

Report to the
NSW Department of Education and Training

Review of the Recent Literature on Socio-economic Status and Learning

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REVIEW OF THE RECENT LITERATURE ON SOCIO-ECONOMIC STATUS AND SCHOOLING

Introduction

The belief that socio-economic status is a key determinant of student's educational achievement – and that individual teachers, schools and education systems have a responsibility for ameliorating the disadvantage that may arise from low socioeconomic status – has been an important aspect of educational policy making in Australia for more than 30 years now.

In late 1999, a review of the literature was conducted in preparation for the development of an index of school socio-economic disadvantage that would be used to identify eligibility for the NSW Priority Schools Funding Program for 2001-2004. The 1999 review focused on the identification of factors and methodologies that might usefully be included as part of the calculation of the NSW Index.

The purpose of the present paper is to review the research evidence in relation to these issues since the publication of the 2000 report.

Is socio-economic disadvantage a problem?

Since the publication of the Coleman report in the United States in 1966 and the Karmel Report in Australia in 1973, the relationship between socio-economic disadvantage and learning outcomes has been accepted almost as an article of faith by educators. The questions that must be asked are, (1) does this relationship still hold in 2005, and (2) is it still an issue that demands continuing policy and financial action.

One of the most powerful sources of evidence that addresses these questions is provided by the Longitudinal Surveys of Australian Youth (LSAY) conducted by the Australian Council for Educational Research (ACER). The reports generated by this study point to the complexity of this issue, and are not easily summarised. While highlights from these reports are synthesised below, it is important to note that implications from this study require careful analysis and further research.

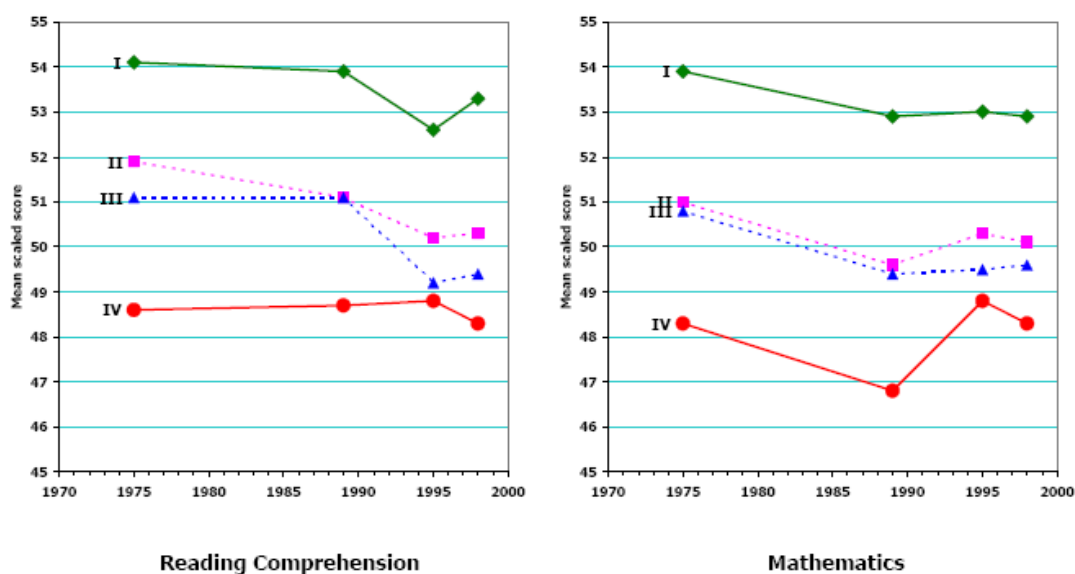
The ACER study¹ examined student achievement scores on tests of reading comprehension and mathematics from five studies that tested the literacy and numeracy levels of 14 year-olds in Australian schools conducted between 1975 and 1998, as well as trends for all students and for smaller groups of students. Students' results were discussed through examining averages, medians and the distributions of results and changes over time. Results were reported by socio-economic status (SES), language background, gender and location. The overall conclusion of the ACER study (Rothman, 2002; 2003) was that while overall achievement levels of students remained relatively stable between 1975 and 1998, notable differences were found between students by socio-economic status, both at an individual level and between schools.

This study used only a limited measure of socio-economic status (family occupational group according to the occupation of the student's father), which assigns students into one of

¹ See ACER *Research Developments* (Winter, 2003) and the series of Research Bulletins produced by various authors in relation to the LSAY project at www.acer.edu.au

four family occupational groups: (I) professional/managerial, (II) clerical/sales/service, (III) trades and (IV) production/labourers. While this scale is relatively crude, it does provide a simple means of capturing other contributors to relative advantage/disadvantage (such as the education level required to gain employment, and the income that results from that employment). The results over a nearly 25 year period are stark: throughout the 1975-1998 period, students whose parents were employed in professional and managerial occupations had the highest average scores and students whose parents were production workers or labourers had the lowest. The gap between the two groups of students narrowed at an individual level between 1975 and 1998. However, at the same time, the gap in scores widened between schools with higher concentrations of professional parents and all other schools. These results are encapsulated in the following graphs.

Figure 1 Mean scaled scores on reading comprehension and mathematics tests, by parent's occupational group, 1975-1998



There are some equally important findings at the school level. Rothman's (2003) analysis revealed that within the same school, a student who comes from a higher socio-economic group will achieve better test results than a student from a lower socio-economic group. Likewise, students attending a school that has a higher concentration of students from higher socio-economic groups will also achieve higher scores in both reading and mathematics than students attending schools with lower concentrations of students from higher socio-economic groups. It is important to note that this school-level influence has increased since 1975.

Ainley (2003) discusses further analyses of the Longitudinal Surveys of Australian Youth data in terms of the factors that impact on Equivalent Tertiary Entrance Ranks (a means of generating equivalent Year 12 results between Australian states). Ainley found that the most significant influence on Year 12 score is a student's demonstrated proficiency in literacy and numeracy in earlier years of schooling (Year 9 in this study), which represents an accumulation of the student's skills in foundation areas of learning. The second greatest influence is the particular school a student attends. Ainley suggests, in line with other research, that school culture or environment, teaching practices, student confidence and motivation, organisation and resources may contribute to differences among schools. Socio-economic background, as measured by parental education, wealth and occupational status, was the third most important influence on tertiary entrance performance. Students whose

parents are professionals, (and to a lesser extent, managers), achieve higher tertiary entrance scores. It is not difficult to envisage how socio-economic factors also impact on the two former variables (prior performance and school attended), over and above the unique effect of the individual socio-economic status of individual students.

