

MAR05389

**Big Fish Little Pond Effect on Academic Self-concept:
Cross-cultural and Cross-Disciplinary Generalizability**

Herbert W. Marsh

SELF Research Centre, University of Western Sydney, Australia

Education in academically selective schools is intended to have positive effects for bright students, but a growing body of theoretical and empirical research demonstrates that the effects are negative for academic self-concept. Education in mixed-ability, mainstream non-selective schools is intended to have positive effects for students with learning difficulties, but a growing body of theoretical and empirical research demonstrates that the effects are negative for academic self-concept. In its simplest form the big-fish-little-pond effect (BFLPE) predicts that equally able students have lower academic self-concepts when attending schools where the average ability levels of classmates is high, and higher academic self-concepts when attending schools where the school-average ability is low. Here I summarize theoretical, empirical, and policy-related implications of the BFLPE, and new research demonstrating the broad cross-cultural and cross-disciplinary generalisability of the effect.

About the Authors:

Professor Herb Marsh is Professor of Educational Psychology, founding Director of the SELF Research Centre and served as UWS's inaugural Dean of Graduate Research Studies and Pro-Vice-Chancellor. He received UWS's inaugural awards for Research, Postgraduate Supervision, and Doctorate of Science. Herb has published more than 250 peer-reviewed journal articles, 40 chapters, 10 monographs, and 225 conference papers. He is Australia's most widely cited researcher in both education and psychology, and the 11th most widely cited researcher in the world across all disciplines of psychology. The Australian Research Council awarded him its Special Investigator grant and is a *highly cited researcher* on Institute of Scientific Information's list of the "world's most cited and influential scientific authors."

Self-concept is one of the most important constructs in the social sciences as demonstrated by the regularity/consistency with which self-concept enhancement is identified as a major focus of concern in diverse settings (e.g., Branden, 1994; Marsh & Craven, 1997). Thus, educational policy statements throughout the world list self-concept enhancement as a central goal of education and an important vehicle for addressing social inequities experienced by disadvantaged groups. For example, in their model of effective schools, Brookover and Lezotte (1979) proposed academic self-concept, self-reliance, and academic achievement as the major outcome variables for schools to foster in their students. In addition to being an important outcome variable and to being related to higher levels of achievement, self-concept is also an important mediating construct that facilitates the attainment of numbers of positive outcomes. Hence, self-concept is a “hot” variable that makes things happen. The need to think and feel positively about oneself, and the profound benefits of these positive cognitions on choice, planning, and subsequent accomplishments transcend traditional disciplinary barriers, and are central to goals in many social policy areas.

More generally, individuals in all walks of life are likely to accomplish more if they feel competent in what they do, are self-confident, and feel positively about themselves. Programs or societal changes that undermine self-concepts are also likely to have negative effects on accomplishments. These basic ideas can easily be translated into many different disciplines. Thus, for example, Marsh and Perry (2005) reported that physical self-concept contributed to the prediction of the performances of elite swimmers at international events beyond what could be explained in terms of their previous performances (personal bests and international rankings). In an organizational setting, Parker (1998) summarized research showing that employees who feel more able to perform particular tasks will actually perform better on these tasks, will persist in the face of adversity, and will cope more effectively with change. Judge and Bono (2001) presented a meta-analysis showing that components of a positive self-concept construct were among the best predictors of job performance and job satisfaction. Marsh, Byrne and Yeung (1999) reviewed educational research showing that prior academic self-concept had a positive effect of subsequent academic achievement (school grades and standardized test scores) beyond what could be explained by prior levels of academic achievement.

The theoretical basis for our representation of self-concept comes from the original Shavelson, Hubner and Stanton (1976) theoretical model and subsequent research (e.g., Byrne, 1996; Marsh, Byrne & Shavelson, 1988; Marsh & Hattie, 1996) stemming from this classic development. Self-concepts, broadly defined by Shavelson et al., are persons’ perceptions of themselves that are formed through experience with and interpretations of their environment, and influenced by evaluations by significant others, reinforcements, and attributions for one’s own behavior. An important feature of this model of self-concept is that self-concept is posited to be a multidimensional, hierarchically construct such that global self-esteem or general self-concept appears at the apex of the model and the extent of domain specificity increases as one descends the hierarchy. Within this theoretical framework, self-esteem refers to the global component of self-concept that is specifically intended to reflect broad, general self-perceptions that are not specifically tied to particular content areas. This global construct at the top of the hierarchy can be inferred on the basis of higher-order factor analysis or responses to a relatively unidimensional, global self-esteem scale such as the Rosenberg instrument (1965) or self-esteem scales that are part of many multidimensional self-concept instruments (for further discussion, see Marsh, Parada & Ayotte, 2004).

Frame of Reference Effects in the Formation of Academic Self-concept: The BFLPE

Self-concept cannot be adequately understood if the role of frames of reference is ignored. Psychologists from the time of William James (1890) have recognized that the same objective characteristics and accomplishments can lead to disparate self-concepts, depending on the frame of reference or standards of comparison that individuals use to evaluate themselves. More than a century ago, William James (1890/1963) discussed “the paradox of a man shamed to death because he is only the second pugilist or the second oarsman in the world” (p. 310). Almost half a century ago, Festinger (1954) introduced social comparison theory, which provides one approach for studying frame of reference effects. The historical and theoretical underpinnings of this research (see Marsh, 1974; 1984b, 1991, 1993; Marsh & Parker, 1984) were derived from research in psychophysical judgment (e.g., Helson, 1964; Marsh, 1974; Parducci, 1995), social judgement (e.g., Morse & Gergen, 1970; Sherif & Sherif, 1969; Upshaw, 1969), sociology (Alwin & Otto, 1977; Hyman, 1942; Meyer, 1970), social comparison theory (e.g., Festinger, 1954; Suls, 1977), and the theory of relative deprivation (Davis, 1966; Stouffer, Suchman, DeVinney, Star & Williams, 1949).

In an educational context, Marsh (1984a, b; 1987; Marsh & Parker, 1984; also see Marsh, 1974) proposed a frame of reference model called the big-fish-little-pond effect (BFLPE) to encapsulate frame of reference effects posited in social comparison theory. In the BFLPE model, Marsh hypothesized that students compare their own academic ability with the academic abilities of their classmates and use this social

comparison impression as one basis for forming their own academic self-concept. A negative BFLPE (a contrast effect) occurs where equally able students have lower academic self-concepts when they compare themselves to more able students, and higher academic self-concepts when they compare themselves with less able students. For example, if average ability students attend a school where the average ability level of other students is high (hereafter referred to as a *high-ability school*) so that their academic abilities are below the average of other students in the school, it is predicted that this educational context will foster social comparison processes that will lead to academic self-concepts that are lower than if the same students attended an average-ability school. Conversely, if these students attend a low ability school, then their abilities will be above average in relation to other students in the school and social comparison processes will result in higher academic self-concepts. Hence, academic self-concepts depend not only on a student's academic accomplishments but also the accomplishments of those in the school that the student attends.

According to this model, academic self-concept will be positively affected by individual achievement (higher achieving children will have higher academic self-concepts), but negatively affected by school-average achievement (equally able students will have lower academic self-concepts in a school where the average ability is high and higher academic self-concepts in a school where the average ability is low). The BFLPE is typically operationalised (see Marsh & Craven, 2002) as a path model (see figure 1) in which the effects of individual student achievement on academic self-concept are predicted to be positive whereas the effects of school-average achievement are predicted to be negative. Empirical support for this negative effect of school-average achievement on academic self-concept (the BFLPE) comes from numerous studies based on a variety of experimental/analytical approaches (see Marsh & Craven, 2002).

Diener and Fujita (1997, p.350) reviewed BFLPE research in relation to the broader social comparison literature and concluded that Marsh's BFLPE provided the clearest support for predictions based on social comparison theory in an imposed social comparison paradigm. The reason for this, they surmised, was that the frame of reference, based on classmates within the same school, is more clearly defined in BFLPE research than in most other research settings. Clearly, the importance of the school setting is that the relevance of the social comparisons in school settings is much more ecologically valid than manipulations in typical social psychology experiments involving introductory psychology students in contrived settings. Indeed, except for opting out altogether, it is difficult for students to avoid the relevance of achievement as a reference point within a school setting or the social comparisons provided by the academic accomplishments of their classmates.

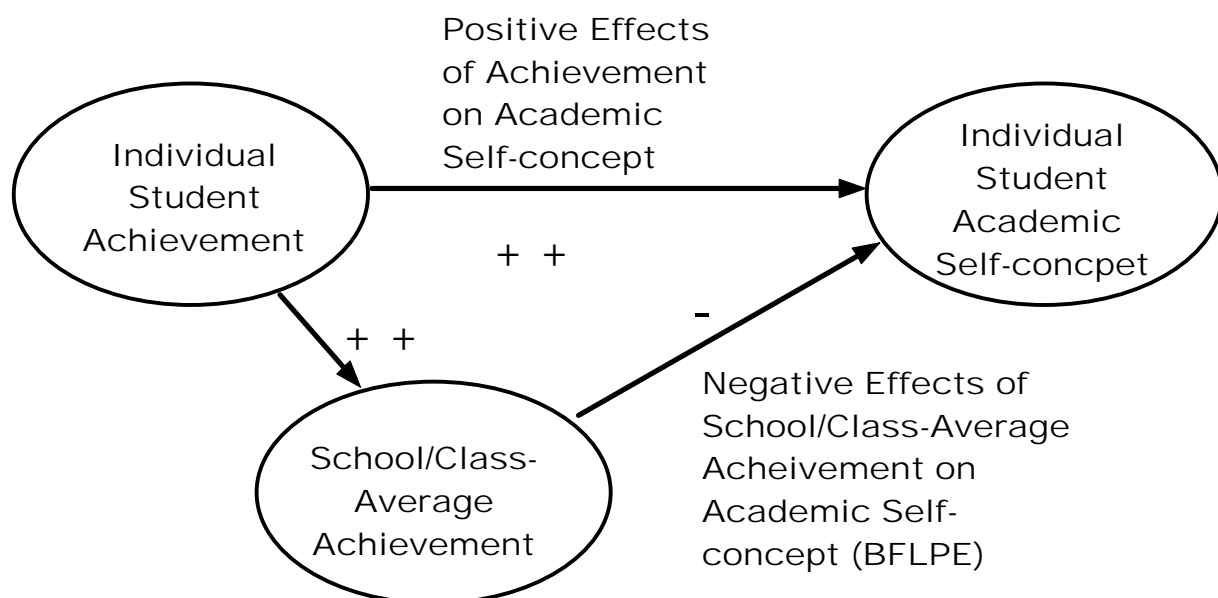


Figure 1. The Big Fish Little Pond Effect (BFLPE). Theoretical predictions.

