

A

comparative study of the effects of segregated and integrated school environments on the academic and social self-concepts of students with Down syndrome

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Paper prepared for presentation at the Annual Conference of the Australian Association for Research in Education, New Castle, New South Wales, November 1994

Introduction

Over the past decade, educational goals have become increasingly directed toward the improvement of students' self-concepts. Implicit in this trend is the notion that student's perceptions about themselves, within the school environment, play a key role in the learning process, either as a contributing cause or as an important outcome (Wylie, 1979). Thus, a positive self-concept is valued as a desirable outcome in many educational settings and indeed is often suggested to be a mediating variable that facilitates the attainment of other desirable outcomes, such as academic achievement (Marsh, 1990a; Shavelson & Bolus, 1982). It

is for this reason that most educational policy statements list the development of a positive self-concept as one of the most important goals of education.

It has been widely acknowledged that the school is perhaps the most significant social force in shaping and maintaining students' self-concepts (Levine, 1983). The optimum development of the whole child requires that educators understand the effects of school environments upon self-concept, since school environments influence those with whom students associate during school hours, and external frame of reference effects play an integral role in students' self-evaluations (Marsh, 1987). The effects of specialised groupings on students' perceptions of

themselves in relation to their peer reference group, therefore, need to be known so that the role of school environments in this process can be investigated. Examination of the pertinent literature reveals a considerable body of research concerned with self-concept in a variety of educational settings and for a diversity of students. This literature has important implications for the integration of students with disabilities within the mainstream of education, particularly as an increasingly wide range of educational opportunities is available to students with disabilities, with the movement of students with disabilities into regular school environments (Doherty, 1985; Gow, 1986). As this process accelerates, a knowledge of the effects of integration upon self-concept becomes essential.

Marsh has been concerned with identifying the role that external comparative processes, or frames of reference play in the construction and maintenance of the self-concept and has proposed a frame of reference effect called the Big-Fish-Little-Pond Effect (Marsh, 1987). The Big-Fish-Little-Pond Effect, an important component of the Internal/External Frame of Reference Model, occurs when 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. Equally able students will therefore have lower self-perceived academic abilities and lower academic self-concepts in high-ability schools as opposed to low-ability schools because students in high-ability schools compare themselves with more able students than do students in low-ability schools. The relevant literature reveals a plethora of research supporting the Big-Fish-Little-Pond Effect and while the focus of much of this research has been on the effects of selective schools, this pattern of results has implications for differing school environments.

The impact of educational provision on the self-concepts of

students with disabilities has been a persistent theme in the literature not only examining integration but also regarding the special placement of students with disabilities (Coleman, 1983). The possible negative impact of placement in a segregated environment on students' self-concepts has, for some time, been a concern of educators, who fear that isolating and segregating these students may foster negative feelings of self-worth. As a consequence, there has, in the past decade, been a strong movement towards the integration of students with disabilities into more heterogeneous educational and social environments, based upon a belief that the integration of students with disabilities will enhance their self-concepts (Gow, 1990) as they become more involved with society's mainstream activities. However, research does not support the expectation that placing students with disabilities in classes with non-disabled students results in enhanced self-concept (Chapman, 1988; Coleman, 1983; Renick & Harter, 1989; Silon & Harter, 1985; Strang, Smith, & Rogers, 1978). Rather, it indicates that when students with disabilities have access to a disabled peer reference group with which to compare themselves, the self-concepts of the former are enhanced, because when comparisons are made with students who possess similar academic abilities, there is little reason to expect lowered self-concepts (Renick & Harter, 1989; Silon & Harter, 1985).

As well as the above mentioned reasons for integrating students with disabilities, underlying the movement from rigid exclusion

to progressive inclusion (Center, 1987) there is a belief that there will be social benefits for students with disabilities consequent upon their interacting with non-disabled students. An examination of the vast literature on the social adjustment of students with disabilities reveals that these positive benefits do not always accrue because students with disabilities are not always accepted by their non-disabled peers. If the students with disabilities are not interacting with their non-disabled peers, this could have an important impact on the social comparisons and the self-concepts of the former. Consequently, educators continue to discuss the advantages and disadvantages of integrating students with disabilities, as peer group acceptance is considered crucial to the success of integration.

