   compared with their primary teacher. Examining initial teacher training in PE using the lens

11   of achievement goal theory, as well as determining the influence of school factors on

12   teachers' promotion of achievement goals (cf. Taylor, Ntoumanis, & Standage, 2008),

13   represent worthy areas of future inquiry.

14   **Relationships Between Achievement Goals and Self-Perceptions**

15   Taking into account within-class student differences in goal adoption, change in class

16   average perceptions of teachers' goal endorsement across the transition predicted change in

17   several physical self-perceptions. Thus, there is an important link between perceived teaching

18   practices and young adolescents' feelings about their physical selves at this point in their

19   educational careers. The secondary PE class environment is important in shaping self-

20   perceptions even though students in the class vary in their reported goal adoption. To what

21   extent were reported changes in perceived teachers' goal promotion adaptive or maladaptive

22   in terms of development of the physical self (stage-environment synchrony)?

23   The pattern of findings, although fairly consistent, was somewhat contrary to

24   expectations. For two of the eight self-beliefs, a negative relationship emerged with class-

25   level mastery approach goals, whereas high class performance approach goals were linked

1   with positive change in five self-evaluations. Previous longitudinal research in youth sport

2   has also reported a negative relationship between personal mastery approach goals and

3   positive affect over time (Adie, Duda, & Ntoumanis, 2010). Although it should be noted that

4   a negative relationship emerged for sport competence and flexibility only, no significant

5   positive relationships were found for perceived class mastery approach goals and perceptions

6   of the self over time. Promoting mastery approach goal adoption, but within the context of

7   inappropriate task setting and over-emphasis on tangible improvement rather than effort, may

8   engender the adoption of mastery avoidance goals with inimical effects on self-perceptions

9   (for a related argument in youth sport, see Harwood, Hardy, & Swain, 2000). This contention

10   deserves investigating; unfortunately, in the current work, the measure of mastery avoidance

11   goals was not reliable. More generally, the effect of perceived teacher-promoted mastery

12   approach goals on adolescent developmental outcomes should be further investigated at both

13   the individual and group levels.

14   On the other hand, the pursuit of personal and class goals centered on trying to do better

15   than classmates (e.g., fun competitions) appears to facilitate favorable perceptions at this age

16   (10-12 years). No significant negative relationships emerged between perceived class

17   performance approach goals and perceptions of the self over time. This finding may reflect an

18   immature understanding of ability and effort in PE classes whereby ability and effort co-vary

19   positively i.e., more effort is seen as indicative of more ability (Nicholls, 1989). It remains to

20   be seen whether this pattern of relationships is sustained as students proceed through

21   secondary school and establish more firmly a view of ability as capacity i.e., effort and ability

22   are inversely related. In addition, the items that tapped children's perceptions of performance

23   approach goals focussed on the teacher's general encouragement of doing better than

24   classmates. No mention was made of specific behaviours that have been conceptualised as

25   performance-based e.g., unequal attention devoted to students based on normative ability,

1   emphasising positive outcomes derived without effort (cf. Ames, 1992; Newton, Duda, &

2   Yin, 2000; Papaioannou, 1994). Observational and qualitative studies are necessary, in

3   addition to those employing validated scales, to substantiate the links between teaching

4   practices that promote performance approach goal striving and the development of particular

5   self-beliefs in early adolescence.

6   At the beginning of the study, both personal approach goals exhibited consistently

7   positive relationships with a host of self-perceptions. It may be that, because of their

8   appetitive nature, endorsing approach goals above the class average assists children in feeling

9   more positively about themselves during the final year of primary school. Interestingly, class

10   goals did not emerge as significant predictors of self-beliefs at the first wave, suggesting

11   perhaps, that the primary teacher-created 'climate' may not be sufficiently salient in shaping

12   perceptions of the self. Intrapersonal (e.g., cognitive maturity) and situational (e.g., quality

13   and methods of instruction) factors should be investigated further in order to learn more about

14   children's responses to primary and secondary teacher behaviours in PE.

15   Virtually no effects were found for personal and class performance avoidance goals on

16   self-beliefs. Although participants were inclined to adopt such goals, teachers were generally

17   not perceived to promote concerns with normative incompetence (although on average a

18   significant increase in class perceptions was found across the transition). It may be that, at

19   this age, individuals' approach-centered goals, coupled with generally positive beliefs about

20   themselves, override the effect of concerns with performing worse than others in the class.

21   Further studies with older adolescents may reveal the emerging influence of both individual

22   and class avoidance goals in PE on self-beliefs.

23   Personal goals appeared to be important when examined contemporaneously with

24   beliefs at wave one, whereas change in perceived class-level goals seemed important in

25   explaining change in individuals' perceptions across the transition (although the effect of

1   class goals is likely to also operate in combination with personal goals). From both an

2   empirical and theoretical standpoint, achievement goal researchers should continue to

3   investigate the joint influence of personal and environmental goal endorsement in PE on

4   young people's development (Murayama & Elliot, 2009).