Empirical Support For the BFLPE

Empirical support for the BFLPE comes from numerous studies (e.g. Marsh, 1984a, 1984b; 1987; 1994; Marsh & Craven, 1994; 1997; Marsh & Parker, 1984) based on a variety of different experimental/analytical approaches. Marsh and Parker (1984) sampled sixth grade classes from high and low SES areas in the same geographical area. The two samples differed substantially in terms of reading achievement and IQ scores. In path models of the relations among achievement, school-average ability and responses to Marsh's Self-Description Questionnaire-I (SDQI), the direct effect of school-average ability on academic self-concept was negative in models that controlled for individual achievement. In contrast, the effects of individual and school-average achievement were not statistically significant for nonacademic self-concept. Hence, the results provided an early demonstration of the BFLPE and its specificity to academic components of self-concept.

In an American study based on 87 high schools, Marsh (1987; also see Bachman & O'Malley, 1986) found that the effects of school-average ability on academic self-concept were negative whereas the effects of school-average SES on academic self-concept were negligible. He also found that African-American students, particularly those in segregated schools, did not differ substantially from Caucasian students in terms of academic self-concept even though there were substantial differences in terms of standardised achievement test scores. Whereas this pattern might suggest that the academic self-concept responses were "culturally biased," this is exactly the pattern predicted to occur in the BFLPE. African Americans had academic ability test scores that were below average, but -- particularly in the segregated schools -- compared themselves to classmates who also had below-average test scores. Thus, while their academic self-concepts were somewhat below average (due, perhaps to self-perceptions that were independent of the immediate school context), they were not nearly as low as absolute interpretations of standardized achievement test scores (i.e. those that did not take into account test scores of other students in the same school) would suggest.

The results of Marsh's analysis also clarified the distinction between academic ability and grade-point average (GPA), their respective influences on self-concept, and how this influenced the BFLPE. The 87 schools in the study differed substantially in terms of school-average academic ability, but not school-average GPA. Schools "graded on a curve" so that grade distributions were similar from one school to the next even though academic ability levels differed substantially. Hence, equally able students have lower GPAs in high-ability schools than in low ability schools. Marsh demonstrated that this frame of reference effect influencing GPA was separate from, but contributed to, the BFLPE on academic self-concept. In further analysis of this same data, Marsh and Rowe (1996) replicated the finding using a multilevel modelling approach and demonstrated that the BFLPE generalised across all levels of initial ability level including the very brightest students.

Sociologists studying school context effects have found that school-average ability and particularly school-average SES are related to educational and occupational aspirations or attainments. In a review of this largely American literature, Alwin and Otto (1977) reported that: school-average ability was negatively related to aspirations whereas school-average SES tended to be positively associated with aspirations.

Rogers, Smith and Coleman (1978) ranked a group of children in terms of academic achievement relative to their own classroom and academic achievement across the sample. They found that the within classroom rankings were correlated more highly with self-concept than scores normed in relation to the entire sample.

Schwarzer, Jerusalem, and Lange (1983; also see Jerusalem, 1984) examined the self-concepts of West German students who moved from nonselective, heterogeneous primary schools to secondary schools that were streamed on the basis of academic achievement. At the transition point students selected to enter the high ability schools had substantially higher academic self-concepts than those entering the low ability schools. However by the end of the first year in the new schools no differences in academic self-concepts for the two groups were present. Path analyses indicated that the direct influence of school type on academic self-concept was negative. The most able students in the low ability schools were less able but had much higher academic self-concepts than the least able children in the high ability schools.

Most research into the BFLPE has examined between-school grouping practices in which students attend mixed-ability schools or academically segregated schools. An interesting extension of this research is to look at within-school ability grouping practices. In a meta-analysis of the effect of ability grouping on self-concept Kulik (1985; see also Kulik & Kulik, 1982; Marsh; 1984a) compared children in streamed and unstreamed classes. Kulik and Kulik (1982) initially reported that self-concepts did not differ on average in schools with and without ability groupings. Marsh (1984a) countered that whereas the average self-concept (average across all the different ability groupings) might not differ as a function of streaming practices, he predicted ability streaming would result in lower self-concept for students in high-ability streams (compared

to equally able students in unstreamed classes) and higher self-concepts for students in low-ability streams. In a followup analysis of the initial 1982 meta analysis, Kulik (1985) confirmed Marsh's predictions based on the BFLPE in that high-ability students tended to have lower self-concepts, and low-ability students higher self-concepts when placed in streamed classes.

Brookover (1989) examined frame-of-reference effects on academic self-concept from the perspective of the extent to which students in different schools were streamed according to ability. In schools with ability streaming, low-ability students tended to be placed in classes with other low-ability students and high-ability students tended to be placed in classes with other high-ability students. To the extent that students use other students within their class as a frame of reference, low-ability students in streamed classes should have higher academic self-concepts (because they compare themselves primarily to other low-ability students) than low-ability students in unstreamed classes. High-ability students in streamed classes, however, should have lower academic self-concepts (because they compare themselves primarily to other high-ability students) than high-ability students in unstreamed classes. Thus, streaming should tend to increase the academic self-concepts of low-ability students and decrease the academic self-concepts of high-ability students. Consistent with these predictions, Brookover found that the academic self-concepts were much less variable in schools that streamed their classes.

Ireson, Hallam and Plewis (2001) pursued a somewhat different study of within-school grouping practices that provides a more direct extension of BFLPE predictions based on between-school grouping practices. They evaluated the effects of within-school streaming for English, mathematics, and science for Year 9 students (aged 13-14) from 45 comprehensive high schools. For English self-concept, the results were consistent with the BFLPE. The most able students in English had lower English self-concepts in schools with greater amounts of streaming, whereas the least able students in English had higher English self-concepts in schools with greater amounts of streaming. This follows in that the best English students in highly streamed schools attended classes with other students who were also very able in English. Hence, they tended to compare themselves with other students who were also very good English students, which resulted in a lower English self-concept. In contrast, the best English students in schools with no streaming attended classes with students who had a mixture of English abilities. Hence, they were more likely to be one of the top students in their (mixed-ability) English classes, which resulted in a higher English self-concept. Interestingly, the results of streaming in mathematics and science were not statistically significant. However, their results also indicated that variation in streaming practices was greater in English classes than science and particularly mathematics. For example, only 5 of 45 schools had mixed-ability mathematics classes in Year 9 whereas 20 or 45 schools had mixed-ability English classes. Because there was limited variation in streaming practices in mathematics, it is not surprising that this relatively weak streaming intervention had little effect. Hence, support for the BFLPE was strongest in the school subject (English) in which the streaming intervention was strongest.

Consistent with the BFLPE, Reuman (1989) found that within-school (between-class) ability grouping produced lower academic self-concepts for high-ability children and higher academic self-concepts for low-ability children. Reuman asked students if they would compare their test scores with those of a classmate and whether the selected classmate was perceived to be more or less able than they were. Consistent with the social comparison process, between-class ability grouping was associated with systematic differences in the perceived ability of the comparison classmate; high-ability children were more likely to select classmates with higher abilities than their own and low ability children were more likely to select classmates with lower abilities than their own. These results support the role of social comparison processes in mediating the effects of ability grouping.

Davis (1966) suggested a model similar to the BFLPE in a study of career decisions of American college students. Davis sought support for a theoretical explanation of why the academic quality of a college had so little effect on career choice. Expanding the educational policy implications of his research, Davis (1966, p. 31) concluded: "Counselors and parents might well consider the drawbacks as well as the advantages of sending a boy to a "fine" college, if, when doing so, it is fairly certain that he will end up in the bottom ranks of his graduating class. The aphorism 'It is better to be a big frog in a small pond than a small frog in a big pond' is not perfect advice but it is not trivial." Such advice may also be relevant for evaluating the likely impact of attending academically selective high schools.

Case study evidence also supports the underlying processes of the BFLPE (Marsh, 1991). A student named Ilona was attending an academically selective Australian high school, but she was doing poorly and not attending school regularly. A change in employment forced her parents to move and Ilona changed to a new high school that was not a selective school. Due to her poor progress at the last school

Ilona was initially placed in a class with the least able students in the school. It quickly became evident, however, that she was a very able student and she soon worked her way into the most advanced classes in the new school. Her parents found that she was taking school more seriously and spending more time on her homework. Ilona indicated that at the old (selective) school she had to work really hard to get just average marks which was not worth the effort. However, if she worked hard in her new school she could be one of the best, which was apparently worth the effort.

BFLPE: An Australian Perspective

Australia continues to experience a substantial growth in the numbers of both gifted-and-talented (GAT) classes and secondary selective schools. This growth reflects strong parental interest in, and political support for, special educational settings for academically able students. Several early studies were undertaken by the NSW government to evaluate special educational provisions for GAT students. Sampson (1969) matched students in regular classes (who had declined offers to participate in specialised GAT classes) with students who participated in GAT classes in Years 5 and 6 (the last two years of primary school), on the basis of information collected in Year 4. He found that the two groups did not differ significantly in subsequent Commonwealth Secondary Scholarship Examinations scores, Higher School Certificate scores, or school persistence. However, regular-class students performed significantly better than GAT class students on the aggregate School Certificate in Year 10, although this difference occurred primarily with boys.

In subsequent research, Sampson (1977) compared a random sample of 240 students from eight selective high schools and a comparison group of comprehensive high school students matched on the basis of gender, age, socioeconomic status, IQ, and prior achievement. He found that there were no statistically significant differences between selective and comprehensive high school students on subsequent school certificate scores, higher school certificate scores, or school retention rates. This result was consistent across initial ability levels and for boys and girls. This research contributed to a ministerial report recommending that selective schools should be phased out, but this recommendation was not enacted due in part to parental pressure to maintain these schools. In both studies, Sampson emphasized that he was unable to consider affective variables (e.g. self-concept) that he suggested might be enhanced by attending selective schools.

Much of the BFLPE research is based on Australian settings (e.g., Craven, Marsh & Print, 2000; Marsh, 1984b; Marsh & Parker, 1984; Marsh, Chessor, Craven & Roche, 1995). In a critique of this research, Gross (1997) argued against the validity of the BFLPE in Australian high school settings that promoted a rejoinder by Marsh and Craven (1998). Gross (1992, 1993), based on research with profoundly gifted children, argued that "It might be anticipated that exceptionally gifted children who have been radically accelerated would score high on the index of academic self-esteem. By contrast, they display positive but modest scores, between the mean for their age groups and .7 of a standard deviation above...Interestingly, it is the children who have not been radically accelerated whose academic self-esteem is unusually inflated" (p. 97). However, Marsh and Craven countered that although Gross argued that students in non-accelerated settings have "inflated" academic self-concepts, her results support the BFLPE. Despite being 4 SDs above the mean IQ, radically accelerated children have "radically deflated" academic self-concepts that are only slightly above average because they compare their academic skills with those of their older, more able classmates. In contrast, the non-accelerated gifted students have realistically high academic self-concepts because they compare their abilities with those students from a normal range of abilities. Thus, radical acceleration is likely to produce substantial declines in academic self-concept that are consistent with the BFLPE. Marsh and Craven suggested that the implication of Gross's argument was that it is somehow bad for gifted children to have academic self-concepts commensurate with their high levels of academic achievement and good for them to experience a substantial decline in academic self-concept, but that Gross provided no evidence in support of this implication.

