Breaking the Self-Concept Enhancement Conundrum: Re-Conceptualising the Next Generation of Self-Concept Enhancement Research

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Due to the benefits of a positive self-concept, enhancing self-concept across the lifespan is recognized internationally as a highly desirable goal in diverse settings ranging from the pre-school classroom to the retirement village. Despite this importance placed on the value of enhancing self-concept and the presumed impact of self-concept enhancement on other desirable outcomes, a plethora of self-concept interventions have failed to enhance self-concept. In this paper we encourage researchers to break this self-concept enhancement conundrum. Firstly, we provide a rationale for enhancing self-concept in order to demonstrate that enhancing self-concept is a highly desirable goal and a vital key to maximising human potential and happiness. To underpin this rationale we provide an overview of research evidence from the education sector that demonstrates self-concept's causal impact on subsequent academic achievement and other desirable educational outcomes. Secondly, we present a brief historical overview of self-concept theory and intervention research to illustrate that historically intervention research has been plagued by weak research methodology that continues to dominate enhancement research in this new millennium. Thirdly, we describe advances in self-concept theory, measurement and research that can be capitalized upon to expedite progress in unravelling the self-concept enhancement conundrum. Fourthly, we summarize results from important meta-analyses that critically analyse the effects of a range of self-concept interventions, and outline promising interventions, research designs and methods. Finally, based upon a synthesis of information presented in this paper, we present guidelines to call upon and assist researchers to implement the next generation of self-concept enhancement research to break the self-concept enhancement conundrum

Introduction

> *I cannot think of a single psychological problem - from anxiety to depression, to under-achievement at school or at work, to fear of intimacy, happiness or success, to alcohol or drug abuse, to spouse battering or child molestation, to co-dependency and sexual disorders, to passivity and chronic aimlessness, to suicide and crimes of violence - that is not traceable, at least in part, to the problem of deficient self-esteem*
>
> (Branden, 1994, p. xv).

These words by Nathaniel Branden - an eminent philosopher and psychologist - attest to the significance of the self-concept/self-esteem construct and the array of outcomes that are presumed to be mediated by a positive self-concept. The development of a positive self-concept is widely valued as a desirable outcome in and of itself as well as a mediator of a range of desirable outcomes including enhanced educational and career aspirations, increased adoption of adaptive striving behaviours, and improved achievement/performance in educational and work settings. Whilst this wide-ranging appeal of the self-concept construct

has resulted in numerous self-concept interventions, a plethora of self-concept interventions have failed to enhance self-concept. In this paper we encourage researchers to break this self-concept enhancement conundrum. We provide a rationale for enhancing self-concept; present a brief historical overview of self-concept theory and intervention research; describe advances in self-concept theory, measurement and research; summarize results from important meta-analyses that critically analyse the effects of a range of self-concept interventions; and outline promising interventions, research designs and methods. Finally, based upon a synthesis of information presented, we present guidelines to call upon and assist researchers to implement the next generation of self-concept enhancement research to provide an impetus and sound framework for researchers to indeed break the self-concept enhancement conundrum.

A Brief Rationale for Enhancing Self-Concept

The universal importance of self-concept and multidisciplinary appeal is highlighted by the regularity with which self-concept enhancement is identified as a major focus in diverse settings, including education, child development, mental and physical health, social services, industry, and sport/exercise. In regard to education, this pervasive significance of self-concept has been acknowledged in educational policy statements listing the development of a positive self-concept as one of the key goals of education (e.g. Australian Education Council, 1989; Ministerial Council on Education, Employment, Training and Youth Affairs, 1998).

Self-concept is also presumed to impact positively on academic achievement. Debate has raged as to whether self-concept has a causal impact on academic achievement (the self-concept enhancement model) or whether academic achievement causes self-concept (the skill development model). Support for the self-enhancement model would provide a strong justification for self-concept enhancement interventions especially in educational settings. In contrast, support for the skill development model implies that to enhance academic self-concept stronger academic skills need to be developed. Marsh and Craven (1997 provided an overview of critical design features in this area of research and noted that two studies had indeed provided defensible evidence that supported the causal impact of self-concept on academic achievement (Marsh, 1990a, Shavelson and Bolus, 1982). In scrutinising the Marsh study, Marsh and Craven (1997) noted that: “In neither of the intervals did school grades from a prior data wave have a statistically significant direct effect on subsequent academic self-concept. Thus, the effects of academic self-concept are “causally predominant” over those of school grades and these results provide strong support for the self-concept enhancement model of the self-concept/achievement relation”. Hence, existing research suggests that changes in self-concept may cause changes in academic achievement. However, it is also likely that the relationship between self-concept and academic achievement is reciprocal (the reciprocal effects model). For example, Marsh and Yeung (1997a) found that prior achievement in specific subject areas effects subsequent academic related facets of self-concept and prior self-concept affects subsequent achievement after controlling for the effects of prior achievement. These results are important as they suggest prior self-concept has significant effects on subsequent achievement beyond the effects of prior achievement alone. Futhermore, Marsh, Byrne & Yeung’s (1999; also see Byrne, 1996a; Marsh & Craven, 1997) review of this research area concluded that based on existing research using strong methodology (9 causal modelling studies) there was clear support for a reciprocal effects model in which the largest paths were from prior academic self-concept to school grades. Based on this model, Marsh and Craven (1997) concluded that “enhancing a child's academic

