

Integrated or segregated education? Methodological considerations in the measurement of comparative efficacy.

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Abstract

In the context of the trend towards integrated education for students with disabilities, two classes of students with severe intellectual disabilities transferred from a special school to a regular school in Metropolitan South West Region of the NSW Department of School Education. The transfer of the twelve students was supported by consultations with staff, students and parents at the special school and with the principal and parents at the new school. A case study was conducted of the initiative.

The case study methodology is described in this article. Key elements of the study design were:

student outcomes were measured;

instruments measuring student outcomes needed to be carefully selected;

qualitative methods of data analysis were used in conjunction with quantitative methods; and

the relatively small numbers of students involved in the transfer created challenges for the research study.

One conclusion of this study was that longitudinal data needed to be taken in order to assess fully the effects of the school transfer on the students. Another major conclusion was that the relatively small numbers of students with severe

intellectual disabilities creates a set of challenges for researchers. Preliminary results of the case study are reported.

Aim of the Study

The focus of this research project was the testing of the assumption that an integrated educational setting is better for students with disabilities than segregated education. This article addresses the questions of how to measure the effects of the school transfer on the students and how to decide whether the integrated setting was preferable for them or not.

Background

Why is it assumed that an integrated education is better for students with disabilities? As will be seen below in the literature review, there are not many educational studies which examine this assumption directly (Gow, Young, Muir, Clayton, Corkin, and Reddacliff, 1993).

Opinion has been influenced by the desires of the advocates for people with disabilities (Brown et al, 1989; Doenau, 1983; Taylor, 1988), including people with disabilities themselves. These opinions have been formed in the area of human rights, have been focussed in events such as the International Year of Disabled Persons (1981), the Victorian Ministerial Review of Education (1984), United States Public Law 94-142 (the "Education for all Handicapped" Act, 1975) and the (U.S.) Regular Education Initiative, and have been based philosophically on the principle of "normalisation" (Nirje, cited in Gow, 1989).

As a result, published educational research, particularly after 1980, has tended more to support the development of best practices in integration, or mainstreaming (e.g. Indiana State University, 1987; Thousand, Nevin-Parta and Fox, 1987; Wilcox, Sbardellati and Nevin, 1987; York and Vandercook, 1990). As the literature review will show, educational research has in general aimed itself at supporting the trend, rather than examining its efficacy. There are exceptions, which are discussed below.

Literature Review

Efficacy Research: Methods and Findings

There is an abundance of research into ways to make integration work better: best practices, factors which decide success or failure of integrating students, evaluations of programs (e.g. Center, Ward, Ferguson, Conway, & Linfoot, 1989; Giangreco, 1989; Hamre-Nietupski, Nietupski & Maurer, 1990; Indiana State University, 1987; Muir, 1992; Pickering, Szaday & Duerdoth, 1988; Thousand, Nevin-Parta & Fox, 1987; Wilcox, Sbardellati & Nevin, 1987; York & Vandercook, 1990), but comparatively little on the comparative effects of integration or segregation. As discussed below, there are probably two main reasons for this:

there are methodological difficulties in designing efficacy studies, and

integration or segregation decisions are usually made not on

efficacy grounds but on grounds of philosophical belief (the "human rights" argument), so there is little requirement for efficacy data.

Carlberg and Kavale (1980) performed a meta-analysis on studies into integrated versus segregated educational settings. They found that the studies were somewhat in favour of integrated settings but their value was limited by the small proportion of studies meeting the strict criteria for inclusion in the analysis. The criteria included ages and disabilities of the students, definitions of "integrated" and the variables measured by the studies.

Jenkinson and Gow (1989) refer to another meta-analysis by Wang and Baker in 1986 which made very similar conclusions: equivocal findings but slightly more in favour of integrated educational settings. Jenkinson and Gow (1989) concluded that there is a need for further research in areas such as longitudinal studies of long-term effects of educating students with a variety of special needs in integrated and segregated settings. This article addresses this question.