Gross (1997) subsequently evaluated shifts in academic and nonacademic self-concepts for students in their first year of selective high schools and comprehensive high schools. She implied that her results did not support the Big-Fish-Little-Pond Effect (BFLPE). However, Marsh and Craven (1998) noted that a careful evaluation of her published data and statistical analyses shows that her results were clearly consistent with BFLPE predictions. In particular, Marsh and Craven emphasized that, consistent with BFLPE predictions, Gross's published results showed that: (a) students from academically selective schools experienced significant declines in academic self-concept over time; (b) these shifts were more negative for academic than for nonacademic self-concepts; and (c) the declines in selective schools were more negative than in comprehensive schools, particularly for academic self-concept (that increased slightly in

comprehensive schools). Hence, Marsh and Craven (1998) concluded that a critical reanalysis of data and findings published by Gross provided clear support for the BFLPE. Marsh and Hau (2004) subsequently demonstrated that the BFLPE was clearly evident and of approximately equal size in each of the eight Australian states and territories (based on representative samples of students using OECD's PISA data that is the basis of many national and cross-national comparisons – see subsequent discussion of cross-cultural generalizability of the BFLPE).

Theoretical Issues About the Generalisability of the BFLPE

A number of theoretically important issues about the generalizability of the BFLPE have received empirical attention. Thus, for example, Marsh's research has focused on the extent to which the BFLPEs are specific to academic self-concept and the extent to which the BFLPE varies across different individual student ability levels.

Specific to Academic Self-concept.

Consistent with theoretical predictions and a growing emphasis on the multidimensionality of self-concept, the BFLPE is very specific to academic components of self-concept. Marsh and Parker (1984a; Marsh, 1987) showed that there were large negative BFLPEs for academic self-concept, but little or no BFLPEs on general self-concept or self-esteem. Marsh, Chessor, Craven and Roche (1995) reported two studies of the effects of participation in gifted and talented programs on different components of self-concept over time and in relation to a matched comparison group. There was clear evidence for negative BFLPEs in that academic self-concept of students in the gifted and talented programs declined over time and in relation to the comparison group. These BFLPEs were consistently large for academic components of self-concept, but were small and largely nonsignificant for four nonacademic self-concepts and for general self-esteem. The domain specificity of these effects adds to the growing body of research in support of multidimensional perspective to self-concept instead of the unidimensional perspective that has dominated self-concept research.

Generalisability over initial ability levels.

Marsh (1984a, 1984b, 1987, 1990, 1991, 1993; Marsh et al., 1995; Marsh & Rowe, 1996) argued that attending selective schools should lead to reduced academic self-concepts for students of all achievement levels based on several different theoretical perspectives. For a large, nationally representative (US) database, Marsh and Rowe (1996) found that the BFLPE was clearly evident for students of all achievement levels and that the size of the BFLPE varied only slightly with individual student achievement. In two studies demonstrating BFLPEs in students attending gifted-and-talented programs, Marsh et al. (1995) found no significant interaction between the size of the BFLPE and achievement level of individual students. These results have important implications, demonstrating that even very able students suffer BFLPEs.

Generalisability of the BFLPE to Other Educational Outcomes.

Although very important for academic self-concept theory, what are the consequences of attending high-achievement schools on other academic outcomes and how are these related to academic self-concept? Educators and particularly parents often assume that there are academic benefits associated with attending higher-achievement schools. After all, academic achievement, aspirations and subsequent attainment are typically higher in these schools. This naive analysis, however, fails to take into account the initially higher achievement levels and other pre-existing differences of students who attend academically selective high schools. A better test would be to compare academic outcomes after controlling the pre-existing differences in both the levels and rates of learning of students who attend high-ability schools.

Marsh (1991) considered the influence of school-average achievement on a much wider array of outcomes in a very large, nationally representative, longitudinal study of US high school students; 36 students each from 1000 high schools were surveyed in Year 10 (T1), Year 12 (T2), and again two years after graduation from high school (T3). The outcomes in this study included most of the important outcomes of education. After controlling background and initial achievement, the effects of school-average achievement were negative for almost all of the Year 10, Year 12, and post-secondary outcomes: 15 of the 17 effects were significantly negative and 2 were non-significant. School-average achievement most negatively affected academic self-concept (the BFLPE) and educational aspirations, but school-average achievement also negatively affected general self-concept, advanced coursework selection, school grades, standardized test scores, occupational aspirations and subsequent college attendance. The negative effects for educational aspirations were clearly evident two years after graduation from high school, demonstrating that BFLPEs effects were long lasting. Even after controlling for all Year 10 outcomes, school-average achievement negatively affected many subsequent outcomes. This implies that

school-average achievement continued to negatively affect Year 12 and post-secondary outcomes beyond the negative effects experienced at Year 10. Consistent with the proposal that these negative effects were substantially mediated by academic self-concept, controlling for the negative effects of school-average achievement on academic self-concept substantially reduced the size of negative effects on other outcomes.

Generalisability of Cross-cultural Support for the BFLPE

Cross-cultural comparisons provide researchers with a valuable, heuristic basis to test the external validity and generalizability of their measures, theories, and models. In their influential review, Segall, Lonner, and Berry (1998, p.1102) emphasized that cross-cultural research's three complementary goals were: "to transport and test our current psychological knowledge and perspectives by using them in other cultures; to explore and discover new aspects of the phenomenon being studied in local cultural terms; and to integrate what has been learned from these first two approaches in order to generate more nearly universal psychology, one that has pan-human validity." From this perspective, the cross-cultural generalizability of the BFLPE provides an ideal approach to testing the construct validity of the BFLPE.

As described earlier, German research (Jerusalem, 1984; Schwarzer, Jerusalem, & Lange 1983) demonstrated a dramatic BFLPE for West German students who moved from nonselective, primary schools to secondary schools where selection was on the basis of academic achievement. The most able students in the low achievement schools were less able, but had much higher academic self-concepts, than the least able children in the high achievement schools.

In 1991, former East and West German students experienced a remarkable social experiment – the reunification of very different school systems after the fall of the Berlin Wall. Self-concepts were collected at the start, middle, and end of the first school year after reunification (Marsh, Köller & Baumert, 2001). East German students had NOT previously been grouped according to achievement. For them, the BFLPE was initially small, then moderate, and then substantial by the end of the year. West German students had attended schools based on achievement grouping for the two years prior to the reunification. For them, the BFLPE was substantial at all three times. A large East-West difference in the size of the BFLPE at the start of the year disappeared completely by the end of the year. The evolution of the BFLPE in the East and West German settings supported the social comparison process posited to underlie the BFLPE and its cross-cultural generalizability.

In Hong Kong, schools are very highly segregated in relation to achievement, but collectivist cultural values prevail that are posited to counter social comparison processes (compared to more individualistic values in most Western countries). Marsh, Kong and Hau (2000) followed a large, nationally representative sample of Grade 7 students through high school (7,997 students, 44 high schools, 4 years). Consistent with the BFLPE, school-average achievement (based on measures collected in Grade 6, prior to the start of high school) had negative effects on academic self-concept in Grade 8 and Grade 9. The effect sizes were similar to those found in US studies based on nationally representative samples. Even after controlling for the negative effect in Grade 8, there was an additional negative effect in Grade 9 (beyond those already experienced in Grade 8), demonstrating that the size of the BFLPE grew larger the longer students were in selective schools.

Zeidner and Schleyer (1999) tested the BFLPE in a large-scale study based on a nationally representative sample ($N=1020$) of Israeli gifted students participating in either special homogenous classes for the gifted or mixed achievement level classes. Path analyses indicated that gifted students in mixed achievement classes evidenced markedly higher academic self-concepts, lower anxiety and higher school grades than gifted students in specialised classes.

Replication of the BFLPE in different countries provides strong support for its cross-cultural generalizability. Each of these studies, however, has been conducted in a single country using self-concept assessments, achievement tests, and – to some extent – analytical procedures that were idiosyncratic to each particular study. Clearly, stronger cross-cultural studies would explicitly compare the results from at least two countries – and preferably as many as possible – based on comparable samples from each country, the same academic self-concept instrument, and the same measures of achievement. Because of the difficulty in achieving these criteria, apparent cross-cultural differences are typically confounded with potential differences in the composition of samples and, perhaps, the appropriateness of materials. I now discuss recent research based on data collected by the Organization for Economic Cooperation and Development (OECD) as part of Program of Student Assessment (PISA) that overcomes many of these difficulties.

OECD PISA Study

Marsh and Hau (2003) conducted the largest cross-cultural test of the BFLPE ever undertaken, consisting of nationally representative samples of approximately 4,000, 15-year olds from each of 26 countries attending a total of 3,851 different high schools (total N = 103,558 students), who completed the same self-concept instrument and achievement tests. The PISA database was collected in response to the need for internationally comparable evidence of student performance and related competencies within a common framework that was internationally agreed upon. Selection of the measures was made on the basis of advice from substantive and statistical expert panels and results from extensive pilot studies. Substantial efforts and resources were devoted to achieving cultural and linguistic breadth in the assessment materials, stringent quality-assurance mechanisms were applied in the translation of materials into different languages, and data were collected under independently supervised test conditions (see OECD PISA website for more details). Based on theoretical and empirical support for the BFLPE and the hypothesized cross-cultural validity of the BFLPE Marsh and Hau predicted: (1) The effect of individual student achievement on academic self-concept would be consistently positive in all 26 countries; (2) The effect of school-average ability on academic self-concept (the BFLPE) would be consistently negative across all 26 countries. They tested these predictions with multilevel models that allowed them to partition variance associated with different effects into components associated with the individual student (level 1), the school (level 2), and the country (level 3), and to test the extent to which the effects of individual student achievement and school-average achievement vary from country to country.

Consistent with a priori predictions, the effects of individual student achievement were substantial and positive (.38), and the effects of school-average achievement were negative (-.21). Thus, students with achievement levels one standard deviation above the mean had academic self-concepts .38 standard deviations above the mean academic self-concept score, whereas students in schools where the school-average level of achievement was one standard deviation above the mean (in the metric of individual student achievement) had academic self-concepts that were -.21 standard deviations below the mean. These effects were highly significant (all estimates were at least 10 times the corresponding standard error) and provided a strong replication of the BFLPE.