The aim of the study was to explore two main research issues. The first main research issue investigated in the study was concerned with not only the influence of school environments on both the academic and social self-concepts of segregated and partially integrated students with Down syndrome, but also with the examination of the extent to which peer reference groups influence self-concept formation and maintenance of these

students. The first issue incidentally also aimed to explore evidence suggestive of the operation of internal comparative processes in the self-concept formation of students with Down syndrome. The second main research issue investigated in the study was concerned with student reports of their social interactions both at school and outside school. Here the emphasis was on the social interactions of those students with Down syndrome enrolled in support classes in high schools with their non-disabled peers.

Methodology

Participants

Sixty students with Down syndrome participated in this study: 30 of the students were attending one of five schools for specific purposes; 24 of the 60 students were enrolled in support classes for students with moderate intellectual disabilities in one of ten regular high schools. For 23 of the latter students enrolled in support classes, their academic and non-academic learning took place in special education classrooms; and, for the remaining one of those latter students, his primary academic and non-academic learning took place in special education classrooms, although he was integrated into some regular non-academic classes. Due to the transformation of a comprehensive high school into a selective high school in recent years, the remaining six students were enrolled in a support class for students with moderate intellectual disabilities in a selective high school. For these six students, their academic and non-academic learning took place in special education classrooms. All 60 students in this study had been diagnosed as having Down syndrome, and although attending segregated or integrated schools, students were of comparable IQ with all students classified as having moderate intellectual disabilities (IQs ranging from 35-40 to 50-55). The participants in the present study included 31 girls (52%) and 29 boys (48%) aged between 12 and 18 years.

Research approval and consent

Approval to conduct this research was sought from and granted by the Director of the Quality Assurance Directorate, New South Wales Department of School Education following the submission of a proposal. Following this, approval was sought in writing and obtained from the principal or the head support teacher of each of the New South Wales Department of School Education Schools. Parental consent was also sought by distributing information and consent forms to the parents of the students selected to

participate in the study. Only those students whose parents signed a consent form were included in the study. Finally, the oral assent of each student was sought on the day of the interview.

Description of instrumentation

The study involved the use of three instruments, a self-concept instrument, and two academic and social comparison instruments.

Self-concept was assessed through the use of the Self Description Questionnaire-I. The Self Description Questionnaire-I was developed by Marsh (1990c) to assess the self-concepts of children and preadolescents. For this study the Self Description Questionnaire-I was reduced to a 48 item questionnaire comprising of five sub-scales: reading, maths, general-school subjects, peer relations and a general-self sub-scale. In recognition of the fact that children with Down syndrome may have short attention spans (Newton, 1992; Stratford, 1989), and may experience difficulty understanding language (Horstmeier, 1988), and in making themselves understood (Miller, 1992), precautions were taken to ensure that the students were able to answer the Self Description Questionnaire-I items satisfactorily. Although the Self Description Questionnaire-I sub-scale items were not changed, Marsh's response options were changed to: "not true for me"; "sometimes not true for me"; "sometimes not true and sometimes true for me"; "sometimes true for me"; and "true for me" to assist the students in their response to each item. To further aid students in their responses specially designed pictorial diagrams were used: these consisted of an individual in various poses representing each of the five response options.