Jenkinson (1987) and Kemp and Carter (1993) discussed problems in designing efficacy studies:

one group is never identical with another group of children, no matter how carefully selected;

it is not always possible to randomly assign students to groups for study;

the pool of students with some disabilities is relatively small;

matching students is difficult when creating comparison groups;

outcomes to be measured need to be socially valid (and therefore sometimes require specialised measurement techniques).

Evidence is available from projects which achieved system change from segregated schooling to integrated schooling. They have been undertaken in several school systems, including Vermont, Iowa, Albuquerque (New Mexico), Ontario and Madison (Wisconsin). These studies were mainly program evaluations. None was a comparative study of integrated versus segregated settings.

Haring and Breen (1989) showed that the (U.S.) Association for Persons with Severe Handicaps (TASH) policy advocates participation in regular education (mostly in support classes). The Association's education model predicts certain outcomes for people with disabilities and people without disabilities, but recognises that no empirical evidence exists to support the predictions.

Haring and Breen (1989) recommended that measures of skills gained or behaviours exhibited (outcome measures) should be used to "document the effects of (integration)", which is "one of the most critical problems facing educational researchers in the area of severe disability" because it "has the

potential to affect policy".

Buysse and Bailey (1993) reviewed literature comparing outcomes for preschool children in integrated and segregated settings. Their literature search produced 22 studies suitable for their analysis, which included the criterion that at least one measure of child outcomes had to be used in the study. The authors performed an intensive analysis of research methodologies, outcome measures and program variables reported in the 22 studies.

The 22 studies reported outcomes of three types:

developmental (language, fine motor, gross motor, etc);

social-behavioural; and

"other behavioural" (e.g. constructive play).

In developmental outcomes, integrated and segregated settings showed no differences, except for two studies which showed improved language gains in the segregated setting. These were both explained by the original researchers as being due to increased concentration on this area in the classroom.

"Of the sixteen studies assessing social-behavioural outcomes, eleven reported positive outcomes for children in the integrated condition, two reported no differences between settings and three had mixed findings" (Buisse & Bailey, 1993, p. 451).

Of the ten studies reporting findings with respect to other behavioural outcomes, seven showed that integrated settings gave more positive results and three showed no differences.

While showing integrated education to have preferable outcomes to segregated education, these authors showed that the question of an "integrated" versus "segregated" setting is far more complicated than the two words would suggest. Some "integrated" settings featured only joint lunch and recess activities, for example, and a "segregated" setting can offer its students considerable time spent with children who have no disabilities.

Buisse and Bailey (1993) concluded that:

"Despite these problems, comparative studies suggest that integrated environments facilitate social interactions for young children with disabilities. Furthermore, integrated settings generally have not been shown to be detrimental with respect to developmental outcomes in these children" (Buisse & Bailey, 1993, p. 458).

Measurement Considerations: Paradigms, Variables and Instruments

The aim of this study was to show whether the transfer to a more integrated educational setting was better for the students or not, and also to show why this was so. If there were improved or reduced outcomes for the students, it is important to know the reasons. Hence the inclusion of the qualitative aspect of the study.

Center and Curry (1991) reported on a project which showed that mainstreaming a class of students with mild intellectual disabilities resulted in improved reading skills. It

illustrated that outcome measures (in their case, reading levels) need to be used in efficacy studies in order to be convincing, but it also illustrated that there are methodological problems of the kind discussed above and again below.

Cole and Meyer (1991) studied students with severe intellectual disabilities in a project which had a similar intention to this present one and which offered several useful methodological hints. Their goal was to study the efficacy of integrated versus segregated educational settings. Their subjects were 167 students in two groups which were matched as well as possible on gender, age and socioeconomic status. They measured student outcome variables by using the Assessment of Social Competence (ASC) which was devised by the same authors and others in 1985. The validity and reliability characteristics of this instrument were discussed by Meyer, Cole, McQuarter, and Reichle, (1990).