Not surprisingly, the results did vary somewhat for different countries. The country-to-country variation in the positive effect of individual student achievement effect (.013) was small but highly significant as was the country-to-country variation in school-average achievement effect (.007). In order to evaluate the consistency of the effects across countries, Marsh and Hau conducted 26 separate analyses – one for each country. In each of the 26 countries, the effect of individual achievement on academic self-concept was statistically significant and positive in all countries; effects varied from .14 to .63 (Mean = .38). Across the 26 countries, the BFLPE varied from -.02 to -.36. This negative effect of school-average achievement was significantly in 24 of 26 countries and non-significantly negative in the remaining two countries. These results suggest that the social comparison processes leading to the BFLPE may approach what Segall et al. (1998, p. 1102) refer to as a “nearly universal psychology, one that has pan-human validity” – one of the goals of cross-cultural research.

My research – particularly the American Psychologist article – has not been received without criticism. Because of the potentially controversial nature of the findings and its high visibility, the Marsh and Hau (2003) article attracted many responses to the journal. The American Psychologist Editors chose two of these to publish, and asked me to write a response to these replies. Both the Plucker et al. (2004) and Dia (2004) replies, as well as our response to these critiques of our research (Marsh, Hau & Craven, 2004), raised a number of interesting issues. I recommend these as further reading. However, there was no disagreement that our results supported predictions based on the BFLPE and their cross-cultural generalizability across responses from 26 countries. Coupled with research reviewed here and elsewhere, there is extremely strong support for internal validity, external validity, generalizability, and policy-practice implications of the BFLPE. Hence, the BFLPE stood up well to critical international scrutiny.

Generalisability of BFLPE Across Australian States/Territories

In supplemental analyses of this PISA data, Marsh and Hau (2004) summarize separate results comparing findings across the 8 Australian states and territories. Across the eight Australian states/territories there were no significant differences in academic self-concept, but small differences in academic achievement. Achievement scores were significantly higher than the Australian average in the Australian Capital Territory and New South Wales and significantly lower in Victoria and Northern Territory, but no differences were greater than .3 SD. Results in Figure 2 indicated that there were substantial differences between individual schools in terms of school-average levels of achievement, but not for school-average levels of academic self-concept. This is, of course, consistent with the frame of reference model that is the basis of the BFLPE –

students tend to evaluate themselves in relation to other students within the same school, even if other students in their school are substantially brighter or substantially less bright than students in other schools.

Across all Australian states and territories, there was good support for the BFLPE. In particular, the effect of individual achievement on academic self-concept was positive in each of the eight states/territories and the total sample (path coefficient = .40), whereas the effect of school-average achievement (the BFLPE) was negative across all states/territories and the total sample (path coefficient = -.35). Graphs from a multilevel perspective show how academic self-concept is positively related to individual student ability and negatively related to school-average ability (Figure 3).

The availability of the Australian PISA data provided a unique opportunity to evaluate rigorously the generalisability of the BFLPEs across eight Australian states/territories. Of central importance to the present investigation, the effects of school-average achievement were significantly negative and the sizes of these negative effects did not vary significantly across the eight states/territories. Given the size and representativeness of the PISA data and the rigorous statistical analyses, the results apparently provided strongest support for the generalizability of the BFLPE in an Australian setting.

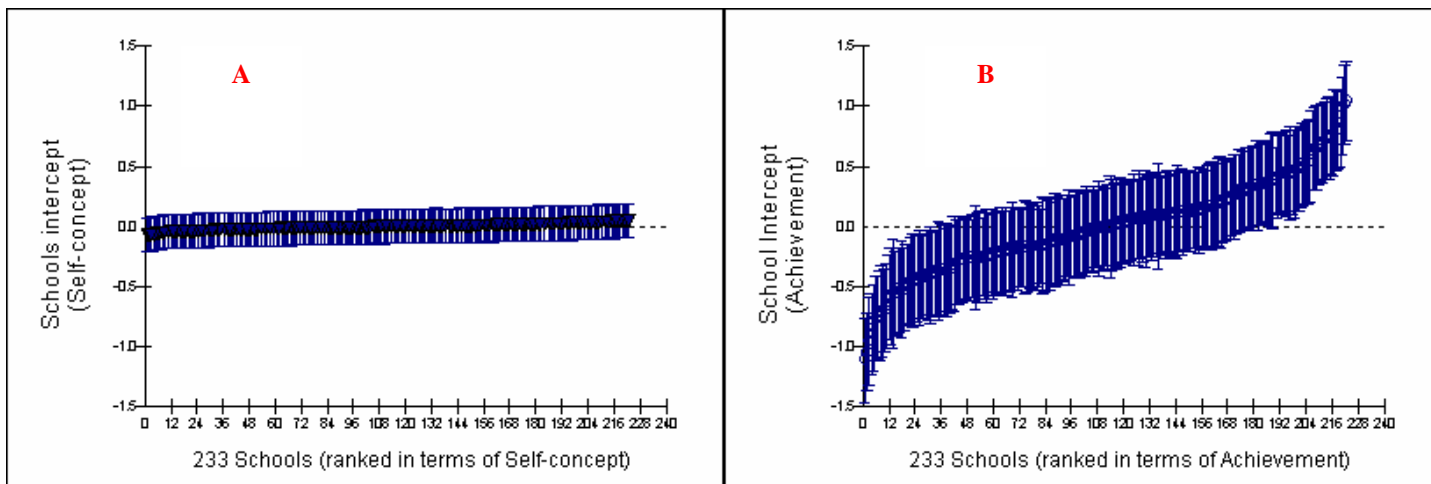


Figure 2. School-to-school variation in academic self-concept (A) and student achievement (B).

(A) Student Self-concept. Each of the 233 vertical lines represents the school intercept in terms of self-concept with an error bar (± 1.96 standard errors). Schools are ranked in terms of academic self-concept (from lowest to highest). The intraclass correlation (an index of variance explained by differences among schools) was .01. (B) Student Achievement. Each of the 233 vertical lines represents the school intercept (in terms of achievement) with an error bar (± 1.96 standard errors). The intraclass correlation (an index of variance explained by differences among schools) was .18. Individual student scores for self-concept and achievement were standardized (Mean = 0, $SD = 1$) across all students.

Generalisability of BFLPE to Special Education Settings

Much of the focus of the BFLPE has been on the negative effects of ability tracking on academic self-concept of high-ability students who attend high-ability schools (Marsh & Craven, 2002). It is important, however, to emphasize that the BFLPE also has important theoretical and practical implications for less-able students who attend schools where the average-ability levels of other students are low (low-ability tracks or special schools). For these students, the BFLPE predicts that less able students will have higher academic self-concepts in a tracked system (where their classmates, on average, are also less able) than in an untracked system (where their classmates, on average, are more able).

The BFLPE has particular relevance for special education settings and students with mild intellectual disabilities (MIDs). Following from theoretical work by Marsh and Johnston (1993), Tracey, Marsh and Craven (in press; also see Chapman, 1988; Crabtree, 2003; Renick & Harter, 1989; Rogers, Smith, & Coleman, 1978; Strang, Smith, & Rogers, 1978) argued that the social comparison model underlying the BFLPE also has important implications for placement strategies for students with MIDs and the movement

towards including students with MIDs in regular classrooms. Thus, for example, Coleman (1983) reported that preadolescents with MIDs in special classes had higher self-concepts than did preadolescents with MIDs who attended regular classes. Providing stronger support for the social comparison prediction, Renick and Harter (1989; also see Strang, Smith & Rogers, 1978) demonstrated that the same preadolescents with MIDs perceived themselves to be less academically competent when they compared themselves with normal achieving students in regular classes than when they compared themselves with peers with MIDs in special classes.

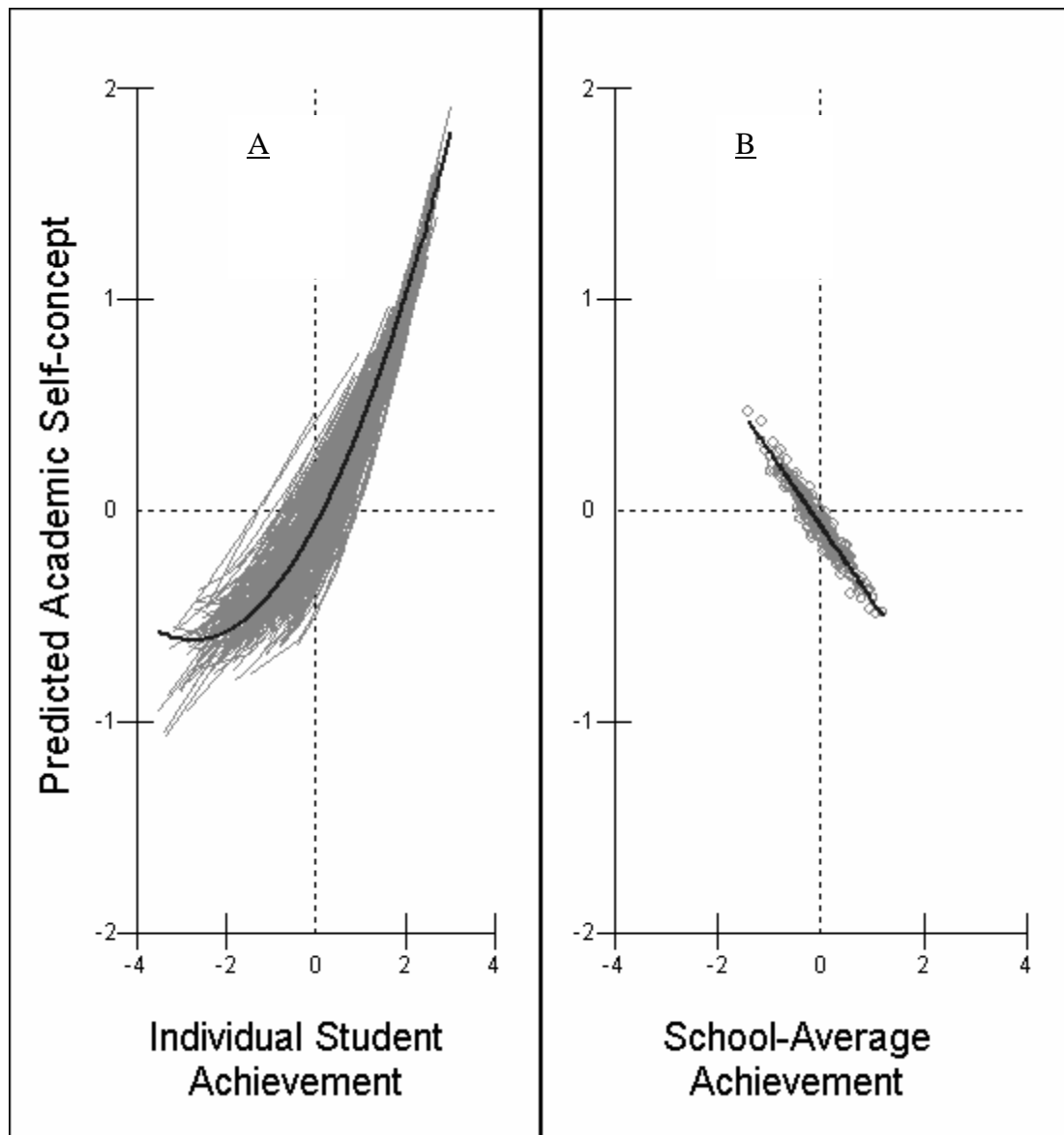


Figure 3. Relation between Predicted Academic Self-concept and Student Achievement.