self-concept is not only a desirable goal but is likely to result in improved academic achievement as well" (p. 155) (also see Marsh, 2002).
Enhancing self-concept is considered necessary to maximising human potential, from early development and school achievement, to physical/mental health and well-being, to future aspirations and gainful employment and other contributions to society. Marsh and colleagues in a research program that has extended over a decade have demonstrated that changes in critical outcomes variables (e.g., coursework selection (Marsh, & Yeung, 1997b) educational and occupational aspirations (Marsh, 1991), bullying (Marsh, Parada, Yeung & Healey, 2001), relations with parents (Marsh & Craven, 1991), locus of control (Marsh & Craven, 1997) were related to the effects of academic self-concept. The attainment of a positive academic self-concept has also been shown to mediate positive influences on multiple desirable educational outcomes. For example self-concept has been demonstrated to impact upon motivation, effort, and anxiety (Skaalvik & Rankin, 1995); and coursework selection, degree of difficulty, and actually enrolling in selected courses (e.g. Meece, Parsons, Kaczala, Goff, & Futterman, 1982; Eccles, Adler, Futterman, Goff, Kaczala, Meece, & Midgley, 1983; Meece, Wigfield, & Eccles, 1990, Marsh & Yeung, 1997b). For example, Marsh and Yeung (1997b, p. 697) found that the effects of self-concept on intentions were significant and larger than the effects of prior achievement on intentions. They also found that specific self-concept facets significantly influenced wanting to do a course in the subject area the following year, and actually enrolling in the course. These findings led Marsh and Yeung (1997b, p. 709) to conclude that "self-concepts in specific school subjects are significantly related to subsequent coursework selection - to choices of what subjects students want to study and the choices of what they actually do pursue. These results provide new and additional support to academic self-concept theories predicting that academic self-concept contributes to the prediction of important outcome variables beyond what can be explained by academic achievement".

A low self-concept can also serve to stifle human potential. As emphasized by Branden (1994, p. xv), low self-concept can lead to personal and social ineffectiveness such as disadvantage, academic failure, depression, suicide, violence, criminality and many other social problems. As such, enhancing self-concept may assist in addressing major social problems of our time. For example, there is growing recognition that school bullying and violence are pervasive problems with long-term consequences for bullies, victims, other students, and communities. In fact, so significant is this problem that the Australian National Crime Prevention Strategy have contended that bullying interventions at the early stages of schooling are a necessary and crucial aspect of Australia's efforts to reduce crime (National Crime Prevention, 1999). Enhancing self-concept of bullies in adaptive ways as opposed to maladaptive self-enhancement strategies whereby bullies feel good about themselves by bullying less powerful others, could prove to be a vital key in the success of these interventions (see Marsh, Parada, Yeung, & Healey, 2001). In addition, enhancing self-concept has been acknowledged as important for addressing social inequities experienced by disadvantaged groups. For example, national reports, and all Australian governments have acknowledged that Aboriginal people are significantly educationally disadvantaged (Hughes, 1988; Commonwealth of Australia, 1994; 1995; 1997; Johnston, 1991; Kemp, 1999) which has dire implications for life opportunities. The President of New South Wales Aboriginal Education Consultative Group (NSW AECG) based on a recent study undertaken with AECG members (Craven & Tucker, 1993) contends that: "We feel that maximising Aboriginal children's self-concepts is absolutely fundamental to enhancing and ensuring as individuals they reach their full potential" (Charles Davison, quoted in Craven & Tucker, 2003). Similarly, the National Board of Employment, Education and Training study (1995, p. xi)

concluded that Aboriginal students need to "develop a strong sense of personal identity and self-esteem" and the Australian Royal Commission into Aboriginal Deaths in Custody (Johnston, 1991) identified low self-esteem as a critical variable contributing to Aboriginal disadvantage and deaths. Hence, in Australia enhancing self-esteem has been acknowledged as a vital key to improve educational outcomes for Aboriginal Australians.

Enhancing self-concept also has important implications for social policy. For example, 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 (Tracey, Marsh & Craven, in press). On the basis of this theoretical argument, there is widespread integration of academically disadvantaged students into regular classrooms ("mainstreaming"). In contrast, theoretical predictions based on self-concept theory (see Tracey, Marsh & Craven, in press) imply that academically disadvantaged students who remain in special classes will have higher self-concepts compared to similarly disadvantaged students in regular (integrated) classroom settings. Hence, well-intentioned interventions may not result in desired outcomes unless there is an associated shift in the individual's self-concepts. The broader implications of this research also extend to other important social-policy issues related to moving individuals of all ages to (e.g. nursing homes, specialised dementia units) and out of special care facilities (e.g. institutions for the mentally impaired (e.g. see Dixon, Marsh & Craven, 2002) into the broader community and how best to enhance self-concept and thereby the individual human potential of those at risk groups in these contexts.