5   **Limitations and Future Research**

6   There are several limitations to be considered in evaluating the current findings. First,

7   causality cannot be inferred from the data presented herein. The longitudinal design permitted

8   the predictive utility of achievement goals on self-perceptions to be evaluated and this

9   direction of influence was based on theory and empirical evidence. For example, to examine

10   arguments put forward by Elliot (1999), Adie et al. (2008) tested a model whereby self-

11   esteem predicted goal adoption; this model was found to fit the data less well than one in

12   which self-esteem was posited to be a consequence of goal pursuit. Future studies employing

13   a greater number of assessment occasions should continue to examine the nature of the

14   relationships among goals and self-perceptions to test for the possibility of bidirectional

15   effects. Incorporating more assessments would also provide a better idea of the growth

16   trajectories of variables through Year 6 and help to determine the significant and potentially

17   non-linear changes across the transfer. The explanatory utility of a wider range of

18   environmental features drawn from educational research could then be tested. Studies that

19   compare boys and girls separately at transition with same-age peers remaining in the same

20   school, or investigations of transitions to different educational environments at the same

21   age/grade would help to tease out the influences of educational transitions from the normal

22   course of adolescent development. Moreover, intervention studies would clearly offer a

23   stronger design to clarify which constructs are causes or effects of each other.

24   In addition, the present study essentially undertook a test of the trichotomous goal

25   framework (see Elliot, 1999, 2005) because the reliability of the mastery avoidance goal, as

1   measured by the Achievement Goals Questionnaire – Sport, was unacceptably low at all

2   measurement waves. This finding raises the issue of the meaning and salience of self-

3   referenced incompetence to young adolescents and more research is necessary in the physical

4   domain, not least into construct measurement (see Madjar, Kaplan, & Weinstock, 2011 for

5   work in the classroom context). Additional work is also necessary to strengthen the

6   psychometric qualities of the Perceptions of Teacher's Emphasis on Goals Questionnaire and

7   to validate a sub-scale to determine perceived mastery avoidance goal emphasis. Several

8   internal consistency scores were marginally below .70, particularly at wave one. Further

9   attention should be paid to item rewording and testing with primary school children.

10   Finally, the temporal effects of class-level perceptions of teacher goal promotion on

11   self-perceptions should be replicated with larger samples to ensure greater numbers of

12   students are nested within secondary PE classes/teachers, and that take into consideration a

13   number of potentially confounding variables not assessed in the current study. These factors

14   include different type, size and ethos of secondary school, stricter grading practices, change

15   in perceived attributes of PE classmates (a new frame of reference by which to infer self-

16   competencies), different curriculum (possibly novel activities), moving to single sex PE

17   classes from co-educational primary classes, and teacher gender.

18   Notwithstanding study limitations, findings suggest that teacher-promoted approach

19   goals have a potential role in shaping young people's beliefs about their physical selves

20   following the transfer to secondary school. At this age, some specific and overall beliefs

21   about the physical self appear quite malleable, whereas others do not. The meaning of

22   achievement that new secondary school students perceive in their PE classes is an important

23   contributory factor that warrants further attention within a stage-environment fit approach.

1 **End Notes**

2 [1] Given the repeated measures design of the study and the age of the participants, three of the

3 original specific dimensions of the PSDQ were omitted to reduce the burden on students

4 completing the survey at each time point. These were health, physical activity, and body fat

5 (see Marsh, 1997 p.55). The short version of the PSDQ (PSDQ-S; Marsh et al., 2010) was not

6 available at the planning stage of the current investigation.

7 **Acknowledgments**

11

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19

Table 1

Descriptive Statistics and Internal Consistency Estimates at Each Wave of Measurement

	Wave 1			Wave 2			Wave 3		
	M	**SD**	**α**	**M**	**SD**	**α**	**M**	**SD**	**α**
MAp Goals	6.19	0.91	.69	6.11	1.00	.69	6.07	1.07	.76
PAp Goals	4.74	1.75	.86	4.96	1.64	.85	5.01	1.56	.86
PAv Goals	5.26	1.59	.74	5.30	1.53	.72	5.44	1.47	.77
Teacher MAp	4.37	0.26	.68	4.35	0.28	.64	4.26	0.34	.75
Teacher PAp	2.77	0.53	.69	2.94	0.51	.72	3.12	0.36	.65
Teacher PAv	2.06	0.42	.69	2.03	0.37	.72	2.21	0.35	.72
Appearance	4.19	1.28	.86	4.24	1.21	.85	4.21	1.26	.88
Co-ordination	4.74	0.97	.83	4.54	1.06	.88	4.52	1.12	.91
Sport Competence	4.59	1.22	.93	4.53	1.23	.94	4.52	1.21	.94
Strength	4.68	1.08	.89	4.60	1.07	.88	4.61	1.10	.92
Flexibility	4.49	1.10	.87	4.39	1.17	.90	4.34	1.21	.91
Endurance	4.34	1.31	.90	4.23	1.28	.91	4.21	1.35	.93
Global Physical	4.82	1.20	.92	4.75	1.15	.92	4.71	1.19	.94
Self-Esteem	4.91	0.93	.79	4.89	0.96	.81	4.90	1.04	.87

Note. Cronbach alpha coefficients for teacher promoted goals are presented at the individual level whereas mean and standard deviation scores are shown at the class level.

