Can Schools Make a Difference? 
“Income Equal” Schools in ESL Reading Comprehension 

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Abstract

Background: Poverty is widely recognised to have a huge impact on the outcome of learning. In many cases, however, the learning environment provided by the particular schools is proven to be able to make a difference in the academic achievement of low-income students.

Aims: This study is aimed at the investigation of this function of schools in the domain of teaching English as a Second Language (ESL), on the basis of a large data obtained by an ESL reading evaluation from Malaysian secondary schools.

Sample: The sample consists of the ESL reading comprehension test results of 3,567 secondary school students. Sampling was done by choosing 47 public secondary schools randomly throughout Penang state of Malaysia.

Method: Income equality in education is defined here as the equal attainment of a basic level of the competence according to the curriculum standard, while the impact of income status on academic excellence is excluded from the observation. Based on the above concept, we identified a number of schools in our sample, which proved to be “income equal” in terms of teaching ESL reading skills.

Results: By exploring the characteristics of this group of schools, we found that the income and gender composition of the schools, along with the motivation patterns of their students are among the various factors that can make a difference in the impact of income status on academic achievement.

Conclusion: While the gender and social composition of a school is usually determined by external conditions out of its scope of authority, the motivation of students undoubtedly provides an opportunity for each and every school to mitigate income inequality, irrespectively of its social, political and financial background.

Keywords: ESL reading comprehension, income equality in education, school environment
Social equality in education is among the principal goals of most national school systems. The concept envisions the independence of academic achievement from the social background of students, in other words the equal opportunity for all to excel in their studies in formal education. It is widely known, however, that the social background of students has a huge impact on their academic achievement, which may determine their whole educational and professional career (Burney & Beilke, 2008; Rothstein, 2004). According to a critical review of several empirical studies, financial conditions of a student's family are related to one's achievement at a medium to strong level (Sirin, 2005). Moreover, a number of recent studies found that poverty has a significantly greater influence on academic success than other factors of social background, such as culture, gender, ethnicity, language and school location (Lamont & Small, 2008; Ong, Chandran, Lim, Chen & Poh, 2010).

The influence of income inequalities, however, does not take place in a vacuum. On the contrary, it takes place in particular learning environments provided by particular schools. International student assessment data from the PISA survey shows that the impact of socio-economic status on the test results varies more by the individual schools than the school type or study track the student is located in (Marks, Cresswell & Ainley, 2006). Therefore, the role of individual schools in facilitating, mediating or eliminating the impact of student income status on academic achievement is a crucial issue of educational research.

**Income Inequality in Education**

The impact of income inequality on academic achievement comprises of a wide range of direct and indirect factors. The former include the lack or insufficiency of some basic material resources such as course books, stationary and a quiet place dedicated to home learning, which impose a serious burden on the performance of the poorest students (Downey, 1995; Ford & Harris, 1999; Teachman, 1987). At the same time, abundance of material resources may directly contribute to successful learning, buying academic support for the student through tuition classes, supplementary educational materials, co- and extracurricular activities and the like (Lareau, 2002).

The indirect factors of income inequality in education are related to the social and cultural disparities between the richer and poorer segments of the society. There is agreement that the negative attitude of some underprivileged groups of students hinders their academic achievement. The classic theory of Willis (1977) about the counter-culture of children from unfavourable social background has been verified and extended by several empirical studies among various disadvantaged groups such as poor rural students (Cross & Burney, 2005) and members of deprived African American communities (Ogbu, 2004). According to a number of studies, parental involvement, parent-child interactions, along with the family's general attitude towards learning and academic success have a substantial impact on the students’ performance (Topor, Keane, Shelton & Calkins, 2010). Other studies, however, found that the lack of parental support is principally linked to the dropout of poor students, rather than to their academic achievement (McNeal,
Probably the most influential explanation to the socio-cultural determination of academic achievement is recommended by Bourdieu’s theory about cultural capital and its role in the reproduction of family social status through the educational system (Bourdieu & Passeron, 1977). The cultural capital theory has been applied, supported or refined by a wide range of empirical findings since its conception, including some recent studies about the contribution of social capital to student achievement (Lareau, 2002; Tramont & Willms, 2010). At the same time, it is criticised for its determinism (Albright & Luke, 2008; Giroux, 2001) and lack of conceptual clarity (Sullivan, 2002), and invalidity in less meritocratic societies (Jaeger, 2009).

The Role of the School Environment

While the reduction of income inequalities in the society is beyond the sphere of influence of educational institutions, to mitigate the impact of these inequalities on academic achievement is far from impossible. There is broad evidence that besides poverty, the low performance of poor students is also a result of their lack of interest in their academic subjects (Chhinh, 2003). This is related to the theory of learned helplessness, which claims that the repeated experience of failure prevents any action by the individual to avoid it in the future (Abramson, Seligman & Teasdale, 1978; Diener & Dweck, 1978; Seligman, 1972). The learning environment has an enormous potential in the motivation of non-interested and learned-helpless, by influencing the motivation patterns of low-achievers (Dweck, 1986).