Cole and Meyer (1991) also used the Topeka Association of Retarded Citizens test (TARC), which is a standardised assessment of general functioning. The TARC was normed on a sample of 283 children aged from three to sixteen years. Inter-rater and test-retest reliability estimates were approximately .80 (Cole & Meyer, 1991, p. 344).

The conclusions from the Cole and Meyer (1991) study were that there was no difference in general functioning between the integrated and segregated students, but the integrated students increased their social skills while the segregated students decreased theirs.

Wilcox et al (1987) used an intervening variable (time spent by a student with disabilities in interaction with students without disabilities) as their measure in a single-subject case study.

Research Questions

The major question addressed in this study was:

Was the movement to a regular school advantageous for the students or not?

Ancillary questions were:

What effects did the transfer have on the students?

What effects did the move have on the school communities involved?

What were the staff and parents' opinions about the transfer of the students?

The Nature of "Integration" in this study

Students in this study, whether in the "experimental" group or the "control" group have all received some part-time integration. This is NSW Department of School Education policy

(NSW Department of School Education, 1992), and the principals of special schools are committed to integrating students wherever possible. The students who stay in special schools will continue to receive part-time integration. Examples are programs in which students from special schools visit regular schools to participate in learning programs of various kinds (including craft, art, physical education) or to participate in social activities such as assemblies, music and drama presentations or recess times.

The study therefore compared the model of a special education support class in a regular school with a class in a special school which was receiving some partial integration. The students' integration time while they were still in the special school was mainly in the community (for example, on shopping trips), rather than in regular schools. The degree of integrated time spent by the students in the two situations is the key factor. This point was also discussed in detail by Buysse and Bailey (1993). It means that what was measured in this study were the outcomes of two educational situations which had some similarities. This might be expected to reduce the likelihood of finding large differences in outcomes between the two situations.

Methodology

Design

Quantitative measures were designed to answer the research questions. A qualitative case study approach using individual and group interviews was also employed in order to consider factors and issues unable to be covered by the quasi-experimental quantitative design and the standardised assessments. Issues addressed by the qualitative approach included:

why parents chose to allow their children to transfer schools;

what educational and social programs were used by teachers of the different groups;

what emotional and/or behavioural changes occurred in the students and how they were handled;

what expectations existed for both groups by their teachers and parents;

how well prepared the staff of the regular school felt for the reception of the new students;

what stresses, if any, were placed on the staff of the regular school by the transfer of the students; and

any other issues or factors which were found to be operating.

Variables

In addition to the variables examined qualitatively, the students' developmental levels and functional skills were assessed before the school transfer and later in the year of

the transfer. Details of the variables measured are given below under the heading "Instruments". It was also decided to measure some key differences between the special school and the regular school by playground observations.

Sample

Twelve students transferred from the special school to the regular school. Eleven of them remained at the regular school at the end of the school year. Attempts were made to select a comparison group of the same size. Selection of the comparison group was done by matching students on factors such as developmental level, gender, age and home situation (whether living at home or in an institution).

Matching students to compose a control group was difficult: the two youngest classes made the transfer, so all students remaining at the special school were older than those transferring. Only eight students of similar ages and disabilities who were living at home could be found in nearby schools to form a control group.

Instruments

The developmental measures were made with the Griffiths

Developmental Scales (Griffiths, 1984). The Griffiths is a standardised test of developmental levels which gives a measure on each of six dimensions such as "speech and hearing", fine and gross motor and "reasoning". Only five of the six scales are relevant to the students in this study. The developmental levels are expressed as age level equivalents and also as developmental quotients (in a concept similar to the measurement of IQ). The subscales can be averaged to give a General Quotient (GQ), which was not as relevant for this study as the subscale scores because there is more interest in areas of change than in the overall average. The Griffiths was normed using a sample of 2,260 children in Great Britain. The test-retest coefficient was assessed by retesting 270 children at various time intervals between three months and 62 months. The coefficient of .77 was very acceptable and comparable with any other in the literature, especially in view of the relatively long retest intervals, which also attested to the internal consistency of the Griffiths (Griffiths, 1984, p. 75).