(A) Individual Student Achievement. Each of the 233 lines (in gray) represents the relation between achievement and self-concept in a particular school. The solid line is averaged across all schools. (B) School-Average Achievement. The scatter plot of 233 points (in gray) represents the relation between school-average achievement and self-concept (i.e., each point represents a single school). The solid (dark) line is the regression equation for across all schools. Individual student scores for self-concept and achievement were standardized (Mean = 0, $SD = 1$) across all students and school-average achievement was based on the average of the standardized individual scores so that it is in the same metric as individual student achievement.

Special classes vs. mainstreaming: Background to the inclusion movement

The movement towards the inclusion of academically disadvantaged students in regular classrooms is a contentious issue, which has generated many debates. Labelling theory suggests that placing academically disadvantaged students in special classes with other low-achieving students will lead to lower self-concepts and create a long lasting stigmatisation. On the basis of this theoretical argument there has been widespread support for the practice of integrating academically disadvantaged students into regular classrooms (i.e., “mainstreaming”). In contrast, predictions based on BFLPE research imply that academically disadvantaged students will have higher self-concepts when grouped with other academically disadvantaged students (compared to similarly disadvantaged students in regular classroom settings).

Largely based on the classic study by Dunn (1968) in which he argued that special education may be doing more harm than good, proponents of the inclusion movement have cited labelling theory as a theoretical justification for placing students with disability in regular classes with peers without disability (e.g. Dunn, 1968; Stainback & Stainback, 1992; Stainback, Stainback, East & Sapon-Shevin, 1994). Dunn (1968) argued that labelling and grouping students into special classes is damaging to their self-concept because: “Separating a child from other children in his neighbourhood—or removing him from the regular classroom for therapy or special class placement—probably has a serious debilitating effect upon his self image... Removing a handicapped child from the regular grades for special education probably contributes significantly to his feelings of inferiority and problems of acceptance” (p. 9). Following from Dunn (1968) and others, theoretical arguments suggest that placing academically disadvantaged students in special classes with other low-achieving students will lead to lower self-concepts and create a long lasting stigmatization. On the basis of such largely untested, theoretical predictions and strongly held ideological positions, there has been widespread support for the practice of integrating students with MIDs into regular classrooms (i.e., “mainstreaming”).

In contrast to predictions based on labelling theory, the BFLPE implies that academically disadvantaged students will have higher academic self-concepts when grouped with other academically disadvantaged students (e.g. in segregated settings) and lower academic self-concepts when grouped with more academically advantaged students (e.g. in regular classroom settings). Importantly, the BFLPE also predicts that these negative effects will only occur—or will be much larger—for academic components of self-concept (e.g., reading, math, general-school self-concepts). However, a consistent finding in disabilities research is that students with MIDs who are placed in regular classrooms experience peer rejection and alienation (e.g. Johnson, 1950; Vaughn, Elbaum, & Schumm, 1996). Hence, whereas predictions based on the BFLPE in the general population suggest that the negative effects of regular-class placement might be limited to academic components of self-concept, research with MID students suggests that there might also be negative effects for peer relationship components of self-concept.

Particularly strong support for the BFLPE predictions based on social comparison theory comes from Chapman’s (1988) meta-analysis of studies of the self-concepts of students with learning disabilities in three educational placements: (a) completely segregated in special classes, (b) partially segregated for some work and partially included in regular classes, and (c) “unplaced” students with learning difficulties in regular full-time classes. For general self-esteem, students in special classes and partially segregated placements did not differ significantly from each other but reported higher self-concepts than did students with learning disabilities placed in regular classes full-time. For academic self-concept, students in special classes full-time had higher self-concepts than partially segregated students, and both groups had substantially higher self-concepts compared to students with learning disability in regular classes full-time. These results imply that the placement of students with learning disability in regular classes full-time is associated with more negative differences for academic self-concept than for global self-esteem, providing strong support for social comparison theory and the big-fish-little-pond effect.

Tracey, Marsh and Craven (2003) found support for BFLPE predictions for 211 students in Grades 2–6 with a mild intellectual disability (i.e., MID students with an IQ of 56 to 75) who were enrolled full-time in either regular classes or in an MID Support Unit. Students in special MID classes had significantly higher self-concepts for the academic scales (Reading, Math, School), but also had significantly higher Peer self-concepts and significantly higher General Self-concepts. The two groups did not differ significantly for the remaining three nonacademic self-concepts (Parents, Physical Ability, Physical Appearance). The results for the academic self-concept scales and, perhaps, the General self-concept scales are consistent with predictions based on BFLPE. The negative effects of inclusion on Peer self-concept, although not predicted a priori on the basis of BFLPE research, are understandable. Despite the rhetoric of inclusion, it seems that MID children who were in regular classrooms not only suffered lower academic self-concepts but also felt excluded socially. These Australian results are consistent with German results by Rheinberg and Enstrup

(1977) who compared the mental ability self-concept, test anxiety and achievement motivation of 165 students with mild to moderate learning disabilities ($70 < IQ \leq 85$). Of these students, higher self-concept and achievement motivation, as well as lower test anxiety was found in Children who attended special schools rather than normal schools. Consistent with BFLPE, integrating student with MIDs into comprehensive classes is likely to result in lower – not higher – academic self-concepts.

Translating the Big-Fish-Little-Pond Effect (BFLPE) into Sport/Exercise Settings

In sport/exercise psychology there is growing support for the importance of physical self-concept as both an outcome variable and a mediating variable that facilitates the attainment of other desirable outcomes (Fox, 1997; Marsh, 1997; 2002). In related research, Marsh (1993) demonstrated frame of reference effects associated with gender and age affected relations between physical self-concept and a comprehensive battery of physical fitness indicators (e.g., cardiovascular endurance, power, dynamic strength, static strength, flexibility, body composition). For example, whereas performance on a 1.6K run was related to physical self-concept for boys and girls across different ages, the relation was more accurately represented by controlling the effects of gender and age. Thus, even though the running speed of a 9-year-old girl might be very slow relative to those of 15-year-old boys (and the total sample), her running speed was positively correlated with physical self-concept if it was fast relative to other 9-year-old girls. Hence, the frame of reference used to form self-evaluations of running speed was based in part on social comparisons with other children of a similar age and gender. Although these frame of reference effects associated with gender and age are clearly different from those posited in the BFLPE, in each case the predictions are that individuals use the performances of other individuals in their immediate context as one basis for evaluating their own performances.

Generalizability of BFLPE to Gymnastics Self-concept in Physical Education Classes

The recently published Chanal, Marsh, Sarrazin, and Bois (2005) study is apparently the first to evaluate the generalizability of the BFLPE to physical self-concept and performances in a physical domain. This study has important implications for the evaluation of the generalizability of the BFLPE beyond the traditional academic setting in which it has been tested. It also opens up a new area of research in sports/exercise psychology that has important theoretical, substantive and practical applications for sport psychologists, physical education teachers, physical fitness trainers, and coaches. Hence, the overarching purpose of this study was to evaluate BFLPEs in relation to gymnastics self-concepts of adolescents who participated in a gymnastics-training program. French students completed a performance-based test of gymnastic skills and a gymnastics self-concept measure at the start of the program (T1), and at the end of the program (T2) students again completed the gymnastics self-concept measure. Consistent with BFLPE in traditional academic settings reviewed earlier, we found support for the following a priori predictions and research questions (also see Figure 4A and 4B).

1. The effect of individual gymnastics skill on gymnastics self-concept was positive (the ++ path leading from individual gymnastics skills to gymnastics self-concept in Figure 4A). When T2 self-concept was added to the path model (Figure 4B), the total effects of individual gymnastics skill were positive for both T1 and T2 self-concepts, although much of the effect of individual skill on T2 self-concept was mediated by T1 self-concept. Because gymnastics is a traditional component of physical education in the French system, all of these students would have had previous gymnastics experience – both formally and informally – that would provide a basis for reasonably accurate self-evaluations of their own gymnastics skills prior to the start of this study. However, because the participation in the class provides a basis for student to form more accurate perceptions of their gymnastics skills, the effect of individual gymnastics skills on T2 gymnastics self-concept was positive even after controlling for T1 gymnastics self-concept (i.e., the path relating individual skills to T2 self-concept when T1 self-concept is also included in the model – see Figure 4B).

2. The effect of class-average gymnastics skill on gymnastics self-concept was negative (the - path leading from individual gymnastics skills to gymnastics self-concept in Figure 4A; the BFLPE). When T2 self-concept was added to the path model (Figure 4B), the total effects of class-average gymnastics skill was negative for both T1 and T2 self-concepts, although much of the negative effect of class-average skills on T2 self-concept was mediated by T1 self-concept. Because the gymnastics component of the physical education class was conducted in the second half of the school year, students would have had ample time to get to know the general physical and movement skills of their classmates that are related to gymnastics performance. Furthermore, many of the students would have been in previous classes with many of the same students where there was a gymnastics component. Thus, students would have had a reasonable idea of how their physical skills relevant to gymnastics compared with those of other students at the start of the gymnastics component. However, because the BFLPE is a gradual effect that increases over time (e.g.,

Marsh, Koller, & Baumert, 2001), we found that there was a direct effect of class-average skills on T2 self-concept (i.e., the path leading from class-average skills to T2 self-concept in Figure 4B) as well as the substantial effect that was mediated through T1 self-concept. Equivalently, this finding could be expressed as indicating that the effect of class-average gymnastics skills was significantly negative for T2 gymnastics self-concept even after controlling for the effects class-average skills on T1 gymnastics self-concepts.

3. To what extent does the BFLPE (the negative effect of school-average achievement) vary as a function of gender, age, and individual levels of gymnastic skill? In order to evaluate this research question, we tested interactions between the class-average gymnastics skill (the BFLPE) and individual (a) gender, (b) age, and (c) gymnastics skill levels. Previous research in academic settings suggested that these interaction effects would be small or non-significant, although this may not be a particularly good basis for offering a priori predictions for this application in a physical activity domain. We noted, however, that tests of these interactions have important implications for theory, research, and practice. In particular, previous research has found that students of all ability levels -- even students near the top of their class in selective settings and not just those at the bottom of their class -- experience the negative effects of the BFLPE on self-concept. Whereas there were some statistically significant effects associated with some of these variables, the results showed that the BFLPE generalized well over gender, age, and initial skill levels.