Similar results are found by Teese (2003) in his analysis of the performance of students in Victoria. He found clear and consistent trends for children from lower socio-economic status families to have lower VCE scores (Year 12 results) and Year 5 benchmarking test results. The same relationship was found for other measures of student engagement with schooling, such as attendance rates (see Figures 2 and 3 below). Teese introduces the concept of equity density, drawing together a number of factors such as family status, family occupation, language background status and so on (see Figure 4). The conclusions reached in Victoria are somewhat different from those drawn from the analysis of data gathered in the 2000 PSFP survey in NSW, in that Indigenous status did not add significantly to the explanation of the variance in achievement. However, it was noted that Indigenous students are concentrated in a limited number of schools in Victoria. The consequence of Teese's research has been the recommendation that the current means of identifying schools be replaced by an index based on family occupation, as this is the single biggest predictor of family occupation. This recommendation may provide a reasonable substitute for a more robust measure that draw on multiple indicators, if the cost of gathering data about these indicators (such as through a survey or census) becomes prohibitive. The inaccuracies that exist in school records about parental occupations are well known, and more rigorous updating of records will be needed in NSW if this approach were to be adopted.

Figure 2: Secondary School Effectiveness, by Socio-economic Status

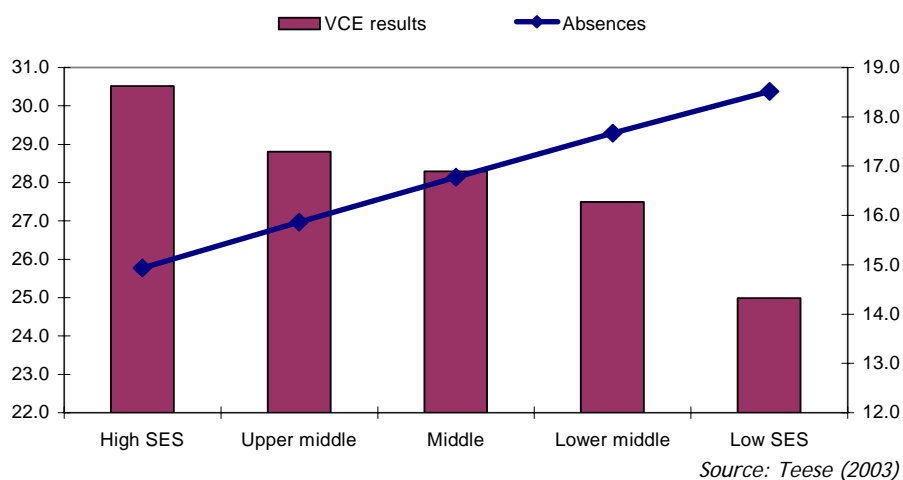


Figure 3: Primary School Effectiveness, by Socio-economic Status

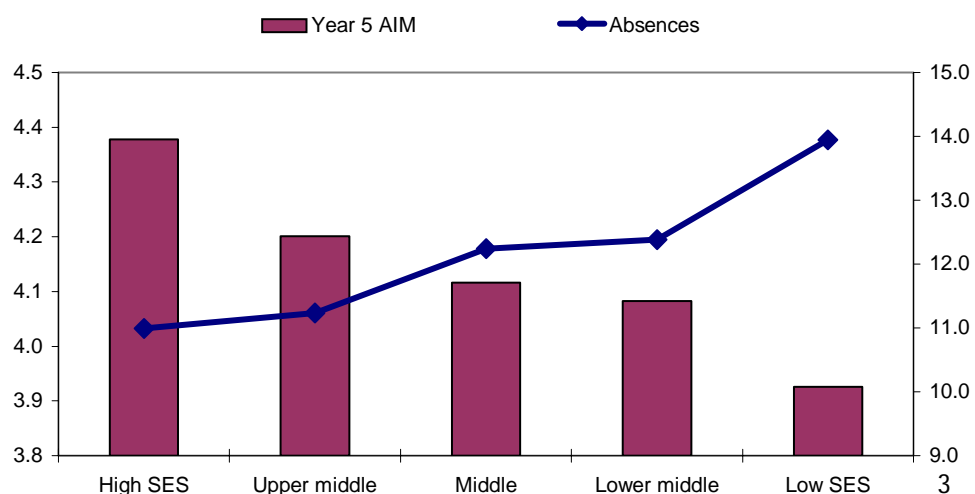


Figure 4: Variance in Year 5 achievement explained by current student learning needs funding components

Element (proportion in each school)	Percentage contribution of each element	Percentage of variance explained by each element	Significant or not	Direction
Mobility	7.9	3.2	Yes	-
EMA/YA	13.4	5.3	Yes	-
Family status	1.4	0.6	No	-
LBOTE	8.8	3.5	Yes	+
Family occupation	62.5	25.0	Yes	-
Indigenous	6.1	2.4	No	-
Total	100.0	40.0		

Source: Teese (2003)

International studies of socio-economic status and achievement

The international assessment programs conducted by the Organisation for Economic Cooperation and Development (OECD) and the International Association for the Evaluation of Educational Achievement (IEA) both provide interesting insights into the relationship between socio-economic status and educational outcomes in Australia and overseas, and illustrate different ways in which socio-educational status can be conceptualised and operationalised. Both programs have released reports since 2000, although the data in some cases was collected prior to that year.

The first of these studies, the Third International Mathematics and Science Study (TIMSS) sponsored by the IEA, tests the achievement of students in the equivalent of Australian Year 4 and Year 8 in mathematics and science. TIMSS was first conducted in 1995 in over 40 countries, and has been followed up by a partial repeat at Year 8 in 1998-99 (called TIMSS-R) and a third full implementation in 2002-03. These tests routinely involve more than 500,000 students, their teachers, and the principals of their schools. Students also answer questions about their background and experiences in learning mathematics and science at school. Over 10,000 Australian students in Year 4 and Year 8 participated in the *Trends in International Mathematics and Science Study* (TIMSS 2002/03).