MAp = Mastery Approach; PAp = Performance Approach; PAv = Performance Avoidance.

Table 2

Final Models of Personal Achievement Goals and Class-Level Perceptions of Teacher Promoted Goals Predicting Self-Perceptions

Variable	App		Co-ord		Sport Competence		Strength		Flexibility		Endurance		Global Physical		Self-Esteem	
Initial status																
Intercept (γ_{00})	4.15	(.11)	4.58	(.08)	4.30	(.10)	4.34	(.08)	4.52	(.09)	4.01	(.09)	4.66	(.09)	4.87	(.08)
Sex (γ_{01})	.17	(.13)	.29	(.11)*	.64	(.12)*	.64	(.10)*	-.07	(.11)	.61	(.12)*	.34	(.11)*	.13	(.10)
MAp Goals (γ_{02})	.08	(.05)	.21	(.05)*	.19	(.04)*	.11	(.05)*	.12	(.05)*	.13	(.05)*	.23	(.05)*	.09	(.05)
PAp Goals (γ_{03})	.15	(.04)*	.08	(.04)*	.12	(.03)*	.07	(.04)	.08	(.04)*	.08	(.04)*	.02	(.04)	.07	(.04)
PAv Goals (γ_{04})	-.01	(.04)	.01	(.04)	.02	(.03)	.01	(.03)	-.02	(.03)	-.000	(.04)	-.02	(.04)	-.01	(.03)
Teacher MAp (γ_{05})	.17	(.17)	.32	(.16)*	.30	(.14)*	.24	(.15)	.41	(.16)*	.45	(.16)*	.38	(.17)*	.23	(.17)
Teacher PAp (γ_{06})	-.11	(.24)	-.29	(.21)	-.09	(.19)	-.30	(.20)	-.43	(.22)*	-.33	(.22)	-.07	(.24)	-.10	(.23)
Teacher PAv (γ_{07})	.07	(.28)	.13	(.25)	-.11	(.22)	.19	(.23)	.35	(.25)	.22	(.26)	.07	(.28)	-.12	(.26)

Table 2 (continued)

Variable	App		Co-ord		Sport Competence		Strength		Flexibility		Endurance		Global Physical		Self-Esteem	
Rate of change																
Intercept (γ_{10})	-.01	(.04)	-.06	(.03)	-.01	(.03)	.02	(.03)	-.09	(.03)*	-.03	(.03)	-.04	(.04)	.01	(.03)
Sex (γ_{11})	-.01	(.04)	-.11	(.04)*	-.08	(.04)*	-.09	(.04)*	.01	(.04)	-.06	(.04)	-.02	(.05)	-.01	(.04)
MAp Goals (γ_{12})	.02	(.05)	.02	(.04)	.03	(.04)	.05	(.04)	.02	(.04)	.06	(.05)	-.03	(.05)	.09	(.04)*
PAp Goals (γ_{13})	-.07	(.04)	.01	(.03)	.01	(.03)	.02	(.03)	.02	(.03)	.01	(.03)	.01	(.04)	.01	(.03)
PAv Goals (γ_{14})	.01	(.03)	-.02	(.03)	-.03	(.03)	-.01	(.03)	.01	(.03)	-.10	(.03)	.02	(.03)	.004	(.03)
Teacher MAp (γ_{15})	-.09	(.13)	-.20	(.11)	-.32	(.10)*	-.17	(.11)	-.33	(.12)*	-.22	(.12)	-.15	(.13)	-.05	(.12)
Teacher PAp (γ_{16})	.27	(.18)	.46	(.16)*	.29	(.15)*	.31	(.15)*	.56	(.17)*	.36	(.17)*	.20	(.18)	.16	(.17)
Teacher PAv (γ_{17})	-.17	(.20)	-.34	(.18)	-.11	(.16)	-.30	(.17)	-.53	(.18)*	-.27	(.19)	-.17	(.20)	-.04	(.19)
Variance																
Secondary Class *(f)*	.06	(.04)	.04	(.02)	.06	(.04)	.01	(.02)	.003	(.02)	.03	(.03)	.01	(.02)	.03	(.02)
Primary Class *(v)*	.14	(.06)*	.07	(.03)*	.11	(.05)*	.05	(.03)	.08	(.04)	.04	(.04)	.11	(.04)*	.06	(.03)*
Student *(u)*	.87	(.07)*	.57	(.05)*	.89	(.07)*	.69	(.06)*	.87	(.07)*	1.11	(.09)*	.75	(.06)*	.39	(.04)*
Residual *(e)*	.44	(.02)*	.34	(.02)*	.28	(.01)*	.32	(.01)*	.36	(.02)*	.38	(.02)*	.44	(.02)*	.41	(.02)*
Deviance	3915.36		3508.22		3452.48		3456.79		3691.10		3847.50		3851.49		3514.13	

Note. Values in parentheses are standard errors. *$p < .05$.
MAp = Mastery Approach; PAp = Performance Approach; PAv = Performance Avoidance; App = Appearance; Co-ord = Co-ordination.