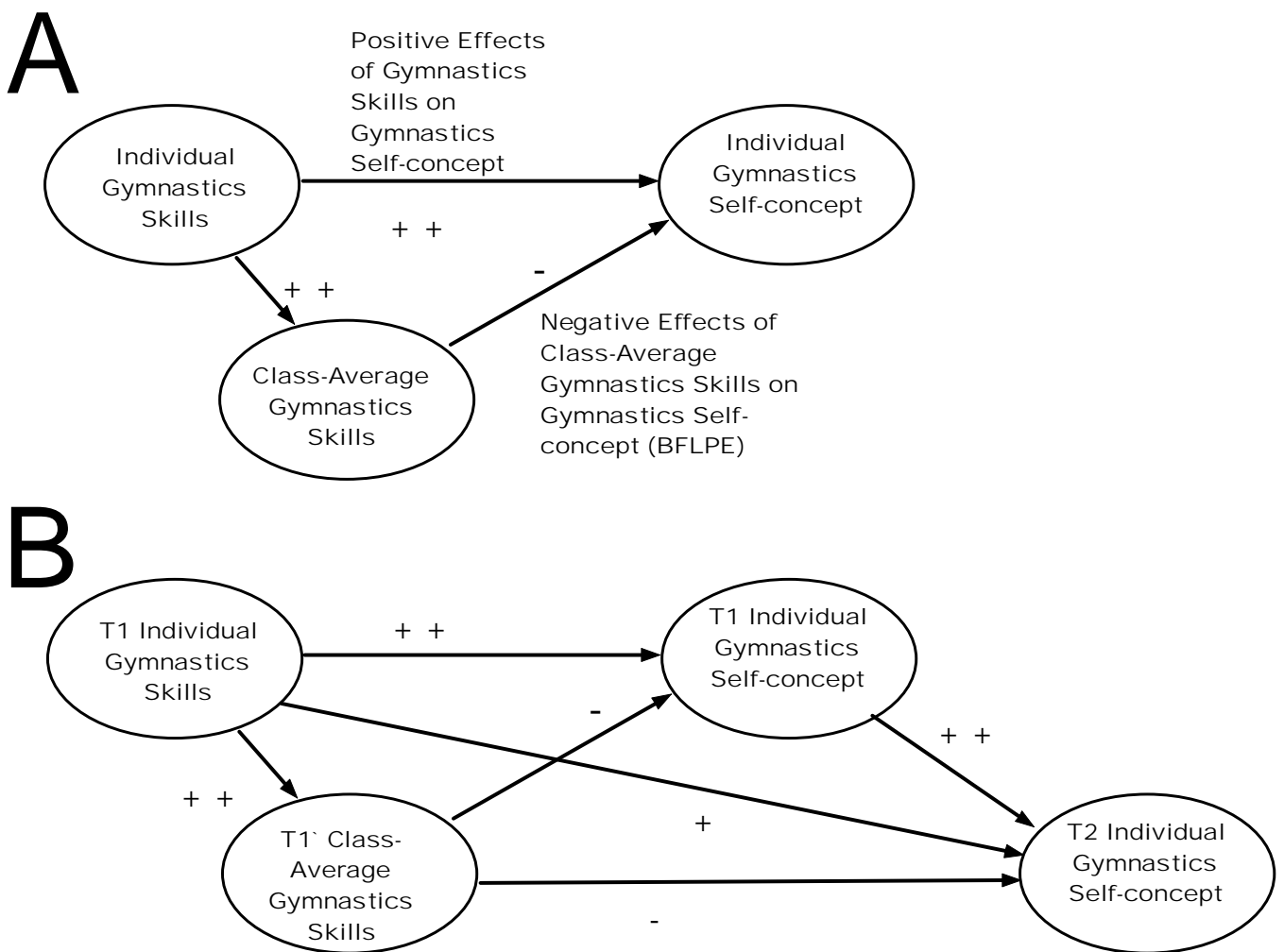


Figure 4. The Big Fish Little Pond Effect (BFLPE).

Theoretical predictions: (A) predictions based on responses to data collected at the start of the course; (B) predictions for effects from the start of the course (T1) to gymnastics self-concepts collected at the end of the program (T2).

Moving Beyond Metaphor: The BFLPE With Elite Swimmers

A particularly interesting study is currently being conducted by a PhD, Clark Perry of the Australian Institute of Sport in collaboration with the SELF Research Centre. As the Sport's Psychologist for the Australian swimming team, Clark has access to some unique research opportunities with elite athletes. This research is based on the Elite Athlete Self-Description Questionnaire (EASDQ) that measures multiple dimensions of athletic self-concept. Australia hosted the International Pan Pacific Swimming Meet and all participating nations were invited to participate in our research, and most agreed. Swimmers completed the EASDQ shortly before the start of the competition in relation to each of the events in which they were to compete. For each swimmer, we also had access to prior personal bests and performances at the meet for each event and rankings of each country in relation to overall performances and performances in each event. Similar data were subsequently collected at the World Short Course Championships in Greece. Between the two studies, we collected responses from 270 of the top swimmers in the world, which represented nearly 700 events. For all events each performance can be evaluated in relation to international points that allow us to compare performances across events in relation to a comparable standard.

The main goal of the study, moving beyond metaphor, is to evaluate an interesting new application of the BFLPE in this elite athletic setting. Specifically, we will evaluate the contribution of a swimmer's previous performance and the quality of swimming in his/her country in the formation of athletic self-concept. We predict that individual performance will contribute positively but that national ranking of the team will contribute negatively to academic self-concept. Thus, for example, a swimmer who is ranked 20th in the world in a particular event will have a higher swimming self-concept if this athlete is the top ranked swimmer in his/her country. However, this swimmer is likely to have a lower swimming self-concept if there are many other elite swimmers from the same country who are ranked higher – particularly if they are ranked higher in the same event. Preliminary results indicate support for the BFLPE in this study, but also suggest a “reflected glory” effect associated with pride in being associated with a top international team that may offset some of the negative effects associated with the BFLPE.

Countering the BFLPE: The role of competition in social comparison processes

Social comparison theory suggests that in a highly competitive environment, there are likely to be a few "winners," a lot of "losers," and a general decline in self-concept (Covington, 2001). Hence, Marsh and Craven (2002) speculated that the BFLPE could be reduced by de-emphasizing highly competitive environments that encourage the social comparison processes (e.g., Develop assessment tasks and feedback that encourages individual students to pursue their own projects that are of particular interest to them to reduce social comparison. Provide students with feedback in relation to criterion reference standards and personal improvement over time rather than comparisons based on the performances of other students. Emphasize to each student that she or he is a very able student and value the unique accomplishments of each individual student so that all students can feel good about themselves). Whereas such strategies were proposed specifically to undermine the negative BFLPE in high-ability schools, Marsh and Craven noted that these strategies also reflected good teaching that should improve educational outcomes generally.

Marsh and Craven (2002) provided no direct tests of their speculations about the role of competitive environments that reinforce social comparison. However, some indirect support comes from a physical education intervention. Marsh and Peart (1988) constructed two different physical education programs that experimentally manipulated the type of performance feedback given to high school girls who were randomly assigned to one of two experimental groups or a no-treatment control group. Participants completed a physical fitness test and a multidimensional self-concept instrument prior to, and immediately following, a 6-week intervention consisting of fourteen 35-minute classes. Two experimental groups participated in aerobics training programs that differed in the nature of feedback and motivational cues given to students. The social-comparison feedback emphasized the relative performances of different students and focused on whoever performed best for a particular exercise, whereas the improvement feedback emphasized individual progress in relation to previous performances of the individual. Both the social-comparison and improvement feedback programs significantly enhanced physical fitness relative to pretest scores and in comparison to the control group; there were no differences between these two experimental groups in terms of gains in fitness. The improvement feedback program also significantly enhanced self-concept of physical ability, but the social-comparison program produced a significant decline in physical self-concept. Apparently, the social-comparison feedback forced participants to compare their own physical accomplishments with the participants who were best on each individual exercise to a much greater degree than had been the case prior to the intervention or in the control group. Even though girls in the social comparison condition had substantial gains in actual fitness levels, these gains were more than offset by the much more demanding standards of comparison forced upon them in the classroom environment.

Lüdtke, Köller, Marsh and Trautwein (in press) provided a more direct test of the implications of teacher behaviors and the role of classroom climate on the BFLPE. In Germany there is a related area of research that considers instructional strategies, assessment procedures, and feedback strategies designed to counter the prevailing social comparison processes that are so strong in German schools. Based on this research, German researchers have developed the *individualized teacher frame of reference* (TFR) construct that bears a close resemblance to many of the aspects proposed to undermine the negative aspects of the BFLPE. Teachers high on individualized TRF focus on individualized feedback and improvement over time rather than reinforcing typical social comparison processes. Lüdtke, Köller, Marsh & Trautwein pursued these proposals in a large-scale longitudinal study of German high school students ($N = 2,150$ students from 112 mathematics classes) who were tested at the end of Grade 7 and again at the end of Grade 8. Applying a multiple operationalisation approach, TFR was independently measured on the basis of student reports of the behaviors of their teachers and on the basis of trained observer ratings of videotapes of actual classroom behavior.

Consistent with the BFLPE research Lüdtke, et al. (in press) found that class-average achievement had a negative effect on math self-concept in both Grades 7 and 8. Importantly, the effects of class-average achievement were more negative in Grade 8 than Grade 7, and the effects of class-average achievement were negative in Grade 8 even after controlling for the negative effects already experienced in Grade 7. Individualized TFR had a positive effect on self-concept. However, class-average achievement did not interact significantly with individualized TFR—the negative effects of class-average mathematics achievement were no smaller for teachers who adapted a TFR style. Both TFR effects (positive effect on self-concept and the non-significant interaction between TRF and class-average mathematics achievement) were consistent across class-average ratings of TRF by students and observer ratings based on videotaped class sessions. Clearly, from the perspective of enhancing self-concept, an individualized TFR is beneficial. However, the benefits of an individualized TFR did not interact with class-average ability.

In summary the BFLPE is apparently a very robust effect that generalizes well over a variety of characteristics of students, teachers, and classrooms. Speculating on the failure of individualized TRF to alter the size of the BFLPE, Lüdtke, et al. (in press) suggested that measures of classroom climate that focused directly on competitive and social comparison processes (rather than individualized processes) would have provided stronger tests of the hypothesized interaction between classroom climate and the BFLPE. An important area for further research is to determine individual student and classroom teacher characteristics that moderate the BFLPE.