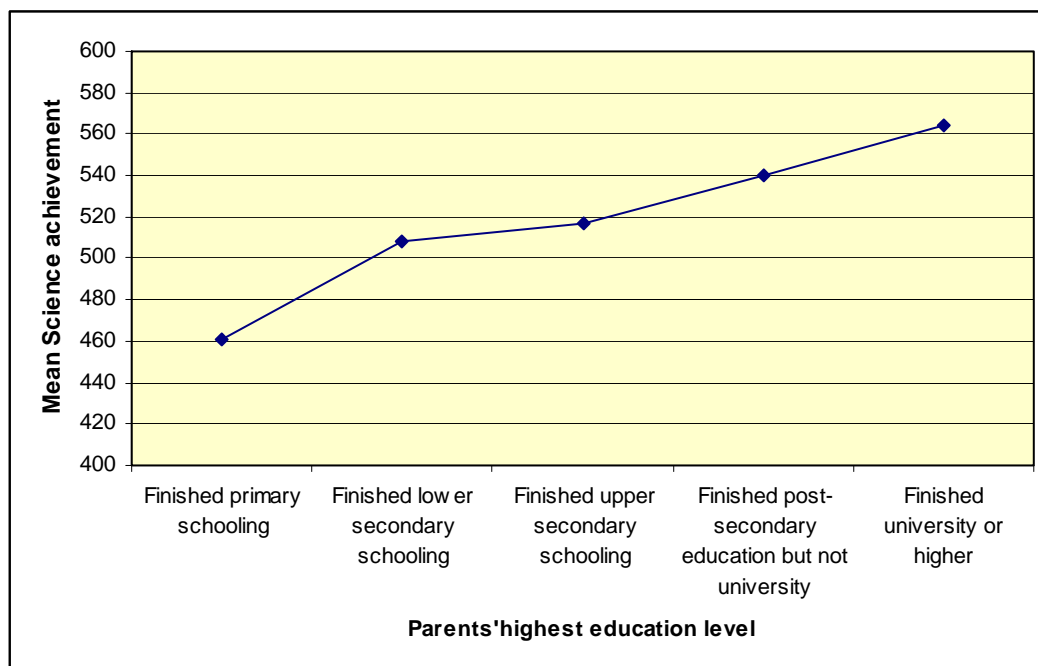
TIMSS measures socio-economic status in two ways: parents' education level, and family wealth, as defined by a scale derived from survey questions about possessions in the home (e.g. number of books, computer, video camera, etc). Students from wealthier families were expected to have more of these items in their home. The TIMSS program is important for two reasons: firstly it demonstrates a significant positive relationship between learning in mathematics and science and both socio-economic factors; second, it provides insights into relatively simple and unobtrusive measures of socio-economic status.²

² May, (2002) claims that little work has been done to validate the measures of socio-economic status (SES) collected as part of TIMSS. He proposes, nonetheless, a means of deriving a scale of SES from these items using multilevel Bayesian Item Response Theory (IRT) that allows students with equivalent scores but different nationalities to have the same SES relative to an international benchmark.

In the most recent iteration of TIMSS (2002-03), for Year 8 students achievement in both mathematics and science was found to be higher for those whose parents had completed a university degree (see Figure 5). At both year levels there was a clear and positive relationship between books in the home and achievement in both subject areas. The achievement of Indigenous students at both year levels and in both subjects was significantly lower than non-Indigenous students, although the achievement gap was somewhat smaller in 2002-03 than in previous years. Students who used a computer both at home and at school achieved a significantly higher science score than those who only used a computer at school (Thompson and Fleming, 2003).

The use of data about family possessions may be thought to be connected to socio-economic status in two ways: first, as a proxy for family wealth, and second, as a measure of direct family support for learning, through provision of the means to access information, complete homework or study in an appropriate environment and so on. The inclusion of survey items about possessions might be thought to be a more reliable way of gathering data by proxy about family wealth, given that many children, particularly those in the lower age brackets may not know about their parents' incomes; it may also capture aspects of wealth not captured by cash income alone, and it is less intrusive than more direct questions about family income.

Figure 5: Year 8 science achievement by the highest education level of either parent, TIMSS 2002-03



Source: Drawn from Thompson and Fleming, 2003, p.58

Another influential study into student achievement was reported in 2001 by ACER (Lokan, Greenwood and Cresswell, 2001). The OECD Program for International Student Assessment (PISA) was conducted in 2000 and measured the performance of 15 year old students in Reading, Mathematical and Scientific Literacy Skills. Students from 32 countries were involved in this assessment program. Altogether, more than a quarter of a million students were involved in PISA 2000.

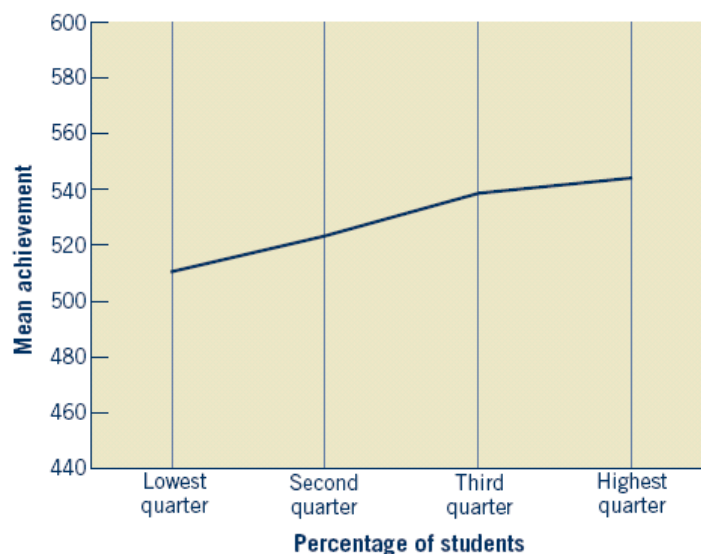
PISA investigated information about the relationship between student achievement and socio-economic status in a variety of ways. The first is similar to the earlier TIMSS studies

and examines the relationship between achievement and family possessions. Two questions in the PISA Student Questionnaire related to household possessions. The first question provided a list of items found in homes and asked students to indicate whether they had the items in their home or not. The second question, also providing a list of items, asked students to mark the appropriate category, from none to three or more, to show how many of each item they had in their home.