Academic and social comparisons were assessed through the use of two measures. The first measure, entitled Academic and Social Comparisons: Segregated was a 28 item measure designed for students attending schools for specific purposes and the second measure, entitled, Academic and Social Comparisons: Integrated was a 39 item measure designed for students enrolled in support classes in high schools. Both questionnaires are comprised of two components: the first component of each instrument was designed to assess students' academic relations at school; the second component of each instrument was designed to assess students' social relationships at school. Items from the peer acceptance sub-scale of the Pictorial Scale of Perceived Competence and Social Acceptance (Harter & Pike, 1980) were adapted and used in the component of each instrument designed to assess students' social relationships at school. The academic comparisons component of the instrument designed for students attending schools for specific purposes consisted of 11 items

offering students a choice of two response options. Fourteen items make up the academic comparisons component of the instrument designed for students in support classes in high schools, and these items also offer a choice of two response

options. The remaining items on each instrument were designed to assess students' social relationships both at school and outside of school. The majority of the questions on both instruments required students to choose from two response options but, one item on each instrument required students to list their best friends at school and the other item required students to indicate who they would invite to their birthday party.

Procedures

The administration of the measures in both the segregated and integrated contexts involved a common routine. Firstly, each student was collected from their class and escorted to a location on the school grounds where the questionnaires were to be administered. Students were asked, before they were taken from their class, if they would accompany the researcher to answer some questions; students not wishing to participate were not compelled to do so. Secondly, all testing was conducted individually; questionnaires were administered to the students in a structured interview type manner in order to allow the researcher to determine that the students were able to answer satisfactorily all questionnaire items, and also to ensure that the responses from other participants would not be overheard. Prior to commencing each testing session a few minutes were taken wherein each student was spoken to so that a rapport might be developed with them. Thirdly, considering that a large majority of children with Down syndrome have some form of visual (Pueschel, 1992) and auditory (Van Dyke, Popejoy, & Hemenway, 1990) impairment, and in order to minimise any problems which may have arisen relating to reading difficulties, all the questionnaires were read aloud to the students. Furthermore, all questionnaires were filled in by the researcher rather than by the students, as Hoffman, Peterson and Van Dyke (1990) have found that children with Down syndrome display delays in fine motor skills, such as writing.

The first measure to be administered to the students was the Self Description Questionnaire-I. Each session began with a brief set of instructions, assuring the students of the confidentiality of their responses; this was followed by three sample items. Students were encouraged to indicate any difficulties they may have experienced in responding to an item. After reading each sample item the researcher asked the student whether he or she understood the sentence. If the student did not understand the

sentence, the researcher explained the sentence further, ascertained whether the sentence was understood, reread the sentence and requested a response from the student. After determining that the student understood the sample item, the researcher initially asked the student to respond "true for me" or "not true for me" to the sentence to indicate whether the sentence was true or false as a description of the person. The pictorial response diagrams were referred to, when necessary, to aid the students in their responding. If the student initially responded "true for me", the interviewer then asked the student whether he or she meant "true always" or "true sometimes". Similarly, if the student initially responded "not true for me", the interviewer then asked the student if he or she meant "not true always" or "not true sometimes". The second response probe was stated for every response, even when it was answered in the initial response thereby, providing a check on the accuracy of the students' initial response.

After each student had successfully responded to the sample items and any questions had been clarified, the researcher would then read aloud each of the questionnaire items. After presenting each of the first four items, the researcher would ask the student before obtaining a response, whether he or she had understood the sentence. The student would subsequently be encouraged to indicate any problems experienced in responding to an item. This procedure was included to encourage students to seek clarification of any item they did not understand; the researcher then explained the item and administered it. Participants were periodically asked if they had understood subsequent items during the remainder of the questionnaire. If a student had not responded appropriately, the item was noted and reread after the presentation of the remaining items. If that student still had not responded appropriately, he or she was asked if they had understood the sentence. If the item had not been understood, then it was further clarified by the researcher. If the student decided that he or she had understood the sentence but could not decide how to respond, the researcher would record a response of "sometimes not true and sometimes true for me". As evidence of the fact that students had had little difficulty understanding the questionnaire items, this occurred on only one occasion.