The personality, teaching practice and behaviour of the teacher forms the core element of the students’ classroom experience (Akyuz & Berberoglu, 2010). Accordingly, teachers are reported to play a substantial role to mitigate the impact of income status in student performance, and broad empirical evidence is found that poor students achieve more under the instruction of highly skilled educators (Boyd, Lankford, Loeb, Rockoff & Wyckoff, 2008; Rockoff, 2004). Beyond the different levels of academic qualification, various elements of classroom practice are proven to mitigate the impact of poverty, such as small-group instruction, independent class work and communication with the parents (Taylor, Pearson, Clark & Walpole, 2000).

The theories and findings discussed above provide broad evidence that the quality, attitude and personality of teachers play a substantial role in the mediation of income inequalities within the particular schools, which is particularly important for students coming from a low-income family background. A similar concept is suggested by the findings of school effectiveness research, which claim that schools are potentially able to facilitate the academic success of underprivileged students in case a number of conditions are observed, such as a strong leadership, discipline, focus on the core subjects and contents, collaboration of the staff members and a conducive atmosphere to learning (Luyten, Visscher & Witziers, 2005; Purkey & Smith, 1983; Teddlie & Reynolds, 2000).

Conceptual Framework

The concept of income equality in education is derived from the well-researched issue of social equality in education. The use of this term reflects that our study adopts the notion that all students must have an equal opportunity to achieve academic
success, regardless to their social background, while at the same time, we focus on one single factor of social background, namely the income status of the students’ family. The concept of “income equal” schools directly refers to income equality in education, aimed to label those schools successful in the elimination of the impact of income status on academic achievement.

In the current study, a core concept of school effectiveness theory is applied, namely the goal of public education is to make each student attain the basic curriculum requirement, rather than to achieve zero impact of social background on academic performance (Edmonds, 1979). According to this concept, schools do have the ability to eliminate the impact of social background on the attainment of a basic curriculum standard through the committed and cooperative effort of their teaching staff, along with a supportive organisational climate (Rutter, Maughan, Mortimore & Ouston, 1979; Scheerens & Bosker, 1997). From this approach, inequality in education is defined as the failure of the school to facilitate students of adverse social background to achieve the level of the curriculum standard.

Inspired by Edmonds’ criterion of school effectiveness mentioned above, we conceived the vision of school income equality, defined as the ability of a school to get its poor students in line with the basic curriculum standard. The student evaluation data used for the analysis provided a suitable way to focus on this issue directly, as it clearly defines two different categories based on the school year and the test scores, namely above or below the current national standard of attainment. By applying these categories in our analysis instead of dealing with the whole range of test scores, we were able to exclude the impact of income status beyond the issue of meeting the curriculum standard or failing to meet it. Based on the distinction between above-standard and below-standard students, we distinguished a group of “income equal”, i.e. schools which are effective in terms of mitigating the impact of poverty on their students’ academic achievement, and investigated their common features.

Data and Methods

Data

The empirical investigation presented in this study is based on the secondary analysis of a large student evaluation data from Malaysian secondary schools that provides information about the ESL reading comprehension of year 10 students. The sample consists of the test results of 3,567 students, all of whom attend Form 4 of secondary school (i.e. the 10th year of their education). Sampling was done by choosing 47 public secondary schools randomly throughout Penang state of Malaysia. Within the selected schools we evaluated all Form 4 students present at the time of the testing.

Our database comprises the student scores of Reading Evaluation and Decoding System (READS), a standardised tool for the evaluation of ESL reading skills in the primary and secondary schools of Malaysia (Abdul Rashid, Lin & Shaik Abdul Malik, 2010). READS had been developed to provide an objective assessment of the reading age of students, as defined by the current national curriculum standard. The use of student reading comprehension data in the context of the present study is inspired by a current finding which claims that the impact of income inequalities on academic achievement is particularly huge in the case of language and literacy competence (Hartas, 2011).
Measures

The data includes the answers of the students to the test questions (encoded as dichotomous variables, i.e. correct or incorrect), each student being assigned with a test score (0 to 60) and a result category (band 1 to band 6). Among these result categories, band 5 is defined by READS as the minimum level of the curriculum standard of ESL reading competence for Form 4 students (Abdul Rashid, Lin & Shaik Abdul Malik, 2010). Along with the test results, the gender, ethnicity and income status of the students were also recorded (Table 1 to 3). Besides the test scores and social variables, data was also obtained about the motivation of students in reading ESL. The respective variable derives from a 4-point Likert item about the inclination of the students to reading in English, asking them to what extent they like reading English texts.