The study found that almost all students (99 per cent) had a dictionary, 93 per cent of students had school textbooks, and a large majority of students (90 per cent) had a room of their own, a desk for studying and a quiet place to study. About 70 per cent of students had three or more calculators in their home, a fifth of students had two calculators, six per cent had one calculator and only one per cent of students did not have a calculator in their home. There was a positive relationship between the extent of home educational resources and reading achievement, with a correlation coefficient of 0.23. Several composite scales were derived from the Student Questionnaire data. One scale, family wealth, was composed of nine items (dishwashing machine, room of your own, educational software, link to the Internet, and numbers of mobile phones, televisions, computers, motor cars and bathrooms). Figure 6 shows a positive though weak correlation ($r = 0.14$) between reading achievement and the distribution of students into quarters on this scale. Students with more of these items in their home performed better than students with fewer of them.

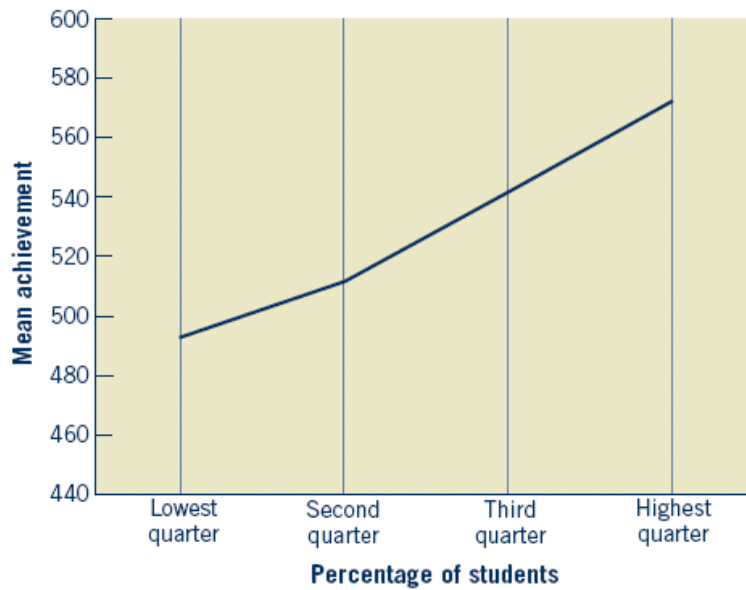
The number of books in the students' homes has been a useful predictor of achievement in many studies. The PISA 2000 study also found a positive, but weak ($r=0.29$) association between reading achievement and the number of books in the home, a result which is consistent with findings from earlier studies such as TIMSS (Lokan *et al.*, 2001, p.151).

Figure 6: Reading Achievement and the Family Wealth Scale



Source: Lokan *et al* (2001), *How Literate are Australia's Students*. p. 143

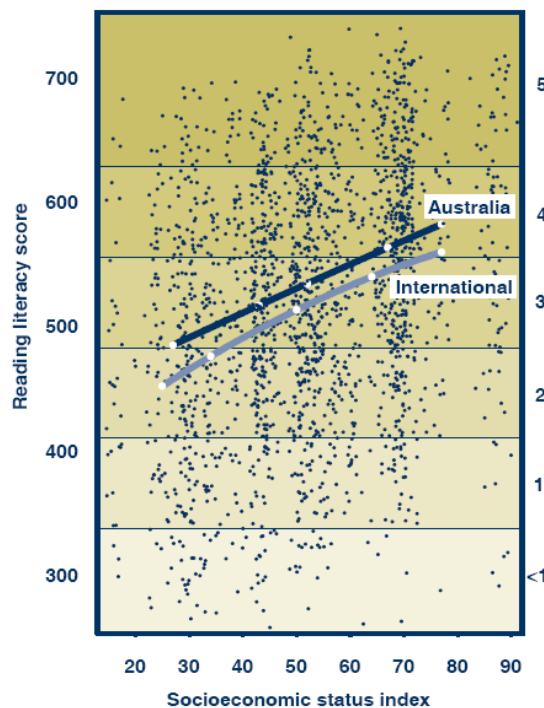
Figure 7: Reading Achievement and the Cultural Possessions scale



Source: Lokan et al (2001), *How Literate are Australia's Students*. p.143

Plotting of students' PISA achievement scores against their socio-economic status (based on parents' occupations) showed that Australia's results follow the general trend of the international results, with a moderately strong association between achievement and socio-economic status in the three domains of reading, mathematical and scientific literacy. The relationship was slightly stronger for reading than either mathematical or scientific literacy, indicating that success in reading depended more on home background than the other two domains. Figure 8 shows the overall relationship between Australian students' reading achievement and socio-economic status. These results indicate a clear, positive relationship, although individual student's reading results cover a very wide range and are sometimes not associated with the student's socio-economic status.

Figure 8: Australia's Results in Total Reading Literacy Compared to the International Results and Plotted against Socio-economic Status



The PISA study also undertook more sophisticated analyses that examined how the students' achievement is associated with their own background and also how it is associated with school factors. The between-school variance in Australia, although relatively small, was largely explained by the socio-economic status of the students. However for Indigenous students, the relationship between socio-economic status and reading achievement was much weaker, indicating that Indigenous students from higher socio-economic status families do not perform substantially better than those from lower socio-economic status families. This suggests that other factors besides socio-economic status operate in relation to the achievement of Indigenous students (Greenwood, Frigo and Hughes, 2002).

The family wealth variable was constructed from student responses to a number of questions about family possessions, such as the number of bathrooms, cars and computers. It explained 8.9 per cent of between school variance and one per cent of within school variance (that is, factors other than wealth were more dominant in explaining within school variance). Students coming from homes with higher levels of possessions typically had access to a wider variety of stimulus materials and better access to information sources such as the Internet. The most significant school factor contributing to explaining the variance between schools in PISA 2000 reading literacy was the mean socio-economic status of the school (that is, the mean socio-economic status of the students attending the school), as measured from the Student Questionnaire data. In the HLM analysis this variable was investigated to see if it had an association with the mean reading score. The association was found to be significant and explained 13.9 per cent of the between school variance. There is a positive association between a student's reading score and the mean student socio-economic status of the school. The challenge for education systems and schools, according to Lokan *et al.*, is to provide experiences for students that help to ameliorate the effects of socio-economic status without decreasing the existing high performance of students with high socio-economic status.

Socio-economic disadvantage in the international context

The same relationships between socio-economic status and learning evident in Australia are also found to a greater or lesser extent in other countries. In Britain, according to a recent report by the United Kingdom Government's Social Exclusion Unit (2004), a child born into the bottom social class is still more likely to leave school with no qualifications, to live in relative poverty and to die younger than their peers born into the professional classes.