Policy Implications

BFLPE research provides an alternative, contradictory perspective to educational policy on the placement of students in special education settings that is being enacted in many countries throughout the world. Remarkably, despite the very different issues, this clash between our research and much existing policy exists at both ends of the achievement continuum (also see Robinson, Zigler & Gallagher, 2000). In gifted education, there is an increasing trend toward the provision of highly segregated educational settings—special Gifted and Talented classes and academically selective schools for very bright students. In many countries this policy is based in part on a labelling theory perspective, suggesting that bright students will have higher self-concepts and experience other psychological benefits from being educated in the company of other academically gifted students. Yet, the BFLPE and empirical evaluation of the effects of academically selective settings (e.g., Marsh, Chessor, et al., 1995) showed exactly the opposite effects. Placement of gifted students in academically selective settings resulted in lower academic self-concepts, not higher academic self-concepts.

In recent research and policy for academically disadvantaged students, there is a worldwide inclusion movement to integrate these students into mainstream, regular classroom settings. Although economic rationalist perspectives appear to be the part of the motivation for governments to embrace this movement, the espoused rhetoric is often based on a direct application of labelling theory. According to labelling theory, academically disadvantaged children are likely to be stigmatized and suffer lower self-concepts as a consequence of being placed in special classes with other academically disadvantaged students. Yet, theory underpinning the BFLPE and empirical evaluation of the effects of including academically disadvantaged students in regular mainstream classrooms showed exactly the opposite effects (Tracey et al, in press). Inclusion of academically disadvantaged children into regular classrooms resulted in lower academic self-concepts, not higher academic self-concepts. Furthermore, the negative effects of this *inclusion* on Peer self-concept reported by Tracey et al, suggested that academically disadvantaged children in regular classrooms actually felt socially excluded, not included.

I do not interpret my research to mean that educational policy makers should close academically selective schools and abandon plans to integrate students with intellectual disabilities into mainstream, comprehensive schools. I do not claim that all academically gifted students will suffer lower academic self-concepts when attending academically high schools, but many will. I do not claim that all students with learning disadvantages will suffer lower academic self-concepts when attending regular, mixed-ability classes, but many will. Rather, my research provides an important alternative perspective to existing policy directions being enacted in many countries throughout the world that have not been adequately evaluated in relation to current educational research.

In a democratic society, parents should have choice in schooling alternatives for their children and governments need to be responsive to these public demands. My role as an educational researcher is to critically evaluate the implications of existing policy directions and to point out potentially negative, unintended consequences. Particularly when so many parents, teachers, and policy analysts uncritically assume that academic selective schools must automatically benefit the students who attend them, it is important to provide an alternative perspective based on strong theory and rigorous research. Hence, I urge parents to think carefully about the implications of school placements. Similarly, I urge policy makers and practitioners to reflect on potential negative side effects of current policy directions. A compromise position might be to more fully recognize the negative implications of the BFLPE and to develop strategies to counter the negative effects of school-average ability such as those proposed by Marsh and Craven (2002).

This controversy about selective schools in New South Wales Australia was reignited by the 2002 Vinson Report [http://www.pub-ed-inquiry.org/reports/final_reports/], the most far-reaching public inquiry into education in NSW in the last 50 years. Based in part on BFLPE research summarised in this article, the Vinson Report recommended a moratorium on new selective high schools and selectively cutting back on existing ones – recommendations that were not endorsed by the NSW government. In an editorial comment published in the Sydney Morning Herald responding to this report and the ongoing controversy about selective schools, Marsh (p.11) noted that:

It has been more than a quarter of century since the NSW government conducted research into this critical educational issue. Why has there not been a systematic evaluation of the effects of selective schools on a whole range of outcomes including achievement, academic self-concept, educational aspirations, university attendance, etc? Where is the solid research upon which to base decisions about maintaining, increasing, or decreasing the numbers of students attending selective schools? Hopefully, the controversy surrounding the Vinson Report will stimulate the NSW Department of Education Training to pursue this research in collaboration with key stakeholders. Or maybe we will just wait until the next time this issue erupts and again ask why educational decisions are based on political expediency instead of good educational research.

References

- Alwin, D. F., & Otto, L. B. (1977). High school context effects on aspirations. *Sociology of Education*, 50, 259-273.
- Bachman, J. G., & O'Malley, P. M. (1986). Self-concepts, self-esteem, and educational experiences: The frogpond revisited (again). *Journal of Personality and Social Psychology*, 50, 33-46.
- Branden, N. (1994). *Six pillars of self-esteem*. New York: Bantam.
- Brookover, W. B. (1989). *Self-Concept of Ability Scale - A Review and Further Analysis*. Paper presented at the Annual Meeting of the American Educational Research Association.
- Brookover, W. B., & Lezotte, L. W. (1979). *Changes in schools characteristics coincident with changes in student achievement*. East Lansing, MI: Michigan State University. (ERIC Document Reproduction Service No. ED 181 005).
- Byrne, B. M. (1996). Academic self-concept: Its structure, measurement, and relation to academic achievement. In B. A. Bracken (Ed.), *Handbook of self-concept* (pp. 287-316). New York: Wiley.
- Chanal, J. P., Marsh, H. W., Sarrazin, P. G. & Bois, J. E. (2005). The big-fish-little-pond effect on gymnastics self-concept: Generalizability of social comparison effects to a physical setting. *Journal of Sport and Exercise Psychology*, 27, 53-70.
- Chapman, J. W. (1988). Learning disabled children's self-concepts. *Review of Educational Research*, 58, 347-371.
- Coleman, J. M., & Fults, B. A. (1985). Special class placement, level of intelligence, and the self-concept of gifted children: A social comparison perspective. *Remedial and Special Education*, 6, 7-11.
- Covington, M. V. (2001). Goal theory, motivation, and school achievement: An integrative review. *Annual Review of psychology*, 51, 171-200.
- Coleman, J. (1983). Handicapped labels and instructional segregation: influences on children's self-concepts versus the perceptions of others. *Learning Disability Quarterly*, 6, 3-11.
- Craven, R. G., Marsh, H. W., & Print, M. (2000). Selective, Streamed and Mixed-Ability Programs for Gifted Students: Impact on Self-Concept, Motivation, and Achievement. *Australian Journal of Education*, 44, 51-75.
- Dai, D. Y. (2004). How universal is the big-fish-little-pond effect? *American Psychologist*, 59, 267-268.
- Davis, J. A. (1966). The campus as a frog pond: An application of theory of relative deprivation to career decisions for college men. *American Journal of Sociology*, 72, 17-31.
- Diener, E. & Fujita, F. (1997). Social comparison and subjective well-being. In Buunk, B. P. & Gibbons, F. X. (Eds). *Health, coping, and well-being: Perspectives from social comparison theory*. (pp. 329-358). Mahwah, NJ: Erlbaum.
- Dunn, L. (1968). Special education for the mildly retarded: Is much of it justifiable? *Exceptional Children*, 34, 5-22.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117-140.
- Fox, K. R. (1997). *The physical self: From motivation to well-being*. Champaign, IL : Human Kinetics.
- Gross, M. (1992). The use of radical acceleration in cases of extreme intellectual precocity. *Gifted Child Quarterly*, 36, 91-99.
- Gross, M. (1993). *Exceptionally gifted children*. London: Routledge.
- Gross, M. (1997). How ability groups turns big fish into little fish - or does it? Of optical illusions and optimal environments. *Australasian Journal of Gifted Education*, 6(2), 18-30.
- Helson, H. (1964). *Adaptation-level theory*. New York: Harper & Row.
- Hyman, H. (1942). The psychology of subjective status. *Psychological Bulletin*, 39, 473-474.
- Johnson, G. (1950). A study of the social position of the mentally retarded child in the regular grades. *American Journal of Mental Deficiency*, 55, 60-89.
- Ireson, J., Hallam, S., & Plewis, I. (2001). Ability grouping in secondary schools: Effects on pupil' self-concepts. *British Journal of Educational Psychology*, 71, 315-326.
- James, W. (1890/1963). *The principles of psychology*. New York: Holt, Rinehart & Winston.
- Jerusalem, M. (1984). Reference group, learning environment and self-evaluations: A dynamic multi-level analysis with latent variables. In R. Schwarzer (Ed.), *The self in anxiety, stress and depression*. North-Holland: Elsevier Science Publishers. pp. 61-73.
- Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits--self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology*, 86, 80-92.

- Kulik, C. L. (1985). *Effects of inter-class ability grouping on achievement and self-esteem*. Paper presented at the 1985 Annual Meeting of the American Psychological Association, Los Angeles.
- Kulik, C. L., & Kulik, J. A. (1982). Effects of ability grouping on secondary school students: A meta-analysis of evaluation findings. *American Educational Research Journal*, 21, 799-806.
- Lüdtke, O., Köller, O., Marsh, H. W. & Trautwein, U. (in press). Teacher frame of reference and the big-fish-little-pond effect. *Contemporary Educational Psychology*.
- Marsh, H. W. (1974). *Judgmental anchoring: Stimulus and response variables*. Unpublished doctoral dissertation, University of California, Los Angeles.
- Marsh, H. W. (1984a). Self-concept, social comparison and ability grouping: A reply to Kulik and Kulik. *American Educational Research Journal*, 21, 799-806.
- Marsh, H. W. (1984b). Self-concept: The application of a frame of reference model to explain paradoxical results. *Australian Journal of Education*, 28, 165-181.
- Marsh, H. W. (1987). The big-fish-little-pond effect on academic self-concept. *Journal of Educational Psychology*, 79, 280-295.
- Marsh, H. W. (1990). A multidimensional, hierarchical self-concept: Theoretical and empirical justification. *Educational Psychology Review*, 2, 77-172.
- Marsh, H. W. (1991). The failure of high ability high schools to deliver academic benefits: The importance of academic self-concept and educational aspirations. *American Educational Research Journal*, 28, 445-480.
- Marsh, H. W. (1993). Academic self-concept: Theory, measurement and research. In J. Suls (Ed.), *Psychological perspectives on the self* (Vol. 4, pp. 59-98). Hillsdale, NJ: Erlbaum.
- Marsh, H. W. (1994). Using the National Educational Longitudinal Study of 1988 to evaluate theoretical models of self-concept: The Self-Description Questionnaire. *Journal of Educational Psychology*, 86, 439-456.
- Marsh, H. W. (1997). The measurement of physical self-concept: A construct validation approach. In K. Fox (Ed.), *The physical self-concept: From motivation to well-being* (pp. 27-58). Champaign, IL: Human Kinetics.
- Marsh, H. W. (2002). A multidimensional physical self-concept: A construct validity approach to theory, measurement, and research. *Psychology: The Journal of the Hellenic Psychological Society*, 9, 459-493.
- Marsh, H. W. (2004). Negative effects of school-average achievement on academic self-concept: A comparison of the big-fish-little pond effect across Australian states and territories. *Australian Journal of Education*, 48, 5-26
- Marsh, H. W., Byrne, B. M., Yeung, A. S. (1999). Causal ordering of academic self-concept and achievement: Reanalysis of a pioneering study and revised recommendations. *Educational Psychologist*, 34, 155-167.
- Marsh, H. W., Chessor, D., Craven, R. G., & Roche, L. (1995). The effects of gifted and talented programs on academic self-concept: The big fish strikes again. *American Educational Research Journal*, 32, 285-319.
- Marsh, H. W., & Craven, R. G., (1994). Who benefits from selective schools? The role of academic self-concept and a call for further research. *Forum of Education*, 49, 3-13.
- Marsh, H. W., & Craven, R. (1997). Academic self-concept: Beyond the dustbowl. In G. Phye (Ed.), *Handbook of classroom assessment: Learning, achievement, and adjustment* (pp. 131-198). Orlando, FL: Academic Press.
- Marsh, H. W., & Craven, R. G. (1998). The Big Fish Little Pond Effect, Optical Illusions, and Misinterpretations: A Response to Gross (1997). *Australasian Journal of Gifted Education*, 7, 6-15.
- Marsh, H. W. & Craven, R. (2002). The Pivotal Role of Frames of Reference in Academic Self-concept Formation: The Big Fish Little Pond Effect In F. Pajares & T. Urdan (Eds.), *Adolescence and Education* (Vol II, pp. 83-123). Greenwich, CT. Information Age.
- Marsh, H. W., & Hattie, J. (1996). Theoretical perspectives on the structure of self-concept. In B. A. Bracken (Ed.), *Handbook of self-concept* (pp 38-90). New York: Wiley.
- Marsh, H. W. & Hau, K. T. (2003). Big fish little pond effect on academic self-concept: A crosscultural (26 country) test of the negative effects of academically selective schools. *American Psychologist*, 58, 364-376.
- Marsh, H. W., Hau, K., & Craven, R. (2004). The big-fish-little-pond effect stands up to scrutiny. *American Psychologist*, 59, 269-271.