Following the administration of the Self Description Questionnaire-I students were administered one of the two Academic and Social Comparison Questionnaires, depending on the school which they attended. Prior to the administration of the questionnaire items, information would be read to students and a brief set of instructions would assure them that this would not be a test and that their answers would not be shown to anyone. During this time students were instructed to answer what was true

for them, and everything was done to ensure that all participants had fully understood what was required of them; they were encouraged to indicate to the researcher, at any time throughout the questionnaire, any difficulties that they had come across in responding to an item. After the information and instructions had been thoroughly described and students had indicated that they had understood what had been required of them and any questions had been clarified, the researcher would begin to read aloud the questionnaire items. Procedures similar to those used for the Self Description Questionnaire-I were adopted for the administration of these two questionnaires.

Results

Multiple discriminant analysis was used to determine whether the self-concepts of students attending schools for specific purposes could be differentiated from the self-concepts of students enrolled in support classes in high schools. The results revealed that the self-concepts of the two groups of students did not differ significantly ($p > .05$). Cluster analysis was used to substantiate these results and to ascertain whether student responses to the Self Description Questionnaire-I had been separated into distinct groupings. The dendrogram which was thus produced does not depict two distinct clusters of students, indicating that the self-concepts of the two groups of students cannot be clearly distinguished from each other.

Applying multiple discriminant analysis and cluster analysis to the data revealed that there was no distinct difference between the self-concepts of the segregated and partially integrated

students with Down syndrome. Therefore, the mean scores on the Self Description Questionnaire-I sub-scales and items were compared in order to see whether there were significant differences between the self-concepts of the two groups of students on the Self Description Questionnaire-I sub-scales and items. The mean scores of both the segregated and partially integrated group of students with Down syndrome on the Self Description Questionnaire-I sub-scales and individual items are high. In order to examine any significant differences between the two self-concept scores on each sub-scale and item, parametric independent samples t-tests were used. Analysis of mean differences using t-tests indicated that statistically significant differences existed between the segregated and partially integrated students on three of the Self Description Questionnaire-I sub-scales: reading ($t = 2.14$, $df = 58$, $p < .05$); peer relations ($t = 2.04$, $df = 58$, $p < .05$) and general-self ($t = 2.50$, $df = 58$, $p < .05$). Additionally, significant

differences between the two groups were identified on the items: "I look forward to reading" ($t = 2.24$, $df = 58$, $p < .05$); "I have more friends than most other kids" ($t = 2.41$, $df = 58$, $p < .05$); "In general, I like being the way I am" ($t = 2.47$, $df = 58$, $p < .05$); "Overall I have a lot to be proud of" ($t = 2.34$, $df = 58$, $p < .05$); "I do lots of important things" ($t = 3.28$, $df = 58$, $p < .05$); and "Work in maths is easy for me" ($t = 2.15$, $df = 58$, $p < .05$). In all analyses it was the segregated students who had the significantly higher self-concept scores.

The scores of students with Down syndrome in differing school environments might well depend on those with whom they had compared themselves in making self-judgments. Descriptive statistics were obtained for the Academic questions presented to the students concerning with whom they had compared themselves. The findings indicate that students with Down syndrome show that they compared themselves with other students with disabilities within their own class. All of the segregated students indicated that they had compared themselves with other students with disabilities in their class. All students integrated into support classes indicated that they had compared themselves with their friends with disabilities in their respective class, with 93.3% (28 of the 30) indicating that they had compared themselves with their friends with disabilities in their support class to ascertain how they had performed in their work. All of the segregated students and 93.3% (28 of the 30) of the partially integrated students indicated that they would have felt 'bad' about themselves if their friends in their class had performed better than they had done in their work; all of the segregated and 96.7% (29 of 30) of the partially integrated students suggested they would have felt 'good' about themselves if they had performed better in their work than their friends in their class. Furthermore, the findings indicate that, on the whole, students with Down syndrome did not compare themselves with students who were not in their class at school. Seventy percent (21 of 30) of the segregated students indicated they had not compared their academic abilities with students who had not been in their class at school; 96.7% (29 of 30) of the partially integrated students indicated that they had not compared their academic abilities with their non-disabled peers in the regular classes at school.