The School Standards Minister in the United Kingdom, David Miliband (2003), noted that while average performance in that country is high, as in Australia, the variation in performance is also high, and this inequality is directly linked to socio-economic background. PISA confirms that too often the education system reproduces socio-economic inequality, rather than challenging it. The UK data suggests that poor children are still one third as likely to get five good GCSEs as their wealthier classmates, that young people from unskilled backgrounds are over five times less likely to enter higher education than those from professional backgrounds, and that the link between socio-economic status and educational achievement cuts in at a very early age, before primary school as well as within it.

Milibrand argues there are three responses to this data. One is to accept that education is powerless in the face of socio-economic inequality. But the data does not support this: the United States, with higher socio-economic inequality, has lower educational inequality. Secondly, it may be argued that high average performance and high inequality are natural partners. But the PISA data denies this too: Finland, Korea, Ireland, three of the highest

performing countries for average score, are also lowest in the measure of their educational inequality. The PISA data clearly give lie to the argument that the dual aims of quality and equality are a mirage, or worse, at odds. A third approach is to accept that socio-economic inequality makes learning difficult; but it requires schools to “help children climb up the down escalator. But it can be done, if the system is geared to high average achievement, and then extra help is given to those in greatest need. This is the way both to raise quality and reduce inequality.”

It is interesting to note that the approach adopted in the United Kingdom to address these issues focuses on the concept of social exclusion, including those factors which transmit poverty and disadvantage from one generation to the next. The concept of social exclusion, as defined by the British government is about more than income poverty. It is a shorthand term for what can happen when people or areas face a combination of linked problems such as unemployment, discrimination, poor skills, low incomes, poor housing, high crime, bad health and family breakdown. These problems are linked and mutually reinforcing so that they can create a vicious cycle in people’s lives. The main causes and consequences of social exclusion are poverty and low income, poor educational attainment, poor mental or physical health family breakdown and poor parenting, poor housing and homelessness, discrimination, crime, and living in a disadvantaged area. The risk factors for social exclusion tend to cluster in certain neighbourhoods, but not everybody at risk lives in a deprived area. Social exclusion is thus a broader notion of disadvantage than simply low income levels.

The research literature in the United States exploring linkages between socio-economic status and educational achievement is vast (see for example Adams, 1994; Grinion, 1999; Cooper, 1998). Much of this literature has limited relevance to the Australian context, except to further demonstrate the point that unless there is some policy intervention, social disadvantage is reinforced and perpetuated through the school system. The US literature is also of interest in providing insights into the methodological and conceptual bases for measuring socio-economic status. Two studies are sufficient to give a flavour for the US research, one drawing on local data, the second drawing on national longitudinal data (not dissimilar to the Australian LSAY project).

Research by the RAND Corporation (Lara-Cinisomo et al, 2004) have found that the most important factors associated with the educational achievement of children are not race, ethnicity, or immigrant status. Instead, the most critical factors appear to be socio-economic ones. These factors include parental education levels, neighbourhood poverty, parental occupational status, and family income. These conclusions were reached by studying two separate samples of US students: a local, early childhood sample and a national, high school sample see Figures 9-11).

- In a study of children in 65 Los Angeles neighbourhoods, it was found that the two factors associated most strongly with school readiness are (1) the educational attainment of mothers and (2) neighbourhood poverty. For this reason, school-readiness programs should target children whose mothers are poorly educated and children who live in poor neighbourhoods.
- In a study of mathematics achievement among a national sample of high school students, RAND found that improved socio-economic conditions among blacks and Latinos correspond strongly to decreases in the mathematics test score gaps – both between blacks and whites and between Latinos and whites. For this reason, RAND argues that socio-economic policies that benefit lower-income families and communities should be recognised also as educational policies on behalf of the children in these families and communities.

Lara-Cinisomo *et al.* conclude that beyond any specific policies that may contribute to the closing of the achievement gaps – whether by providing more support to families, increasing educational opportunities, or decreasing racial isolation – it is important to understand that educational policies should be coordinated with socio-economic policies. They conclude that:

“If we do not consider how educational policies complement or conflict with policies related to family welfare, work, poverty, housing, and neighbourhood conditions, then we will continue to face significant obstacles in attaining the goal of narrowing the achievement gaps.”