Measures were also made of students' adaptive behaviour using the Vineland Adaptive Behaviour Scale (Sparrow, Balla & Cicchetti, 1984), which was developed to assess the "daily functioning" of individuals between birth and eighteen years and eleven months of age (Sparrow et al, 1984, p. 4). The scales are a reliable measure of the variables under study in this project. They measure adaptive behaviour by interviewing a parent, caregiver or teacher familiar with the daily activities of the child being assessed.

The administration involves the use of a semi-structured interview technique. The 277 items are divided into four domains plus an optional maladaptive behaviour domain. Only three domains apply to children over eight years of age (the majority of children in this study): "Daily Living Skills", "Communication" and "Social Interaction".

In summary, the Griffiths measures developmental levels, while the Vineland measures skills. "Adaptive behaviour is defined by typical performance, not ability" (Sparrow et al, 1984, p. 6). It would be predicted that students' Vineland scores would increase with time and teaching. Similarly, students' Griffiths scores might be expected to increase with maturation and teaching, although Griffiths quotient scores would be expected to remain stable (if one believes that there is such a thing as global ability, which remains stable) or to change (if one believes that ability can be changed by teaching and by changing learning and social experiences).

Qualitative Data

The qualitative aspect of this research study aimed to look intensively at the thoughts, opinions and situations of a small number of parents and school staff who were involved in this integration project.

Quantitative data seeks to generalise or prove an assertion. Qualitative data seeks to understand people's attitudes, problems, beliefs, joys and needs. It answers different questions. Using both data gathering and analysis techniques together presents a much fuller picture of the case under study. Quantitative data can tell what happened; qualitative data can suggest why it happened.

Interviews were undertaken with parents and school staff (teachers and teachers aides) before the transfer of students began and at various times after the transfers had occurred. The largest series of interviews occurred at the end of the 1993 school year, by which time the students in the experimental group had been at the regular school for seven months. The interviewees were not randomly selected to serve as a representative sample. They spoke for themselves only. Their opinions and thoughts gave depth and light to the project and its outcomes.

In the taking of qualitative data, interviews were recorded with a selection of:

"special" school staff making the move to the regular school;

parents of students who transferred; and

the regular school's "regular" teaching staff.

The interviewees were asked a small number of focus questions and their answers were followed up or clarified with supplementary questions as the need arose. Follow up questions were used in every interview to seek deeper explanations, or to explore other areas of inquiry which were suggested during the interviews. All interviews were recorded on audiocassette and later transcribed before their contents were analysed for themes which related to the questions under research and for other themes which arose during the interviews.

Results

The results of the study include comparisons between Griffiths pre- and post-tests and Vineland pre- and post-tests (on all

subscales), comparisons between the special school's and the regular school's playground situations, and detailed discussions of the interviews of the parents and school staff. The interviews produced data (opinions, feelings, suggestions, expectations, outcomes, etc.) which required to be organised and presented under the following headings:

Feelings before the transfer of the students.

General thoughts about integration.

Differences between the two situations (the special school and the regular school).

Outcomes and feelings seven months after transferring the students.

Suggestions for the future of this project and for similar projects.

Feelings before the transfer of the students

Feelings expressed by the interviewees before the transfer ranged over a wide list of emotions. Parents interviewed said that they were:

Worried about how the children would be treated by other children and the staff of the school, and whether their needs would be considered well enough.

Unsure if the child was ready.

Unsettled, with so much unknown about how events would proceed.

Very happy that her child would have the opportunity to go to a regular school. One parent described the opportunity as an "advantage".

Surprised that students with this disability should be considered for this move, although this person had seen integrated education work well for students with other disabilities in other schools.

Very scared for her child, but this mother later thought "it would be a good opportunity".