Historical Pitfalls in Self-Concept Theory, Measurement and Research

The failure of interventions to enhance self-concept can be attributed to methodological flaws in previous research such as: the use of weak interventions; the use of potentially powerful interventions with small sample sizes or weak designs so that effects are unlikely to be statistically significant; and a poor fit between the intended goals of the intervention and the specific dimensions of self-concept used to evaluate the interventions (see Hattie, 1992; Hattie & Marsh, 1996; Marsh & Craven, 1997; Marsh & Richards, 1988). Identifying the structure or nature of self-concept is a logical prerequisite to relating self-concept to other variables, yet historically self-concept research has focused on between-construct research prior to addressing within-construct issues. This has resulted in inaccurate theory, paradoxical research findings, and ineffective educational practice. Historically, research has investigated a unidimensional or overall general self-concept rather than positing multiple different facets of self-concept (e.g. reading self-concept, mathematics self-concept, physical self-concept). "This agglomerate use of general self-concept is particularly dubious, and probably has led to many of the contradictory findings which abound in the self-concept research" (Marsh, 1990c, p. 31). Thus, early reviews of self-concept research prior to the 1980s (e.g., Burns, 1979; Shavelson, Hubner, & Stanton, 1976; Wells & Marwell, 1976; Wylie, 1974, 1979) noted the lack of theoretical basis in most studies, the poor quality of self-concept measurement instruments, methodological problems, and a general inconsistency in reported findings. Similar observations led Hattie (1992) to conclude that the predominant research design in self-concept studies was "throw it in and see what happens". The vast majority of intervention research today is still characterized by methodological flaws that have prevailed historically in this area of research. However, recent advances in self-concept theory, measurement and research offer promising new directions.

Recent Advances in Self-Concept Theory, Measurement and Research

Shavelson, *et al*., (1976) reviewed theoretical and empirical research, and developed a theoretical model of self-concept that has driven a new era in self-concept research. Included in the model were the assumptions that self-concept is: organized or structured; multi-faceted; hierarchically arranged; is stable at the apex of the model, but as one descends the hierarchy, self-concept becomes increasingly situation specific and as a consequence less stable; facets are increasingly differentiated with age; both evaluative and descriptive; and is differentiable from other constructs. General-self appears at the apex and is divided into academic and nonacademic components that are divided into more specific components. Perceptions were proposed to move from the sub-areas (e.g., academic self-concept in mathematics) to encompassing areas (e.g., academic self-concept), and finally to general self-concept (a bottom-up model). Recently, Marsh and Yeung (1998) suggested that the original Shavelson, *et al*., (1976) model might also be consistent with a top-down model in which perceptions also moved both from general self-concept, to encompassing areas of specific sub-areas. In the relatively few proposed tests of this distinction there has been no clear evidence favouring either top-down or bottom-up models (e.g., Marsh & Yeung, 1997a). However, it is likely that the direction of flow is reciprocal (both top-down and bottom-up), but more research and stronger methodological approaches are needed to resolve this theoretical issue. From a self-concept intervention perspective it is logically desirable to target specific facets of self-concept lower in the hierarchy (a bottom-up model) rather than general self-concept alone (a top-down model). For example, if a child had a maladaptive low reading self-concept it would be logical to target reading self-concept specifically rather than general self-concept in the hope that somehow an increase in general self-concept would dissipate down the hierarchy to enhance reading self-concept. Unfortunately a predominant strategy in many schools today is to continue to focus on enhancing general self-concept – a strategy that emanates from earlier unidimensional theoretical perspectives of the structure of self-concept.

At the time Shavelson, *et al*., (1976) were unable to measure the multiple facets of self-concept posited by their model due to the unavailability of a suitable instrument. Based on the Shavelson model Marsh developed the Self Description Questionnaire (SDQ) instruments (Marsh, 1990c; 1990d; 1992). Numerous factor analyses have identified the facets of self-concept that the SDQ instruments measure (e.g., see Marsh, 1990c; 1992 for summaries). Results of factor analyses provide strong support for the multidimensionality of self-concept, the facets and the hierarchical structure of self-concept proposed by the Shavelson model and construct validity for the SDQ instruments. "Implicit in this approach is the edict that theory building and instrument construction are inexorably intertwined, and that each will suffer if the two are separated" (Marsh, 1990c, p. 19). Reviews (Byrne, 1996a, 1996b; Hattie, 1992; Marsh, Byrne, & Shavelson, 1988; Marsh & Craven, 1997) now support the multifaceted structure of self-concept and it is now advocated that self-concept cannot be adequately understood if its multidimensionality is ignored.