The responses from the segregated and partially integrated students to questions concerning internal comparisons were examined. It was found that all of the students in both groups had compared their own abilities within different school subjects. All of the students attending schools for specific purposes and all of the students enrolled in support classes in high schools indicated that they had compared their abilities in

maths with their own abilities in reading, thus suggesting the operation of internal comparison processes in the self-concept formation of students with Down syndrome.

Multiple discriminant analysis was again used to determine whether the segregated students' indications of their social interactions could be differentiated from the partially integrated students' indications of their social interactions. The results of this analysis revealed that the segregated students' reports of their social interactions did not differ significantly ($p > .05$) from those of the partially integrated students. Furthermore, cluster analysis did not reveal two disparate categories of students, leading to a conclusion that the two groups of students did not differ markedly from each other in their social interactions.

Descriptive statistics from both the segregated and partially integrated students' responses to the questions which referred to their social interactions at school and outside school, revealed that both the segregated and partially integrated students would eat at recess and lunch with their best friends from their class and not with students who were not in their class. Sixty percent of the segregated and 93.3% of the partially integrated students would not eat at recess and lunch with students who would not have been in their class at school. If their friends had been away from school, then 80% of both the students attending schools for specific purposes and the students in support classes in high schools would have sat and eaten at recess and lunch by themselves, whereas 70% of the segregated and 50% of the partially integrated students would have approached other students in their year and would have eaten at recess and lunch with them. Fourteen of the 15 students enrolled in support classes in high schools indicated that they would have approached other students with disabilities in their support class in order to eat at recess and lunch rather than approach non-disabled students in their year if their friends had been away sick. The remaining one student who went up to the non-disabled students in his year was the student who was integrated into regular classes for some non-academic subjects.

The majority of the students with Down syndrome in both school environments indicated that they had many friends with whom they played on the playground at school. However, the segregated students were more likely to indicate that they had more friends with whom to play on the playground at school than the partially integrated students. Furthermore, a large number of both the students attending schools for specific purposes and the students enrolled in support classes in high schools indicated that they had often been asked by their best friends in their class to play

at lunchtime. However, most of the students enrolled in support classes in high schools suggested that they were not asked to play at lunchtime by those of their non-disabled peers who were not in their support class. One of the students who indicated that he sometimes has been asked to play at lunchtime by students who were not in his support class was the only student to be integrated into some regular non-academic classes.

Overall, the segregated and partially integrated students indicated that they had quite a few friends from their class at school with whom to play games after school, with only 13.3% of both groups indicating that they had hardly any friends with whom to play after school. The partially integrated students,

nevertheless, were adamant that they did not play games after school with students who were not in their support class; 96.7% of the students enrolled in support classes in high schools indicated that they had very few friends with whom to play after school who were not in their support class. When asked whom they would invite to their birthday party, 21 of the 30 segregated and 24 of the 30 partially integrated students indicated they would ask friends from their class at school, while a few students from each group indicated that they would ask friends not only from their class at school but also from out of school. When the students were asked about having dinner at the homes of friends from their class at school, some 60% of both the segregated and partially integrated groups indicated that they often did have dinner at their friends' homes, while approximately 40% of both groups of students suggested that they did not have dinner at the homes of friends in their class at school. For the partially integrated group of students 96.7% (14 of 15) indicated that they did not have dinner at the homes of students who were not in their support class at school; the one remaining student who was integrated into a few non-academic classes indicated that he had dinner at the homes of students who were not in his support class at school. The students in both school environments were also asked whether they ever stayed overnight at the homes of friends from their class at school. A little over half of both the segregated and partially integrated students indicated that they occasionally had stayed overnight at the homes of friends from their class, while just under half indicated that they did not stay overnight at the homes of their school friends. All except two of the partially integrated group of students indicated that they had never stayed overnight at the homes of students who were not in their class at school.