School staff interviewed said that they were:

Excited at the chance to accompany and continue to work with staff for whom this interviewee had great respect. She has never worked in a regular school and could not imagine what it would be like working there. Excitement was expressed also at the opportunity being given to the students.

Apprehensive. One special school staff member said that "so many parents are unhappy about integration", although the children of such parents were said to have mild and moderate disabilities. This person said that children in support classes were treated badly in regular schools. (S)he felt that the students in this project may not suffer this because "they are not a threat to regular class teachers" because they will

never be in regular classes. (S)he felt that reduced contact would mean less negative impact on the students with disabilities. Another staff member expressed a similar opinion: the only reports (s)he had heard about integration had been bad. It became apparent later that these opinions had some effect on the integration of the special school staff into the regular school.

Worried about lack of knowledge of the regular school curriculum.

Worried about establishing credibility as a teacher, rather than being seen as a baby minder.

General thoughts about integration

Some negative opinions have already been mentioned about the concept of integration. The interviews also gave rise to some suggestions about how integrated education could be conducted. Some specific ideas are discussed later. General thoughts included one staff member's hope that the students would all mix freely in the playground, although she found this hard to imagine when interviewed before the event.

One parent saw benefits for the students without disabilities: they would learn tolerance and knowledge about children different from them. A parent expressed the general belief that schools should be all-inclusive: "you must not discriminate". This parent felt that one doesn't know how well any child is going to progress. None of us is perfect, (s)he said: we all have our own disabilities to greater or lesser extents. No professional ever knows how the future is going to unfold for any child, so they should all receive the same benefits in educational settings to ensure that they have all

possible opportunities.

Expectations before the Transfer

On the part of the staff involved in the move, a common response to this question was "I don't know", or to pose questions instead of answers. Uncertainty was expressed in such comments as

"Will our kids be stuck in one area of the school? I can't see how we'll all be one school. I can't imagine it."

"I don't know what to expect - I hope it will be good."

"What about staff development? Can they gear student free days to our needs?"

"What about assemblies? Our kids aren't really good at assemblies."

Staff and parents also had positive expectations about outcomes for the students: they expected their communication and social skills to improve. As one parent expressed it: "She will express herself better by going with normal students . . . she will adapt herself into normal living." Almost every parent and staff member interviewed expected improvements in the areas of communication (whether by speech or by other means) and social skills. One parent felt that other skills

might improve (walking, daily living skills, etc) but only over the longer term. Another parent hoped her child would learn to "walk and respond better."

There was concern expressed by more than one interviewee about how the children would be treated by the students without disabilities. There was great interest in how the other children would accept them. As one parent put it: "I thought that other kids might hit him or do bad things, but then I thought I shouldn't be so worried." This typified the undercurrent of uncertainty amongst those interviewed: there was concern, but also a conflicting feeling that the concern might be without foundation.

The theme of the responses is well summed up by comments from two interviewees:

"We don't know what to expect because it hasn't been done before." (In fact, this was not true: students with similar disabilities had attended regular schools in Western Region,

North Coast Region, Metropolitan East Region and Metropolitan South West Region, though on a limited basis.)

(It will be interesting) "to see how the kids are accepted by the other kids."

Two other aspects of expectations were that the other students would help the staff with the students with disabilities: helping them from the taxis to the classroom, for example, or from the classroom to the playground at recess. The other aspect was the mention made above of the long-term effect on society due to the children of Bonnyrigg Heights growing up with close knowledge of children with disabilities.

In deliberately searching the notes and transcripts for negative expectations, the nearest comment to a negative one expressed in these interviews was the one mentioned above by a mother, that "other students might hit (her son) or do bad things to him." But this thought was immediately dispelled by the mother herself with no prompting. Despite the obvious uncertainties, concerns and unknowns, all parents approached about the move decided to accept the transfer on behalf of their children.