Meta-Analyses

In self-concept intervention research it is disappointing that only two meta-analyses have been undertaken (Hattie, 1992; Haney & Durlak, 1998) to specifically investigate aspects of self-concept intervention research. However, these crucial meta-analyses offer vital insights into strengthening intervention research.

Hattie's (1986) Meta-Analysis

Janet Hattie (1986) conducted a meta-analysis to investigate whether cognitively oriented intervention programs had more of an effect on self-concept change than affectively oriented programs on pre-1983 studies. From 89 articles, 485 effect sizes were calculated with the average size being .37 (SD =.12). Hattie (1992, p. 227) concluded that 10% of those who experienced an intervention increased their self-concept compared with the control group. Hattie (1992) also found that effect sizes were higher for: adults (z = .52) than children (z = .31); lower socio-economic groups than middle socio-economic groups; groups with previously diagnosed problems (z = .55) relative to groups without problems (z = .26); and other settings (z = .50) compared to educational settings (z = .36) (see Hattie, 1992, pp.228-230). The results also indicated of the total sample, adults with previously diagnosed problems had the highest average effect-size (z = .87). Of particular concern is the finding that the effectiveness of teachers as self-concept change agents was considerably lower than average (z = .26). Hattie (1992, p.232) also concluded, "programs to change a particular dimension appear to have little affect on the global self". Only 36 of the 485 effect sizes included a delayed posttest and these came from only four studies. A significant difference was present between studies that were followed up (z = .16) and those without (z = .40).

In examining enhancement approaches Hattie (1992, p. 233) found that cognitively oriented interventions appear to be effective with a mean effect-size of .47. Though transactional analysis had a relatively high mean effect-size of .81, Hattie (1992, p. 233) cautions that it is based on only one study with 9 effect sizes. The mean effect-size of .12 for affective programs indicates that the effects of these types of enhancement programs are relatively low with the exception of creative self-awareness programs, which had a high mean effect size of .40. For other types of programs the average effect-size was .37 with variation according to the category. "There were no major differences between studies in which direct self-change was the aim (.32; e.g., therapy); studies where change was brought about by indirect methods (.29; e.g., enhancing academic achievement); those studies in which the intervention was direct and indirect (.44; e.g., a reading program combined with a self-concept program such as counselling); and, finally, those studies in which intervention was not associated with self-change (.42; e.g., longitudinal studies)" (Hattie, 1992, p. 235).

Hattie`s (1992) meta-analysis is a valuable contribution to the self-concept literature. As Hattie (1992:236) has pointed out, "there were too many fair and poor studies, too many studies were rejected because they evaluated programs by intuition, too few studies with follow-ups, and too few studies that included control groups". To these concerns Marsh and Craven (1997, p.179) have added that too few studies "have used well-validated, multidimensional self-concept instruments in which at least some of the scales are closely matched to the intended goals of the intervention".

Haney and Durlak (1998) Meta-Analysis

Recently Haney and Durlak (1998) conducted a meta-analysis of 116 self-concept/self-esteem pre-1992 studies for children and adolescents to: address whether interventions lead to significant improvement in self-concept, identify factors that moderate outcomes, and test whether improvements in self-concept are associated with other desirable outcomes. Studies identified were selected based on whether they involved children or adolescents with a mean age of 18 or younger; included at least one measure of self-concept or self-esteem, and contained a control group from the same population as the intervention group. A single effect size was calculated for each intervention, however the authors noted, "for studies using more than one SE/SC [self-esteem/self-concept] measure effects were averaged to yield one effect per intervention" (Haney & Durlak, 1998, p.425). Similarly, effects for other outcome measures were averaged for studies using more than one outcome measure.

The mean effect size for studies focused on enhancing self-concept was significantly ($p < .01$) higher (.57) than the mean effect size from studies focusing on other outcomes (.10). Except for children with internalising problems where both interventions that targeted self-concept and other outcomes did equally well (mean effect sizes in the mid .50s), all other categories of students (externalising, mixed and no previously diagnosed problems) display more improvement in the mean effect size for other outcomes if they are participating in an intervention that targets self-concept rather than other outcomes. However, the authors note that this pattern of results does not hold for three categories of outcomes (behaviour, personality and academic) considered in their study but noted these comparisons were limited due to small cell sizes.

Non-randomised designs resulted in significantly lower effect sizes (.04) than randomised studies (.38). Studies with no treatment control groups had significantly higher effect sizes (.34) than studies with attention-placebo controls (.10). Interventions that were developed based on prior research findings produced the highest effect size of .71, interventions based on a specific self-concept theory resulted in an effect size of .43, interventions that were based on other theory .53, studies based on another rationale produced an effect size of .26 and studies based on no rationale resulted in an effect size of .11. The authors also found that effects were stronger for treatment studies (.47) than prevention studies (.09). These results suggest that self-concept enhancement researchers can potentially maximise the impact of interventions on self-concept by: employing randomised designs, capitalising on previous research findings and theory to develop interventions, and targeting particular categories of students who are most likely to benefit from a self-concept enhancement intervention.