Figure 9: Relationship between mother’s education and mathematics achievement

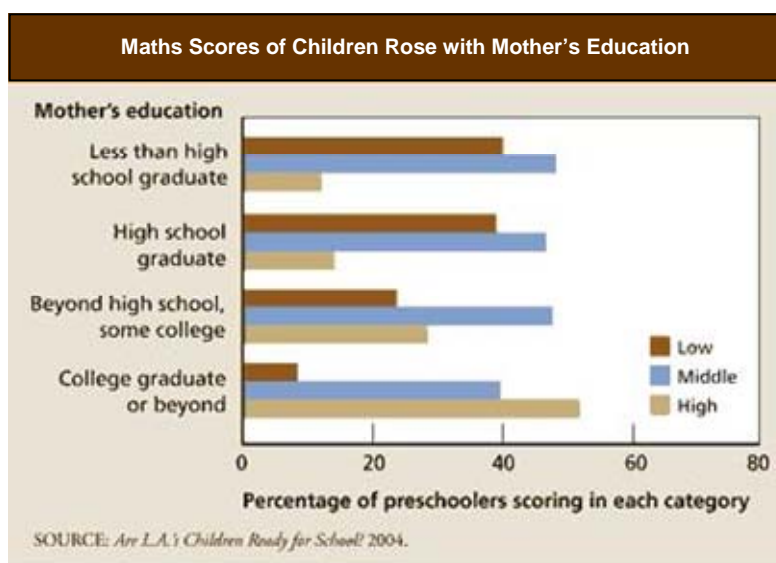


Figure 10: Relationship between mother’s education and reading achievement

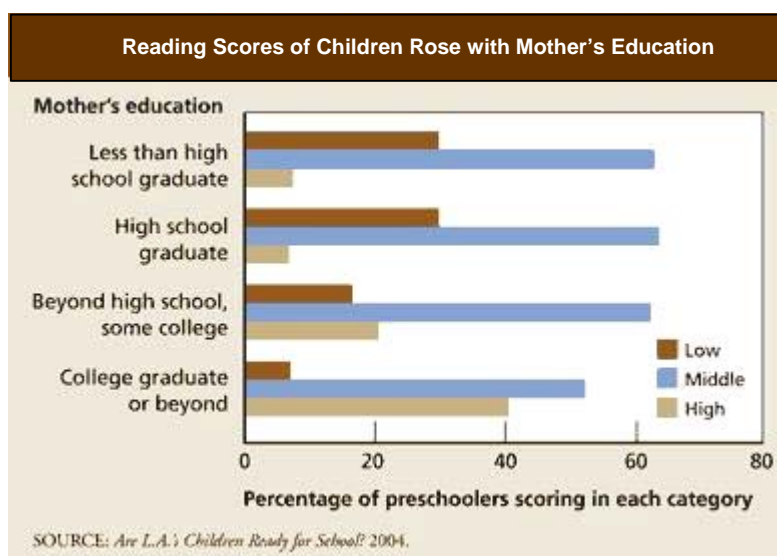
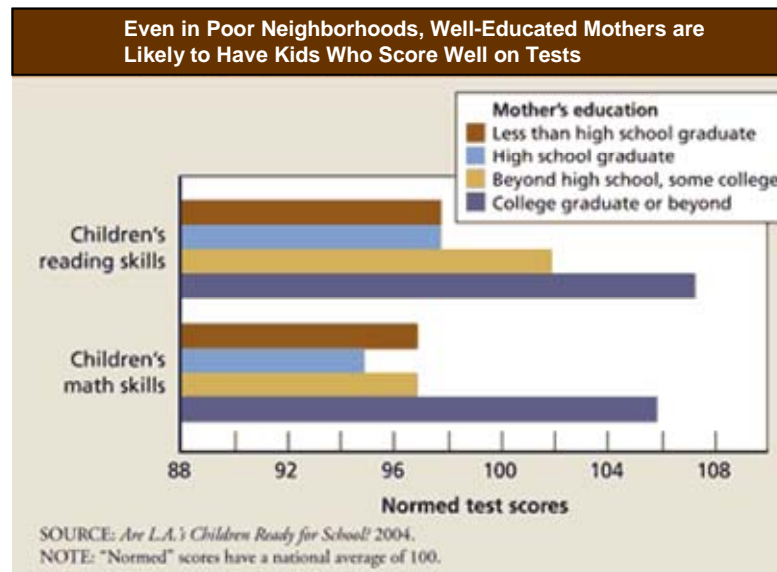


Figure 11: Mother's education, neighbourhood socio-economic status and children's achievement



It is interesting to note that the current Federal approach in the US to addressing the educational needs of children living in impoverished communities is through funding strategies for improving the whole school so every student achieves high levels of academic proficiency. School-wide programs have great latitude to determine how to organise their operations and allocate the multiple funding sources available to them. They do not have to identify particular children as eligible for services or separately track Federal dollars. Instead, school-wide programs can use all allocated funds to increase the amount and quality of learning time. Authorized under the *No Child Left Behind Act* of 2001 (NCLB), these school-wide programs provide a comprehensive reform strategy for improving the academic achievement of all students in the school, particularly the lowest-achieving students. School-wide programs grew out of research about what makes schools work for disadvantaged students. Repeated findings show that staff in highly successful high poverty schools develop and carry out comprehensive school-wide reform strategies, establish safe environments that are conducive to learning, and support enriched instruction in an expanded core of subjects for all students. Over the years, researchers have documented that, when the entire school is the target of change, schools serving even the most academically challenged students can achieve success. Separate funding is also available that provides supplementary educational services for eligible children identified as being most at risk of not meeting State standards (US Department of Education, 2005).

Individual or community disadvantage?

The studies reviewed above all point to a moderately strong relationship between socio-economic status and a range of schooling outcomes at the individual student level. The greatest challenge for policy responses to this finding is the fact that at the individual level, the spread of achievement scores is very wide, with some children from low socio-economic status families performing very well and vice versa. It is imperative to avoid the situation, which Rowe (2003) describes as social determinism, in assuming that the reason why children from low socio-economic status families under-perform is simply or solely because of their background. To do so is to ignore the research that indicates that

individual schools, and individual teachers, can and do make a difference to children's learning.

The data in the LSAY, TIMSS and PISA assessments (together with that in a great many other studies) also point to the fact that the average level of disadvantage of the whole school population contributes to educational disadvantage over and above that contributed by that of individual students. Why this is so is relatively unexplored in the educational literature. However, some recent research (Kurki *et al.*, 2005) in the United States begins to throw some light on the effects of concentrations of poverty.

The traditional measure of socio-economic disadvantage in the United States has been the percentage of a school's students who are eligible for free/reduced-price lunch (eligibility defined as the family's income being below 185 per cent of the Federal poverty level). Although this measure provides a picture of the proportion of children who come from disadvantaged backgrounds, it also has some problems. It does not necessarily capture all relevant dimensions of poverty, such as the effects of concentrated poverty in a school's neighbourhood and the neighbourhood effects (Aaronson, 1997; Furstenberg and Hughes, 1997), nor is free of error.

Kurki *et al.* (2005) examined four alternative poverty measures that quantify neighbourhood disadvantage. The first measure, the Dissimilarity Index (Massey, Gross, & Eggers, 1990), illustrates the intensity of concentrated poverty by calculating the proportion of poor families that would have to move to achieve an equal distribution of poor families in the school neighbourhood. The Isolation Index (Massey and Danton, 1993) measures the extent to which poor families are likely to be in contact only with other poor families. In addition to these poverty-related indices, two other poverty measures based on census data were created: the poverty level of the school neighbourhood and the percentage of single-parent households with children in the school neighbourhood.

The results are similar to those found by Datcher (1982), Dornbusch *et al.* (1991), and Aaronson (1998), in confirming that neighbourhood factors are important predictors of education outcomes. Kuri *et al.* found that census-based poverty measures that also capture dimensions of neighbourhood effects are powerful predictors of student achievement (the exception being the Dissimilarity Index) for years in which census data were collected. When these poverty measures were added to HLM models together with the more traditional free/reduced-price lunch measure, they remained statistically significant while the free/reduced-price lunch measure was statistically insignificant. The poverty measures' effect sizes were also respectable at approximately 0.1 standard deviations. The results calculated with 2003 data show how the relationships between census-based poverty measures and student achievement have weakened, the exception being the Isolation Index, which still significantly predicted both mathematics and reading achievement, with and without the free/reduced-price lunch measure.