Discussion

The finding that both those students with Down syndrome, attending schools for specific purposes, and those students with Down syndrome, enrolled in support classes in high schools, compare themselves to other students with disabilities, and have high self-concepts is in accordance with the external social comparison processes underlying the Big-Fish-Little-Pond Effect. The latter suggests that students compare their self-perceptions of their own abilities with the perceived abilities of other students within their frame of reference. Consequently, students will have higher self-concepts if they perceive their abilities to be better than those of other students within their frame of reference; they will have low self-concepts if they perceive their abilities to be poorer than those of other students within their frame of reference. For the students with Down syndrome attending schools for specific purposes, their frame of reference consists of other students with disabilities; by comparing themselves to similar others, there is little reason to expect attenuated self-concepts, because in relation to the other students with disabilities, the students with Down syndrome are not doing poorly at school. For the students with Down syndrome enrolled in support classes in high schools they have two peer reference groups with whom to compare themselves. Thus they have not only a small group of students with disabilities with whom to compare themselves, but also a larger group of non-disabled students. The finding that partially integrated students compare themselves with other students with disabilities is concordant

with previous theorising by Festinger (1954) and Hyman and Singer (1954) that students compare themselves more readily with students similar to themselves, rather than with dissimilar students. In addition, the fact that the partially integrated students spend most of their school-day in special education classrooms, with other students with disabilities, may account for their comparison of themselves with other students with disabilities as Jerusalem (1984) notes, while schools may provide different reference groups for students with which they can compare themselves, de facto freedom of choice is limited by the reality that the relevant students have to survive in the class to which they are assigned. The class therefore becomes the dominant social environment for the students' daily experiences.

This study was not able to examine the self-concepts of students with Down syndrome fully integrated into regular classes. Nonetheless the findings from this study, together with frame of reference theory, would suggest that, when students with Down syndrome are fully integrated into regular schools from support classes in high schools or from schools for specific purposes, a new peer reference group will be formed, consisting of non-

disabled students. Constant comparison of fully integrated students with higher ability students may lead to a probable conclusion of a diminution of the self-concept of the students with Down syndrome. With the move towards provision of an education for students with disabilities as close as possible to that provided for their non-disabled peers, it is clear that an increase can be seen in the number of students with disabilities who have been fully integrated into regular classrooms (Doherty, 1988). Frame of reference theory coupled with the findings from this study indicate that this move to fully integrate students with disabilities needs to be considered cautiously because of the possible negative impact of such a move on students self-concepts. Furthermore, they indicate a real need for a replication of this study to include students with Down syndrome fully integrated into regular classrooms.

This study also suggests that, in addition to external comparisons, students self-concepts are formed in relation to internal comparison processes. The finding that both groups of students compare themselves to other students within their class as well as their abilities in maths with their abilities in english is in accordance with the Internal/External Frame of Reference Model (Marsh, 1986; Marsh, 1990b). All of the segregated and partially integrated students indicated that they had compared their own abilities in maths with their own reading abilities; this provides limited evidence for the role of internal comparison processes in the self-concept formation of these students. At least in part, internal comparisons could also contribute to the high self-concepts displayed by these students, since external and internal comparison processes are considered to operate simultaneously. Depending upon the weighting of these two processes, students with Down syndrome may have above-average self-concept in one academic subject, despite having poor skills in this subject.

Despite a finding that both segregated and partially integrated students have high self-concepts, significant differences favouring the segregated students were evident on some of the Self Description Questionnaire-I sub-scales and items. A possible explanation for the higher scores reported by the segregated students, comes from Harter (1986). Harter (1986)

suggests that confusion between the real and ideal self may explain why students with disabilities display extremely high self-concepts. It is therefore possible that the segregated students with Down syndrome may have blurred the boundaries between their actual level of competence and their desired or ideal level of competency.