Table 1

The Composition of the Sample by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1,752</td>
<td>49.1%</td>
</tr>
<tr>
<td>Female</td>
<td>1,815</td>
<td>50.9%</td>
</tr>
<tr>
<td>Total</td>
<td>3,567</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2

The Composition of the Sample by Household Income

<table>
<thead>
<tr>
<th>Household Income</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>1,643</td>
<td>46.1%</td>
</tr>
<tr>
<td>Low</td>
<td>774</td>
<td>21.7%</td>
</tr>
<tr>
<td>Middle</td>
<td>378</td>
<td>10.6%</td>
</tr>
<tr>
<td>High</td>
<td>772</td>
<td>21.6%</td>
</tr>
<tr>
<td>Total</td>
<td>3,567</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note. Very low: MYR 0 to 999; Low: MYR 1,000 to 1,499; Middle: MYR 1,500 to 1,999; High: MYR 2,000 and above; MYR: Malaysian ringgits (MYR1.000 is worth approximately EUR250).

Table 3

The Composition of the Sample by Ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malay</td>
<td>1,777</td>
<td>49.8%</td>
</tr>
<tr>
<td>Indian</td>
<td>445</td>
<td>12.5%</td>
</tr>
<tr>
<td>Chinese</td>
<td>1,307</td>
<td>36.6%</td>
</tr>
<tr>
<td>Other</td>
<td>38</td>
<td>1.1%</td>
</tr>
<tr>
<td>Total</td>
<td>3,567</td>
<td>100%</td>
</tr>
</tbody>
</table>

Analytical Procedure

To obtain an insight into the role of schools in the mitigation of income inequality, we performed a school-level analysis of the ESL evaluation data, to observe the impact of income status on student achievement and explore the patterns of income inequality in our sample. Subsequently, we identified a group of “income equal” schools, comprising those schools in the sample which proved to be effective in the mitigation of the impact of poverty. Aiming to distinguish the “income equal” schools, we observed the distribution of income groups and the test result categories within the different schools. Using an income variable contracted into two values (higher and lower income), we identified those schools in our sample, where no significant relationship can be found between the income status and the test result of the students (p>0.5 at a two-sided Fisher’s exact test). As a result of the above procedure, we identified eight “income equal” schools which account for 17.0% of the schools and 19.2% of the students (684 persons) in our sample. Finally, we investigated the composition and characteristics of the “income equal” schools, in comparison with the rest of the sample.

The impact of the school environment on academic achievement was investigated through the socio-economic, ethnic and gender composition of the “income equal” schools, as compared to the rest of schools in the sample. At the same time, systematic differences in student motivation patterns
by school were taken as indication to the efficiency of teaching practice in the particular schools. Motivation is broadly recognised to play an important role in language learning (Dornyei, 1994; Gardner, 1985), and the motivational support provided by language teachers are proven to correlate with student performance in language learning (Lamb, 2007). On the basis of the above findings, we supposed that motivation is one of those factors of academic achievement which schools can manipulate in order to mitigate income inequality in education. The contribution of schools to the motivation of students was examined through the comparison of READS result categories (bands; as an objective measure of reading skills) with the inclination of students to reading in English. In a neutral setting, low-achievers tend to be poorly motivated and struggle with learned helplessness (Koh & Galloway, 2006). Therefore, we supposed that a motivation pattern where low-performers tend to be highly motivated to read in English, is a clear sign that the given school boasts a conducive atmosphere to learning, its teachers reaching out successfully to low-achievers.

Results and Discussion

Characteristics of “Income Equal” Schools

Income equal schools have two distinctive features regarding the social background of their students, namely the preponderance of girls above boys, and an income distribution more balanced than at the rest of the schools in our sample. At the same time, their ethnic patterns are almost identical to the rest of the schools in our sample (Table 4). The more balanced income composition of the “income equal” schools suggests that an inclusive school environment in terms of high- and low-income students is more effective in the mitigation of income inequality in education than the high concentration of poor students in the same classroom. This finding is in accordance with an array of studies on the “school mix effect”, which prove that the social composition of a school’s student intake has an important influence on the individual academic achievement of students, and particularly for those coming from low-income family background (Thrupp, 1995; Opdenakker & Van Damme, 2001).

Table 4
The Social Composition of Students by School Groups

<table>
<thead>
<tr>
<th>Social Composition</th>
<th>“Income Equal” Schools (N=684)</th>
<th>Other Schools (N=2,883)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>24%</td>
<td>55%</td>
</tr>
<tr>
<td>Female</td>
<td>76%</td>
<td>45%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Household Income¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Low</td>
<td>33%</td>
<td>49%</td>
</tr>
<tr>
<td>Low</td>
<td>25%</td>
<td>21%</td>
</tr>
<tr>
<td>Middle</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>High</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malay</td>
<td>52%</td>
<td>49%</td>
</tr>
<tr>
<td>Indian</td>
<td>37%</td>
<td>37%</td>
</tr>
<tr>
<td>Chinese</td>
<td>10%</td>
<td>13%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note. ¹ Very low: MYR 0 to 999; Low: MYR 1,000 to 1,499; Middle: MYR 1,500 to 1,999; High: MYR 2,000 and above; MYR: Malaysian ringgits (MYR1.000 is worth approximately EUR250).