These results imply that in addition to individual or family-level dimensions of poverty, neighbourhood poverty effects are important predictors of student achievement. At the present time, most children in the US are still enrolled in schools located in their neighbourhoods, and the physical neighbourhood and social institutions (or lack of social institutions) within them influence parents' and children's choices regarding education. Neighbourhoods with negative peer pressure, lack of positive role models and parental oversight, and low levels of public safety tend to be neighbourhoods with higher levels of concentrated poverty. These consequences associated with concentrated poverty are likely to amplify the effects of individual or family-level poverty and negatively affect children's lives and social outcomes, including educational attainment and achievement. Initiatives such as school vouchers, Charter Schools, and other policies that make it easier for parents

to exercise school choice are likely to intensify the concentrations of poverty within schools. This trend is already evident in many locations in the United States (see for example, Kahlenberg, 2002).

This research is all the more important in the light of Rothman's study (2003) that identifies a disturbing trend among Australian schools towards greater socio-economic segregation – in which the average socio-economic status of advantaged schools is increasing. Fuelled by Government policies that have eliminated or reduced school zoning practices and increased funding for non-government schools, this segmentation has contributed to the transfer of the effects of socio-economic status from the individual level to the school level. In the LSAY study sample taken in 1975, only 18 per cent of schools enrolled more than half of its students from families in professional and managerial positions, those deemed to be of high socio-economic status. By 1998, that figure had grown to 41 per cent of schools, which indicates a greater concentration of students from high socio-economic status. The implications of this finding are explored in more detail below in relation to other research that lends support to the arguments in favour of addressing concentrations of poverty.

The notion of “neighbourhood (or community) effects” (Duncan, Connell, and Klebanov, 1997; Duncan and Aber, 1997) or concentrations of disadvantage hinges on the notion that the immediate geographic area where a person lives fundamentally moulds that individual's life chances: his or her educational, social, and financial future. The consequences of community effects have been widely studied and connected to school achievement, educational attainment, teenage pregnancy, and dropout rates (Aaronson, 1998; Ainsworth, 2002; Brooks-Gunn, Duncan, Klebanov, and Sealander, 1993; Crowder and South, 2003; Dornbusch, Ritter, & Steinberg, 1991; Duncan, 1994; Garner and Raudenbush, 1991; Jargowsky, 1996; Newman and Harkness, 1999). Community effects have been measured in numerous ways in these studies, including using individual socio-economic characteristics and/or forming complex multidimensional indices. Most importantly, these studies have been able to show a community effect that is distinct from a family background effect.

Brooks-Gunn *et. al.* (1993) situate community effects within developmental psychology's concept of ecological models; an individual's development takes place across a series of social and environmental contexts (such as families, schools, and communities), all of which must be taken into account when examining that individual and his or her development. Researchers have theorised numerous explanations for how communities affect an individual's development. Collective socialisation theories of community effects focus on the importance of role models and social networks in fostering positive social contributions (Jencks and Mayer, 1990). Brooks-Gunn *et. al.*'s (1993) analysis of community effects on various developmental outcomes suggested that high poverty communities' lack of affluent role models were producing more social problems than the presence of economically disadvantaged residents. The authors also found that the relationships between the effects of high poverty communities and childhood IQ, teenage births, and school dropout rates remained significant even when the analysis controlled for family socio-economic characteristics.

Researchers have also posited several explanations for the effects of communities with highly concentrated poverty levels. Contagion theories emphasize how peer influences spread social problems across community populations similar to the way in which people's interaction with others spreads contagious diseases (Jencks & Mayer, 1990). Building on these ideas, Crane (1991) describes an “epidemic” theory of spatial poverty. A subset of contagion theory, epidemic theory is based on the notion that in large cities, residents of areas with extreme or “epidemic” concentrations of poverty and social problems (areas that Crane characterized as “ghettos”) are significantly more likely to develop social problems than residents in other poor, minority-dominated communities. Thus, community

effects not only vary between poor and affluent communities but also between poor and abjectly poor communities. Concentrated poverty is assumed to amplify the effects of individual poverty: communities with a high concentration of poor individuals and families have a higher concentration of social ills, from unsafe streets to lack of economic opportunity, than more stable, middle class communities (Altshuler, Morrill, Wolman, and Mitchell, 1999).

The effects of concentrated disadvantage may be a consequence of one or more of the following:

- **Lack of positive role models**—Theories of collective socialisation often examine role models' function in spreading socially positive behaviour (Jencks & Mayer, 1990; Dietz, 2000; Wilson, 1987) among disadvantaged communities. With respect to education outcomes, the absence of role models may lower attendance rates, increase dropout rates, and decrease student achievement (Ainsworth, 2002; Crane, 1991).
- **High concentration of non-traditional families**—Single-parent households may have less school involvement and parental supervision (Altshuler *et al.*, 1999). With fewer parents available to watch over, guide, and interact with children, peer influences—including peer pressure toward unfavourable behaviour—may have a stronger impact (Duncan, 1994). Studies have indicated that adolescents raised in communities with large numbers of single-parent households are at greater risk of high school attrition (Flores, 2002) and antisocial behaviour due to peer pressure (Steinberg, 1987, cited in Crane, 1991).
- **Lack of economic opportunities**—The need to travel far from one's community for employment results in increased commuting time and hence less school involvement and parental supervision (Altshuler *et al.*, 1999). The Gautreaux housing experiment in Chicago, which offered a choice for public housing complex residents to move into another public housing complex or into an apartment located in the suburbs, clearly shows the importance of economic opportunities: children of families who moved to suburbs were more likely to be employed and had higher salaries than children of families who decided to move to another public housing complex located in the city.
- **Lack of empowerment**—Wilson (1991) suggests that the high rates of joblessness and the weak connection to the labour force that characterise high poverty communities result in reduced feelings of empowerment or self-efficacy. Social cognitive theorists have argued that people's perceived self-efficacy, their belief in their ability to achieve goals and to affect events around them, determines the amount of effort and perseverance they will exert in the face of a challenge. Socially and economically marginalised groups living in concentrated poverty tend to feel less empowered to achieve common societal goals, and these feelings of low self-efficacy are reinforced by members of the community who share similar beliefs (Bandura, 1982, cited in Wilson, 1991). These feelings may cause parents to be less demanding concerning their children's needs and the needs of their children's schools (Orfield, 1998).