The results of this study have also revealed that partially integrated students with Down syndrome report very little social interaction, either at or outside of school, between themselves and their non-disabled peers. Instead the partially integrated students associated with other students with disabilities. This finding could be because physically integrating students with disabilities into regular schools does not necessarily lead to a satisfactory social integration of these students (Hartup, 1978; Johnson & Johnson, 1980). Another reason could be that a number of the support classes in high schools are located peripherally rather than in the centre of the school so that integration would be hindered by the location of special teaching facilities in a separate building. Moreover students enrolled in support classes do not mix with their non-disabled peers due to the latter's negative attitudes. Changing non-disabled student's perceptions of disability may lead to more positive attitudes towards students with disabilities, and indeed more positive interactions between students with disabilities and non-disabled students (Nicoll, 1988). A further possible explanation for the finding that students with Down syndrome enrolled in support classes are not socially interacting with their non-disabled peers could be a result of the behaviour problems often displayed by the students with disabilities (Gow & Heath, 1988).

While overall it appears that students with Down syndrome, enrolled in support classes in high schools have not interacted with their non-disabled peers at or outside school, it should be recalled that the student who was integrated into regular classes, for some non-academic subjects, did indicate that he interacted with some of the non-disabled students from the classes he attends. This finding offers support for the conclusions drawn by (Jenkinson, 1987) that the more that students with disabilities are integrated into regular classes, the better chance of acceptance they have. However, even if students are accepted by their non-disabled peers it is not always on an equal basis. Students with disabilities may be chosen by their non-disabled peers because of their perceived need for positive support, rather than being chosen as equals. This would appear to have been the case with the student whom I have just mentioned in this study. The reasons why complete social interaction between students with disabilities and non-disabled students does not take place are many and varied. Clearly further research is needed in this area to enable us to establish why moderately intellectually disabled students with Down syndrome do not mix with their non-disabled peers to the desired extent.

Reference List

Center, Y. (1987). Integration-historical perspectives. In J. Ward, S. Bochner, Y. Center, L. Outhred, & M. Pieterse (Eds.), *Educating children with special needs in regular classrooms: An Australian perspective New South Wales: Special Education Center*, Macquarie University.

Chapman, J. W. (1988). Learning disabled children's self-concepts. *Review of Educational Research*, 58, 347-371.

Coleman, J. M. (1983). Self-concept and the mildly handicapped: The role of social comparisons. *The Journal of Special Education*, 17, 37-45.

Doherty, P. (1988). The integration of students with disabilities in the NSW education system - principles and practices. In *Proceedings of Integration Conference 19 November 1988*, (pp. 1-73).

Doherty, P. J. (1985). Special education in New South Wales-principles underlying the provision of services. *The Special Education Journal*, 4-8.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117-140.

Gow, L. (1986). A review of policies and practices in integration of disabled students in Australia: Overview of a report prepared for the commonwealth schools commission. In J. S. Shellard (Ed.), *Bulletin of Proceedings in 1986 of the NSW Institute for Educational Research Sydney*.

Gow, L. (1990). Integration in Australia: overview. In S. Butler (Ed.), *The Exceptional Child Sydney: Harcourt Brace Jovanovich, Inc.*

Gow, L., & Heath, S. (1988). Teaching techniques for facilitating integration. *The Special Education Journal*, 1, 16-19.

Harter, S. (1986). Processes underlying the construction, maintenance, and enhancement of the self-concept in children. In

J. Suls & A. G. Greenwald (Eds.), Psychological perspectives on the self Hillsdale New Jersey: Lawrence Erlbaum Associates.

Harter, S., & Pike, R. G. (1980). The Pictorial Scale of Perceived Competence and Acceptance for Young Children. University of Denver.

Hartup, W. W. (1978). Peer interaction and the process of socialization. In M. J. Guralnick (Ed.), Early intervention and the integration of handicapped and non-handicapped children (pp. 27-52). Baltimore: MD.: University Park Press.