Haney and Durlak (1998) also created 3 categories of studies to test if positive changes in self-concept were associated with changes in other outcomes. Haney and Durlak (1998, p. 429) concluded, “it is possible to significantly improve children's and adolescents' levels of SE/SC and to obtain concomitant positive changes in other areas of adjustment. There is even the suggestion that SE/SC programs do at least as well as other types of interventions in changing other domains of functioning outcome data thus supports the views of several authors regarding the value of SE/SC interventions”. Haney and Durlak (1998, p. 429) also suggested that significant improvements in self-concept are unlikely unless interventions focus on self-concept. This suggestion is supported by the longitudinal causal modelling studies discussed earlier, which demonstrated that the strongest effects on subsequent self-concept is prior self-concept.

The meta-analysis of Hattie (1986) and Haney and Durlak's (1998) have similar overall mean effects (.27 vs. .37), and both suggest students with prediagnosed conditions are likely to benefit more from self-concept interventions. However, whilst Haney and Durlak (1998) found that studies focused on enhancing self-concept had higher effect sizes than studies that focused on other outcomes, Hattie (1986) found no difference between such studies. Hattie (1986) also found that effect sizes varied according to the type of intervention program and the characteristics of the treatment administrator, whilst Hanley and Durlak (1998) found that these variables were not significant moderators. Hence, these issues may need to be clarified by further meta-analytic research.

Advances in Self-Concept Intervention Research Methodology

The Construct Validity Approach

Fundamental to advances in self-concept enhancement research methodology were the Marsh, Richards, and Barnes (1986a, 1986b) studies which presented a construct validity approach to the study of intervention effects. They argued that specific dimensions of self-concept that are most relevant to the intervention should be most affected, while less relevant dimensions should be less affected. For example, if an intervention in a school setting targeted reading self-concept it would be logical to test whether the intervention affected: reading self-concept (target variable), school self-concept as reading self-concept is related to this construct (transfer variable), and non-target facets of academic (e.g., mathematics) and nonacademic (e.g., physical appearance) self-concept (non-target variables).

Testing for Diffusion Effects

Craven, Marsh, Debus and Jayasinghe (2001) developed a recent extension of this approach in educational settings that incorporated full experimental designs within-classes. In classroom settings in which a teacher-mediated intervention is to some extent usually public, the possibility that the treatment has inadvertently affected non-target participants is generally overlooked. Yet "if the classroom ecology is to be disturbed, it is important to assess how changes in teacher behaviour affect *all* students" (Good & Brophy, 1974). Hence, Craven (1996; Craven, Marsh, Debus & Jayasinghe**,** 2001) has advocated that enhancement researchers using within-class experimental designs need to test for what she terms 'diffusion effects' of the treatment to non-target participants in the context of a construct validity approach to the study of intervention effects. Such research designs enable the examination of: diffusion effects on target and non-target participants which has important implications for within-class control groups, and the impact of the intervention on target and non-target facets of self-concept relevant to the goals of the intervention.

Promising Intervention Studies

Outward Bound Interventions

The Outward Bound Standard Course is a 26-day residential program comprised of physically and mentally demanding outdoor activities for 17-25 year olds. Marsh, Richards, and Barnes (1986a; 1986b) studies of this program found that participation in the standard course had a significant effect on the nonacademic (SDQ-III) dimensions of self-concept most related to the course goals. Applying a construct validity approach they demonstrated that the intervention effects were significantly more positive for the most relevant self-concept factors, less positive for the moderately relevant self-concept factors, and least positive for the least relevant goals. Furthermore, this clearly differentiated pattern of results was also maintained during the 18-month follow-up period (Marsh, *et al*., 1986a). Hattie (1992) based on a meta-analysis of self-concept enhancement studies found this enhancement effect to be among the largest and most consistent in published research.

The Outward Bound Bridging Course was developed for underachieving boys aged 13 to 16 to improve math and reading achievement and self-concept and self-esteem. Program goals were primarily academic. The Marsh and Richards (1988) study predicted and found that the program affected primarily academic self-concepts and had much less impact on nonacademic self-concepts and corresponding effects were present for reading and mathematics achievement.

Taken together, the two studies attest to the importance of utilising a construct validity approach, and accounting for the multidimensionality of self-concept in intervention studies.

Marsh and Peart Study

Marsh and Peart (1988) conducted a study of aerobics training, physical fitness, and physical self-concept with randomly assigned competitive, cooperative, and control groups. The cooperative group participated in exercises undertaken in pairs and feedback that was provided to students emphasized individual improvement. This intervention resulted in an increase in physical self-concept and physical fitness. The competitive/social comparison group participated in individual exercises and feedback provided emphasized comparisons with the best students. This treatment resulted in an increase in physical fitness but a decrease in physical self-concept. The authors concluded that competitive environments - where there are a few winners and lots of losers - leads to lower self-concepts. Importantly, the study also demonstrates the rationale for developing both skill level and the corresponding area of self-concept.