- Marsh, H. W., & Johnston, C. F. (1993). Multidimensional self-concepts and frames of reference: Relevance to the exceptional learner. In F. E. Obiakor & S. Stile (Eds.) *Self-concept of exceptional learners: Current perspectives for educators*. Dubuque, Iowa: Kendall/Hunt.
- Marsh, H. W., Köller, O., & Baumert, J. (2001). Reunification of East and West German school systems: Longitudinal multilevel modeling study of the big fish little pond effect on academic self-concept. *American Educational Research Journal*, 38, 321-350.
- Marsh, H. W., Kong, C-K, Hau, K-T (2000). Longitudinal Multilevel Modeling of the Big Fish Little Pond Effect on Academic Self-concept: Counterbalancing Social Comparison and Reflected Glory Effects in Hong Kong High Schools. *Journal of Personality and Social Psychology*, 78, 337-349.
- Marsh, H. W., Parada, R. H. & Ayotte, V. (2004). A multidimensional perspective of relations between self-concept (Self Description Questionnaire II) and adolescent mental health (Youth Self Report). *Psychological Assessment*, 16, 27-41.
- Marsh, H. W. & Parker, J. (1984). Determinants of student self-concept: Is it better to be a relatively large fish in a small pond even if you don't learn to swim as well? *Journal of Personality and Social Psychology*, 47, 213-231.
- Marsh, H. W. & Peart, N. (1988). Competitive and cooperative physical fitness training programs for girls: Effects on physical fitness and on multidimensional self-concepts. *Journal of Sport and Exercise Psychology*, 10, 390-407.
- Marsh, H. W., & Perry, C. (2005). Does a positive self-concept contribute to winning gold medals in elite swimming? The causal ordering of elite athlete self-concept and championship performances. *Journal of Sport and Exercise Psychology*, 27, 71-91.
- Marsh, H. W., & Rowe, K. J. (1996). The negative effects of school-average ability on academic self-concept -- an application of multilevel modeling. *Australian Journal of Education*, 40(1):65-87.
- Marsh, H. W., & Yeung, A. S. (1997a). The causal effects of academic self-concept on academic achievement: Structural equation models of longitudinal data. *Journal of Educational Psychology*, 89, 41-54.
- Marsh, H. W., & Yeung, A. S. (1997b). Coursework selection: The effects of academic self-concept and achievement. *American Educational Research Journal*, 34, 691-720.
- Marsh, H. W., Byrne, B. M., & Shavelson, R. (1988). A multifaceted academic self-concept: Its hierarchical structure and its relation to academic achievement. *Journal of Educational Psychology*, 80, 366-380.
- McFarland, C., & Buehler, R. (1995). Collective self-esteem as a moderator of the frog-pond effect in reactions to performance feedback. *Journal of Personality and Social Psychology*, 68, 1055-1070.
- Meyer, J. W. (1970). High school effects on college intentions. *American Journal of Sociology*, 76, 59-70.
- Morse, S. & Gergen, K. J. (1970). Social comparison, self-consistency, and the concept of self. *Journal of Personality & Social Psychology*, 16, 148-156.
- Parducci, A. (1995). *Happiness, pleasure, and judgment: The contextual theory and its applications*. Mahwah, NJ: Erlbaum.
- Parker, S. K. (1998). Enhancing role breadth self-efficacy: The roles of job enrichment and other organizational interventions. *Journal of Applied Psychology*, 83, 835-852.
- Plucker, J. A., Robinson, N. M., Greenspon, T. S., Feldhusen, J. F., McCoach, D. B., & Subotnik, R. F. (2004). It's not how the pond makes you feel, but rather how high you can jump. *American Psychologist* 59, 268-269.
- Renick, M., and Harter, S. (1989). Impact of social comparisons on the developing self-perceptions of learning disabled students. *Journal of Educational Psychology*, 81, 631-638.
- Reuman, D. A. (1989). How social comparison mediates the relation between ability-grouping practices and students' achievement expectancies in mathematics. *Journal of Educational Psychology*, 81, 178-189.
- Rheinberg, F., & Enstrup, B. (1977). Self-concept of intelligence with pupils in special and normal schools: A group effect. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, 9, 171-180.
- Robinson, N. M., Zigler, E., & Gallagher, J. J. (2000). Two tails of the normal curve: Similarities and differences in the study of mental retardation and giftedness. *American Psychologist*, 55, 1413-1424 .
- Rogers, B. S. (1979). *Effects of an enrichment setting screening process on self-concept and others-concept of gifted elementary children*. Unpublished doctoral dissertation, University of Cincinnati.
- Rogers, C. M., Smith, M.D., & Coleman, J. M. (1978). Social comparison in the classroom: The relationship between academic achievement and self-concept. *Journal of Educational Psychology*, 70, 50-57.
- Rosenberg, M. (1965). *Society and the adolescent child*. Princeton: Princeton University Press.
- Sampson, J. F. (1969). *The high school examination achievements of opportunity "C" class pupils*. NSW Department of Education: Sydney (Report 373.127 SAMP 1, NSW Department of Education Library).

- Sampson, J. F. (1977). The secondary school performance of pupils in selective and comprehensive schools. In New South Wales Department of Education, *The education of the talented child* (pp. 111-131). Sydney: New South Wales Department of Education.
- Schwarzer, R., Jerusalem, J., & Lange, B. (1983). *The change of self-concept with respect to reference groups in school*. Paper presented at the 1983 Annual Meeting of the American Educational Research Association, Montreal.
- Segall, M. H., Lonner, W. J., & Berry, J. W. (1998). Cross-cultural psychology as a scholarly discipline: On the flowering of culture in behavioral research. *American Psychologist*, *53*, 1101-1110.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*, 5-14.
- Shavelson, R. J. & Marsh, H. W. (1986). *On the structure of self-concept*. In R. Schwarzer (Ed.), *Anxiety and cognitions*. NJ: Lawrence Erlbaum.
- Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research*, *46*, 407-441.
- Sherif, M., & Sherif, C. W. (1969). *Social psychology*. New York: Harper & Row.
- Stainback, S., and Stainback, W. (1992). Curriculum considerations in inclusive classrooms: Facilitating learning for all students. Baltimore: Brookes.
- Stainback, S., Stainback, W., East, K., and Sapon-Shevin, M. (1994). A commentary on inclusion and the development of a positive self-identity by people with disabilities. *Exceptional Children*, *60*, 486-490.
- Stouffer, S. A., Suchman, E.A., DeVinney, L.C., Star, S.A., & Williams, R.M. (1949). *The American soldier: Adjustments during army life* (Vol. 1). Princeton: Princeton University Press.
- Strang, L., Smith, M.D., & Rogers, C.M. (1978). Social comparison, multiple reference groups and the self-concepts of academically handicapped children before and after mainstreaming. *Journal of Educational Psychology*, *70*, 487-479.
- Sue, S. (1999). Science, ethnicity and bias: Where have we gone wrong? *American Psychologist*, *54*, 1070-1077.
- Suls, J. M. (1977). Social comparison theory and research: An overview from 1954. In J. M. Suls & R. L. Miller (Eds.), *Social comparison processes: Theoretical and empirical perspectives* (pp. 1-20). Washington, DC: Hemisphere.
- Taylor, S. E. & Lobel, M. (1989). Social comparison activity under threat: Downward evaluation and upward contacts. *Psychological Review*, *96*, 569-575.
- Tessor, A. (1988). Toward a self-evaluation maintenance model of social behavior. In L. Berkowitz (Ed.), *Advance in experimental social psychology* (Vol. 21, pp. 181-227). San Diego, CA: Academic Press.
- Tracey, D. K., Marsh, H.W. & Craven, R. G. (in press). Self-Concepts of Preadolescent Students with Mild Intellectual Disabilities: Issues of Measurement and Educational Placement. In H. W. Marsh, R. G. Craven, & D. M. McInerney (Eds.). *International Advances in Self Research* (Volume 1). Information Age, Greenwich, CT.
- Upshaw, H.S. (1969). The personal reference scale: An approach to social judgment. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*, *4*, 315-370.
- Valentine, J. C., DuBois, D. L., & Cooper, H. (2004). The relations between self-beliefs and academic achievement: A systematic review. *Educational Psychologist*, *39*, 111-133.
- Vaughn, S., Elbaum, B., and Schumm, J. (1996). The effects of inclusion on the social functioning of students with learning disabilities. *Journal of Learning Disabilities*, *29*, 598-608.
- Wills, T. A. (1981). Downward comparison principals in social psychology. *Psychological Bulletin*, *90*, 245-271.
- Zeidner M., & Schleyer, E. J. (1999). The big-fish- little-pond effect for academic self-concept, test anxiety and school grades in gifted children. *Contemporary Educational Psychology*, *24*, 305-329.