The themes of these expectations tie in neatly with those of the feelings discussed above. This sample of interviewees generally expressed apprehensions, worries, uncertainties and some positive feelings and expectations about the integration of their children. There was a general positive desire to go ahead with the project.

Differences between the two School Situations

On the spectrum of educational settings from completely "segregated" to completely "integrated", these students were not moving from one end of the spectrum to the other. A segregated setting is one in which students are completely cut off from students with no disabilities. This is not the case at the special school, which has integration programs which take children into regular pre-schools and primary schools and into the community for excursions such as shopping. But the time spent with other children is a small proportion of their

total school time.

The regular school situation into which the students were moving in this case was not a completely integrated one, on the other hand. The students did not enrol in mainstream classes at their age-appropriate grade level. Two classes of

students changed their enrolment from a special school to a regular Public School and became the same two classes at a different location. They moved not into mainstream classes but into a special education "support class" setting. They did mix in the playground at recess and lunch times with all the other children and attended other school occasions such as assemblies and morning "lines".

A quantitative attempt to define the difference between the two situations was made by observing how the students spent their recess times at the special school and (after their transfer) at the regular school. The twelve students were observed during two recess times at each school. Notes were made at thirty second time intervals of who the students were with, and what they were doing. These observations are summarised in the tables below:

Table 1: Recess time spent by students with disabilities:
percentage of recess time, mean for all students in the study.

	SpecialSchool	Regular School
With students with disabilities (%)	70%	0%
With students without disabilities (%)	0%	100%
With staff (%)	5%	0%
Alone (%)	25%	0%

Table 2: Activities of the students with disabilities at
recess: mean for all students with disabilities, percentage of
recess time.

	Special School	Regular School
Being talked to (%)	5%	11%
Playing (%)	2%	5%
Walking or wheeling (%)	5%	70%
Sitting or not occupied (%)	88%	14%

Outcomes of the Transfer to the Regular School

Quantitative Data Analysis

Eight variables were measured: five Griffiths sub-scales

(Locomotor, Personal-Social, Hearing and Speech, Eye-Hand Coordination and Performance) and three Vineland domains (Communication, Daily Living Skills and Socialisation). Pre-test and post-test differences were analysed using paired t-tests. The results are summarised in the table below: It should be noted that these results are for the experimental group only. Difficulties locating a control group led to delays in assessments. For the experimental group (the students who transferred to the regular school) the pre-tests and the post-tests were separated by seven months. For the control group (those who remained in special schools), the separation time was either four or five months. It is not considered valid to compare these two sets of assessments.

Table 3: Griffiths and Vineland results for experimental group

Future Directions

Certainly, the "regular" teachers interviewed saw value in integrating students with disabilities in their classrooms. Some had experienced positive outcomes of similar programs in other schools. The regular teachers interviewed appreciated the contact and advice from the "special" teachers and suggested formal and ongoing evaluation for the times when the students with disabilities were in their regular classrooms. A form of written communication (such as the commonly used "communication book") between staff about the students' goals and achievements was devised. They also appreciated structured in-class guidance from the special education teachers about student behaviours to work on, and suggested the use of a check list for evaluation. It was also suggested that ongoing staff development of all concerned (regular teachers, special teachers and parents) would be very useful.

Conclusions

These results are preliminary only: it became obvious that too short a time has yet passed to allow enough developmental progress to be made by the students for clear comparisons to be made between pre-testing and post-testing. The picture

should be more clear when the assessments are done again after approximately eighteen months.

The transition was a difficult one for the staff from the special school. Their expectations of the regular school were based on insufficient information. The expectations of the regular school administration were that the students with disabilities would follow as "normal" a routine as possible. This meant that some activities in their curriculum (shopping, for example, and some types of excursions) were discontinued. Staff were required to change in ways they had not anticipated. This aspect of the project requires attention if future moves of this type are attempted.

Ongoing data collection is needed: quantitative and qualitative data collected at regular intervals in the future will allow better comparisons to be made between the outcomes for the two groups of students.

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