Hoffman, M. N., Peterson, L. L., & Van Dyke, D. C. (1990). Motor and hand function. In D. C. V. Dyke, D. J. Lang, F. Heide, S. v. Duyn, & K. Souce (Eds.), Clinical perspectives in the management of Downs syndrome New York: Springer-Verlag.

Horstmeier, D. (1988). "But I don't understand you"-The communication interaction of youth and adults with Down syndrome. In S. M. Pueschel (Ed.), The young person with Down syndrome: Transition from adolescence to adulthood (pp. 53-63). Baltimore, Maryland: Paul. H. Brookes Publishing Company.

Hyman, H. H., & Singer, E. (1971). An introduction to reference group theory and research. In E. P. Hollander & R. G. Hunt (Eds.), Current perspectives in social psychology (pp. 67-77). New York: Oxford University Press.

Jenkinson, J. C. (1987). School and disability: Research and practice in integration. Victoria: Australian Council for Educational Research.

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 BV.

Johnson, D. W., & Johnson, R. T. (1980). Integrating handicapped students into the mainstream. *Exceptional Children*, 47, 90-98.

Levine, J. M. (1983). Social comparison and education. In J. M. Levine & M. C. Wang (Eds.), *Teacher and student perceptions: Implications for learning* Hillsdale, New Jersey: N.J.: Erlbaum.

Marsh, H. W. (1986). Verbal and math self-concepts: An internal/external frame of reference model. *American Educational Research Journal*, 23, 129-149.

Marsh, H. W. (1987). The big-fish-little-pond effect on academic self-concept. *Journal of Educational Psychology*, 79, 280-295.

Marsh, H. W. (1990a). Causal ordering of academic self-concept and academic achievement: A multiwave longitudinal panel analysis. *Journal of Educational Psychology*, 82, 646-656.

Marsh, H. W. (1990b). Influences of internal and external frames of reference on the formation of math and english self-concepts. *Journal of Educational Psychology*, 82, 107-116.

Marsh, H. W. (1990c). *The Self Description Questionnaire (SDQI): A theoretical and empirical basis for the measurement of multiple dimensions of self-concept: A test manual and a research monograph.* University of Western Sydney, Macarthur, Australia.

Miller, J. F. (1992). Development of speech and language in children with Down syndrome. In I. T. Lott & E. E. McCoy (Eds.), *Down syndrome: Advances in medical care* New York: John Wiley and sons, Inc.

Newton, R. (1992). *Down's Syndrome.* London: Optima.

Nicoll, N. (1988). Teaching about disabilities: does it change attitudes toward disabled people? *The Special Education Journal*, 1, 4-8.

Pueschel, S. M. (1992). The person with Down syndrome: medical concerns and educational strategies. In I. T. Lott & E. M. McCoy (Eds.), *Down syndrome: Advances in medical care* (pp. 53-60).

USA: John Wiley and Sons Inc., Publication.

Renick, M., & Harter, S. (1989). Impact of social comparisons on the developing self-perceptions of learning disabled students. *Journal of Educational Psychology*, 81, 631-638.

Shavelson, R. J., & Bolus, R. (1982). Self-concept: The interplay of theory and methods. *Journal of Educational Psychology*, 74, 3-17.

Silon, E. L., & Harter, S. (1985). Assessment of perceived competence, motivational orientation, and anxiety in segregated and mainstreamed educable mentally retarded children. *Journal of Educational Psychology*, 77, 217-230.

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, 487-497.

Stratford, B. (1989). *Down's syndrome: Past, present and future*.
England: Penguin Group.

Van Dyke, D. C., Popejoy, M. E., & Hemenway, W. G. (1990). Ear,
nose, and throat problems and hearing abnormalities. In D. C. V.
Dyke, D. J. Lange, F. Hide, S. v. Duyne, & K. Souce (Eds.),
Clinical perspectives in the management of Downs syndrome New
York: Springer-Verlag.

Wylie, R. C. (1979). *The self-concept*. Lincoln/London: University
of Nebraska Press.