At the same time, the astoundingly high proportion of female students is due to the fact that four out of the nine girls’ schools included in the sample proved to be “income equal”. Although this observation cannot be regarded as a valid finding due to the small size of the respective sample, it is in remarkable accordance with several studies that claim that single-sex academic environment is beneficial.
to the performance of disadvantaged students (Diaz, 2007; Riordan, 2004; Salomone, 2003). Considering that not a single boys’ school (seven schools of this type are present in our sample) were identified as income-equal, it seems worth considering single-sex classrooms as a potential factor of income equality in education among female students.

Motivation Patterns
While the gender and social composition of schools and classrooms are determined by external factors like the national educational policy and regional socioeconomic disparities, individual schools may have a great influence on the motivation of their students. Indeed, a correlation test showed that the inclination of students to read in English is less dependent from the test results in the “income equal” schools (Table 5). The tendency of this bias was explored by comparing the motivation patterns prevalent in the different groups of schools, in this case only using variables recoded into dichotomous values, so as to facilitate the observation. As a result, we found that it is those students who scored below the curriculum standard who account for the unique motivation pattern observed in the “income equal” schools. Namely, this group of students tend to like reading in English more than their counterparts from other schools. In spite of the higher motivation of female students in the general sample, the unique pattern observed in “income equal” schools is not gender-related, as low-achievers of both genders tend to be more inclined to reading in this group of schools (Table 6).

Table 5
Spearman’s Rank Correlation Coefficient of the Test Result Categories (Bands) with the Students’ Reading Inclination by School Groups

<table>
<thead>
<tr>
<th>Correlation between Students’ Test Results and Reading Inclination</th>
<th>“Income Equal” Schools (N=684)</th>
<th>Other Schools (N=2,883)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spearman’s rho</td>
<td>.275</td>
<td>.415</td>
</tr>
<tr>
<td>asymp. std. error</td>
<td>.036</td>
<td>.016</td>
</tr>
</tbody>
</table>

Table 6
The Inclination of Below-Standard Students to Read in English by School Groups and Gender

<table>
<thead>
<tr>
<th>Inclination of Below-Standard Students to Read in English</th>
<th>“Income Equal” Schools (N=373)</th>
<th>Other Schools (N=1,757)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Like reading in English</td>
<td>56%</td>
<td>63%</td>
</tr>
<tr>
<td>Do not like reading in English</td>
<td>44%</td>
<td>37%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Though a high level of motivation could be a result of various individual factors such as one’s personality and cultural background, the significant correlation between the subjective variables and school income equality suggests that school-related factors lie behind the different motivation patterns. We argue that the more favourable subjective attitude of low-performing students towards ESL reading in “income equal” schools is a sign of a school environment which is able to raise the motivation
of students to learn English. Hence, we suggest that in our sample, the motivation of students by their learning environment is among the reasons for the successful mitigation of income inequality in education.

Concluding Remarks

As a result of a secondary analysis of student assessment data in ESL reading comprehension, we found that a number of schools can make a difference in their students’ income inequality in education, in terms of the attainment of the curriculum standard. The identification and observation of “income equal” schools led to the recognition of two factors that play a role in making these schools “income equal”, namely a balanced income composition of students, the contribution of schools to the instrumental motivation of their students. Furthermore, single-sex learning environment (though only for females) seems to be another factor of income equality in education, though the small number of all-girls schools in the sample does not allow for the generalisation of our finding. While the gender and social composition of a school is usually determined by external conditions out of its scope of authority, the motivation of students undoubtedly provides an opportunity for each and every school to mitigate income inequality in education, irrespectively of its social, political and financial background.

The concept of “income equal” schools demands further investigation, however. An extension of the student evaluation data to other subjects, school types and geographical areas could verify and generalise our findings about the school-related factors of income equality in education. Additionally, such a research promise to answer whether school income equality is an achievement of individual teachers, or it tends to be a result of collective efforts by the teaching staff.

On the other hand, the various factors that facilitate income equality in education could be investigated by a qualitative research within “income equal” schools, to investigate the various physical, social, cultural, human and professional factors which may make a school “income equal”. Such a research, primarily based on interviews with teachers, school leaders and students, would include the personality and professional background of the members of the teaching staff, their organisational climate and educational environment and last but not least, whether income equality in education is considered as an achievement or a goal by the teachers.

References


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