Craven, Marsh, and Debus Study

Craven, Marsh, and Debus (1991), and Craven (1989) implemented an enhancement intervention in a primary setting that aimed to enhance reading and mathematics self-concept. Secondary effects were predicted to occur in self-attributions and academic achievement. Participants were primary school students who were low on academic self-concept as measured by the SDQ-I. The intervention was a combination of a researcher-devised treatment designed to enhance self-concept directly (internally focused performance feedback) and an indirect self-concept treatment designed to enhance self-concept via training students to change their self-attributions in success and failure situations (attributional retraining). The intervention focused on both reading and math self-concepts. Brophy`s (1981) guidelines for effective praise were utilized in delivering the intervention by ensuring both feedback forms were delivered contingent to appropriate improvements in performance to ensure the feedback was perceived as credible by students. The treatment was applied in educational settings and was administered by teachers in the regular classroom and by researchers in withdrawn assistance groups conducted within the school setting.

The researcher-administered treatment was successful in enhancing reading and mathematics self-concepts (target facets), school and general self-concept (transfer facets), and some logically related self-attributions (e.g., attributing success to effort). The researchers also found that non-target facets of self-concept that were unrelated to the goals of the intervention were not affected. The findings provide support for: (a) the importance of applying a construct validity approach to test the effectiveness of the intervention on target, transfer and non-target facets of self-concept, (b) the usefulness of the self-concept enhancement intervention; (c) the critical importance of accounting for multiple dimensions of self-concept in intervention studies; and (d) the necessity of utilising the strongest available multidimensional self-concept measurement instruments with demonstrated reliability and validity.

Despite the effectiveness of the similar researcher-administered treatment, the intervention administered by teachers in the context of the regular classroom did not result in significant changes in self-concept. To address this paradoxical result Craven, *et al*., (1991) and Craven (1989) suggested that future research based on teacher-administered interventions should consider: a) strategies to maintain the frequency of reinforcement delivered by teachers; b)

introducing the intervention at the beginning of the school year to ensure feedback was perceived as salient by students; and c) extending the treatment implementation period.

Craven Study

Craven (1996) incorporated the design features suggested above to maximize teacher-generated effects on self-concept. The purpose of this large-scale study was to investigate the effectiveness of an intervention to enhance academic self-concept and the related constructs of self-attributions and academic achievement. Participants for the longitudinal analysis were 1300 middle and working class children from 8 schools in metropolitan Western Sydney from each of the grades of 3, 4, and 5. From each of the 50 classes participating in the study, 18 participants with the lowest combined academic self-concept scores measured by the Self Description Questionnaire-I (SDQ-I) were selected from the longitudinal pool to participate in the enhancement component of the study.

The self-concept enhancement intervention was a combination of internally focused feedback and attributional feedback targeted at reading or mathematics or a combination thereof. The intervention was delivered over a period of 14 weeks by primary school teachers in the regular classroom context and by research assistants in educational settings as an analogue to withdrawn assistance groups. Six students from each of the 42 experimental classes were assigned to the within-class control group. One additional class from each of the 8 participating schools was randomly assigned to be an experimental diffusion control group and did not receive either the teacher-mediated or researcher-mediated intervention. This control group was incorporated in the research design to test for possible diffusion effects of the teacher-mediated intervention to non-target participants in the within-class control group.

The results demonstrated that the researcher-mediated intervention was successful in enhancing several targeted facets of self-concept and some logically related self-attributions and areas of academic achievement. For example, the researcher-mediated intervention in mathematics enhanced mathematics self-concept, some mathematics attributions and mathematics achievement. The single domain teacher-mediated interventions were successful in affecting some aspects of self-concept, self-attributions and academic achievement relevant to the goals of the intervention, though the teacher-administered intervention was less potent than the researcher-administered intervention. Students experiencing the combined teacher-mediated intervention showed gains in some aspects of reading achievement but the intervention did not enhance self-concept or self-attributions.

Comparison of academic self-concept and self-attribution scores of the within-class control group with the external diffusion control group revealed that the within-class control group had higher academic self-concepts and self-attribution scores at posttest than the external diffusion control group. Comparison of self-concept scores of the within-class control group with the external diffusion control group at time 2 revealed main effects for group were present for school, general and combined academic self-concept. Participants in within-class control groups had higher self-concepts in school, general and combined academic self-concept at time 2. Main effects for group were not present for reading and mathematics self-concept at time 2, however significant aptitude treatment interaction effects were present for mathematics and reading self-concept with prior levels of self-concept at time 2. These significant aptitude treatment interaction effects suggest that diffusion effects in mathematics and reading self-concept for students in the within-class control group are greater for some categories of students at time 2.