An alternative explanation of these school-level effects derives from earlier work in the sociological literature, where the negative effects of disadvantage are said to be felt more keenly by communities than individuals because of the accumulation of successive failures. Jessor *et al.*, (1993) for example, argue that "Contexts of poverty and social disorganisation are obviously less likely than middle class contexts to provide resources for

overcoming a history of problem behaviour, or to make “second chances” available, that is, to be more forgiving in the sense of maintaining open opportunity despite previous problem behaviour”. Merton (1973) describes this phenomenon by emphasizing examples of its inverse: cumulative advantage. Merton notes that success early in life could increase the likelihood of future successes even without sustained levels of effort or genuine merit. Citing a verse from the Bible, Merton (1973, p.445) refers to this as the Matthew Effect:

“For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that little which he hath”.

Thus, according to Merton, the initially advantaged can expect more advantages to come their way, while the initially disadvantaged should expect their problems to multiply.

Clearly, further research is needed in the Australian context to investigate the origins and implications of these community effects. Some initial work has been conducted in relation to entry to the labour market using data from the Longitudinal Study of Australian Youth study (e.g. Andrews *et. al.*, 2002), but its applicability in the general schooling area requires greater attention. From a measurement perspective, this research suggests that it would be prudent to include within the methodology for funding programs that seek to address disadvantage some aspect that recognises these concentration effects.

Conclusion

The literature in regard to the inter-relationship of education and socio-economic status published since 2000 suggests that this factor continues to play a significant part in the kinds of outcomes from schooling experienced by young people. This literature continues to support the conclusion that the influence of socio-economic status is complex, and intersects with a range of other factors including gender, culture and ethnicity. There are as yet no simple explanations as to how these factors combine, or how they impact in different geographic locations. There are some indications that support the view that the concentration of disadvantage rather than disadvantage *per se* is the significant driver of educational under-performance.

The literature also suggests that the current conceptualisation of socio-economic disadvantage used by the NSW Priority Schools Funding Program (PSFP) and the variables used to calculate the Index of socio-economic disadvantage for schools remains basically valid. Parent/carer level of education and employment status are commonly identified as making the largest contribution to relative advantage/disadvantage, and are the factors that are most commonly used both in research studies and by other school systems in their own efforts to measure disadvantage. Both of these factors appear to be more reliable predictors of educational outcomes than family or household income.

There is a range of other factors that have been considered both in the literature and in the development of the current PSFP, including family composition (of which having a sole parent is the key variable) and Aboriginal or Torres Strait Islander ethnicity, which add to and compound the relative disadvantage provided by employment and education status. There are arguments to be made about how each of these variables should be measured and how they are combined to form a single composite index, including how the particular variables are weighted in these calculations. The literature does not provide any compelling reason to adopt a different approach to the current methodology – indeed it has several advantages over other options such as census based measures. It will, however, always be hamstrung by the fact that it is relatively costly and can be considered to be fairly intrusive in the data that it seeks from families.

Of the factors not included in the current NSW PSFP Index, only family mobility (as included in the previous Victorian Student Learning Needs index) appears to have the potential for making a positive contribution to the discriminative ability of the index. The research is clear that family mobility has an impact on the educational outcomes of some students (although it is not clear whether this is a lasting effect or that it affects all children in the same way – see ACER, 2001), and while it may be an educationally disadvantaging factor, is not unambiguously socio-economic in its impact.

The literature does not make any strong case for the inclusion of other factors that might be presumed to impact on socio-educational disadvantage, (and which were investigated in the pilot studies for the 2000 NSW PSFP Index). This is not to say that these factors are unimportant, but from a measurement perspective they add little that is not accounted for by the included variables. Neither family size nor parent/carer disability, for example, appears to explain any significant additional variance in the measure of disadvantage than that provided by the included factors. While race is an important variable in the United States (and possibly also in the United Kingdom), there is no equivalent in the Australian context, and ethnicity (other than Aboriginality) is not generally found to be uniformly associated with educational disadvantage. Indeed, as the work by Rothman indicates, in some circumstances coming from a non-English speaking family is associated with increased educational outcomes. There is no doubt that a lack of English language proficiency can impact on parent/carer employment status, and on children's ability to learn at school. However, from a measurement perspective, it would appear that the reasons why a person's employment status is as it is may be less important than the *prima facie* employment status itself. It would appear that for students, once English language learning needs have been addressed, language background is not in and of itself a disadvantaging factor. As was noted in 2000, there are other programs that seek to address these language learning needs.

While the recent literature may not suggest the need for radical departure from the current conceptualisation of disadvantage, it is worth noting that there have been some important changes in the context of schooling (both in Australia and overseas) that may require some rethinking of how information about family disadvantage is applied to school funding decisions. At the end of the day, decisions have to be made about the best way to distribute scarce resources among a population that has greater or lesser need for assistance to achieve the greatest value for money.

It has long been recognised that there are more disadvantaged individuals outside the scope of the PSFP (and its forerunner, the Disadvantaged Schools Program) than within the schools that have been funded by these programs. It has also long been recognised that, given the almost arbitrary nature of the cut-off point for eligibility for funding, schools that fall just above the threshold are not significantly different from those that just qualify. As noted in a recent ACER report (Rothman, 2003), nation wide, educational programs that were designed to ameliorate disadvantage in recent years have been changing over the last decade, shifting in emphasis from whole-school approaches to individualised remedial approaches. With the growing segregation of schools along socio-economic lines, the achievement trends suggest it may be appropriate to re-evaluate which programs should target individuals and which target schools. The exploratory research that suggests that it is the proportion of higher socio-economic status parents in the school community – rather than student-level socio-economic status overall – that has the greatest influence on academic achievement, also needs to be explored more thoroughly.

Regardless of the approach that is adopted, as Marginson (2004) concludes, there is a need for continuing public discussion about educational disadvantage and how it can be

addressed. Failure to do so, and to continue to perpetuate the cycle of disadvantage, is in the words of the British Prime Minister Tony Blair:

"... bad for everyone. But it is particularly unfair for children who miss out on opportunities because they inherit the disadvantage faced by their parents, so their life chances are determined by where they come from rather than who they are. They deserve the same chances to fulfil their potential that others take for granted." (Social Exclusion Unit, p.5).

The challenge for Australian education policy-makers is to achieve a broad base of social support for the objective of lifting the educational achievement of the disadvantaged, in ways that are productive for all.

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