The presence of this diffusion effect suggests that teachers can enhance self-concept over a relatively short period. The findings provide support for: (a) the effectiveness of the intervention as a means to enhance self-concept particularly for treatments mediated by researchers, and mediated by teachers in single academic domains, (b) the importance of including multiple dimensions of self-concept in intervention studies, and (c) the need to test for diffusion effects when utilising within-class full experimental designs.

Burnett's Research Program: The Role of Children's Self-Talk and Teacher Feedback in Self-Concept Enhancement

Burnett has developed and evaluated the role of self-talk strategies in enhancing upper primary school students' self-concepts. Burnett (1995, 1997) building on Hattie's (1992) finding that cognitive behavioural based interventions were the most successful enhancers of self-esteem and self-concepts, developed two eight-week cognitive behavioural programs. One program was based on Cognitive-Behavioural Therapy strategies whilst the other was based on Rational Emotive Education activities. In terms of self-enhancement, Cognitive-Behavioural Therapy strategies use cognitive and behavioural techniques to help children think more positively about themselves and behave more confidently, while Rational Emotive Education focuses on developing rational self-accepting beliefs as the primary techniques of enhancement. Burnett (1995, 1997) developed a series of materials and activities based on the theoretical distinction between Cognitive-Behavioural Therapy strategies and Rational Emotive Education and a Masters level School Counsellor administered these in two classes in two schools. The findings indicated that neither program had an impact on children's self-esteem or self-concepts. However, both programs were associated with an increase in positive self-talk and Cognitive-Behavioural Therapy strategies were linked to a decrease in negative self-talk. It seemed that self-talk was changed for the positive in the short-term but not self-esteem or self-concepts. Given that self-esteem was found to correlate with positive self-talk ($r = 0.39$) and with negative self-talk ($r = -0.36$), it was postulated that self-esteem may increase in the longer term as a result of changes in the frequencies of positive and negative self-talk. Janet Hattie (1992) reported that it was difficult to enhance preadolescent's self-esteem and self-concepts using short-term intervention programs and Burnett's findings confirmed this. However, one important finding to emerge from these studies was the significant relationships between positive and negative self-talk and self-esteem and the fact that the program seemed to have an impact on changing children's self-talk in a positive way.

Burnett's recent studies have also highlighted the importance of what significant others say to children in generating adaptive self-talk statements in primary aged children (Burnett 1996, 1999, Burnett & McCrindle, 1999). For example, Burnett (1996) administered the Significant Others Statements Inventory (SOSI) and the Self-Talk Inventory (STI) to 635 primary school students in Grades 3 to 7 and found that positive statements made by teachers was the best predictor of positive self-talk. The next predictors in order were positive statements made by peers, parents and siblings. A perceived low rate of positive statements from teachers was a predictor of negative self-talk behind negative statements from siblings and peers and a low rate of positives from peers. The results of this study indicated that significant relationships existed between the perceived frequency of positive and negative statements made by others and positive and negative self-talk. In a subsequent study, Burnett and McCrindle (1999) found that general positive statements made by teachers had a direct effect on children's general positive self-talk which in turn had a direct effect on children's self-esteem and their self-esteem related behaviour. Also of note was the finding that negative statements from peers were directly related to negative self-talk. Similarly, in a further study based on data

were collected in six rural elementary schools (n = 747), Burnett (in press) found a mediating effect of self-talk between teachers' subject specific feedback and students' mathematics and reading self-concepts. These findings support the Craven, Marsh and Debus (1991) internal mediating model and Burnett's (1999) study that found that general positive self-talk mediated between teachers' general praise and students' self-concept in reading. Findings from Burnett's research program are important in suggesting that self-concept may be enhanced by encouraging students to use adaptive self-talk strategies and the latter may be best achieved by training teachers and peers to increase their administration of positive feedback and reduce negative feedback. Given that Hattie (1992) based on a meta-analysis has concluded that feedback is the most powerful single moderator that improves affective and achievement outcomes, and that promising interventions discussed above include feedback, incorporating feedback in future self-concept interventions is a useful consideration for incorporation in the next generation of self-concept enhancement research, some guidelines are presented next.

Guidelines for Creating the Next Generation of Self-Concept Enhancement Research

Taken together discussion in this article provides a blueprint for the next generation of self-concept enhancement research whereby researchers need to consider:

1. Utilising the strongest available self-concept theory as a basis for designing self-concept enhancement studies. Based on over a decade of research experience we judge the original Shavelson, *et al*., model and the Marsh and Shavelson revision of this model (1985; also see Marsh, 1990b; 1990e; 1990f) to be the best available structural theory. We also anticipate that self-concept researchers will also need to build nomological theoretical models articulating the direction of relations between self-concept and other critical variables (e.g., reciprocal effects models of relations between academic self-concept and academic achievement) over the next decade as a foundation for between-construct studies that relate self-concept to other variables and as a basis for disentangling the processes and identifying the constructs that contribute to enhancing self-concept.
2. Employing measurement instruments that account for the multidimensionality of self-concept and demonstrate the reliability and validity of the self-concept instruments employed in each investigation. The latter should help to ensure that appropriate attention is given to within-construct issues and hence internal validity is demonstrated prior to proceeding to relating self-concept measures to other constructs and their use as outcome measures in intervention studies. It is inadequate to quote the reliability and validity reported in test manuals, rather researchers need to demonstrate their measures are reliable measures of multiple facets of self-concept based on the sample under examination, preferably by utilising CFA approaches. This procedure is particularly important when researchers are using new instruments, adaptations of existing instruments or when targeting a new sample population with an established instrument.
3. Devising and implementing potentially powerful interventions that can be justified in the context of previous theory and research as opposed to ad hoc idiosyncratic interventions. Internally focused feedback, attributional retraining, and self-talk interventions are some potentially potent strategies deserving of further research. As mentioned previously, we would also suggest that a key element of self-concept interventions needs to be feedback /reinforcement. Interventions deriving from

promising self-concept enhancement studies often seem to share this characteristic. In addition, when implementing a range of interventions we have observed that participants respond positively to both positive reinforcement/feedback and constructive feedback. It also needs to be noted that Hattie based on the findings of a thorough meta-analysis contends that the most important ingredient underlying successful academic learning is feedback (Hattie, 1992). For these reasons, we suspect that in the near future it will also be possible to demonstrate that one of the most critical strategies for enhancing self-concept will be the provision of feedback.

It is also important to note that the actual procedures of new self-concept interventions need to be presented in adequate detail for: a) replication so that future researchers can offer further support, strengthen or refute findings and thereby ensure 'one shot' studies do not continue to dominate the field; and b) inclusion in future meta-analytic studies that can serve to elucidate the most powerful next generation interventions (i.e. report means, standard deviations and sample sizes for each effect on specific target, transfer and non-target variables for both control and experimental groups).

4. Capitalising on the strongest available research methodology by: a) utilising adequate sample sizes that allow for the strongest statistical tools (e.g., SEM, Joreskög & Sorböm, 1993) to be employed to analyse intervention effects; b) focusing interventions on specific facets of self-concept and stating hypotheses and their associated rationales in sufficient detail to identify and justify target, transfer and non-target self-concept facets and other outcomes. This should ensure an appropriate fit between the goals of the intervention and the specific dimensions of self-concept and measures of other outcomes used to evaluate interventions; c) employing a construct validity approach to the study of intervention effects (e.g., Marsh, Richards, & Barnes, 1986a, 1986b); d) ensuring in studies where possible diffusion effects may be present, that the research design includes controls to test for effects on target and non-target participants, and such effects are tested for and reported prior to undertaking further data analysis and reporting further results (e.g., Craven, 1996); and e) where possible conducting studies that employ longitudinal designs and include a long-term follow-up test of intervention effects.
5. Capitalising on the implications of the results of causal modelling studies (e.g., Marsh & Yeung, 1997a) by designing interventions to enhance both self-concept and desirable outcomes (e.g., academic achievement) as implied by the reciprocal effects model in studies that aim to produce long lasting effects of the intervention. For example, the Marsh and Richards (1988) study provides an excellent example of a study that simultaneously enhanced and affected math and reading self-concepts and corresponding areas of achievement.

In addition, given that Hattie (1992) has found that, compared to other instructors, teachers are least likely to enhance self-concept and given the importance of identifying effective self-concept techniques for the classroom, future new generation research needs to consider focusing intervention designs incorporating the features above on educational settings. Thus far, the value of interventions embedded in ecologically undisturbed settings (e.g., classrooms), mediated by ecologically natural agents (e.g., teachers) has not been fully explored or adequately supported by a body of studies with strong research designs and instrumentation. Designing interventions to be administered in naturalistic settings is a desirable goal since this is the target setting where interventions have most direct practical significance. Thorough training methods may need to be instigated for the schooling sector to ensure teachers comprehend how to implement a sophisticated self-concept intervention, the

key features of the intervention, and perhaps most importantly recognize the value in doing so.

Summary

In this article we have attempted to demonstrate some aspects of the rationale for enhancing self-concept. We also have emphasized that enhancing self-concept is a vital goal in itself and an important mediating variable that impacts on a variety of desirable outcomes in a variety of settings. We have also suggested that the results of promising self-concept enhancement studies are providing the basis for important directions in self-concept theory, research, and practice, and have suggested some new directions to begin to foster the next generation of self-concept enhancement studies. Throughout this article we have attempted to illuminate that consideration of theory, measurement instruments, intervention design based on previous research results, research methodology, and practice are intertwined such that weaknesses in any one area will adversely affect the other areas. We trust that attention to the design features described above assists researchers to ensure the next generation of self-concept enhancement studies avoid and overcome previous methodological flaws and capitalize on recent developments in theory, measurement and research to solve the enhancing self-concept conundrum.

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