



HEALTHY AND WISE – DOES EDUCATION IMPROVE WELLBEING AMONG CITIZENS IN MALAYSIA?

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Abstract: *It is well known that education improves people's earning prospects and their ability to contribute to the economy. It is equally important to look at the non-financial outcomes of education. Internationally, there is evidence that, in developed countries, full participation in society and the labour market is linked to the capacity to accumulate knowledge and to develop and maintain a broad range of skills. Knowledge and skills are acquired through the education system. The Adult Literacy and Life Skills Survey is a powerful tool that enables international comparisons as well as trend analysis. The most recent ALL Survey builds on International Adult Literacy Survey which was undertaken in 24 countries – including New Zealand – in 1996. Comparisons provide a picture of some of the changes that may have occurred, both nationally and internationally, over the previous decade. Some of the findings of the study by Lawes and Schagen suggest that education can provide improvements in wellbeing. The study indicates that there are positive relationships between both physical and mental and emotional wellbeing and each of education level, literacy skill and income. When controlling for factors such as gender, age and ethnicity, education level is positively related to New Zealanders' assessment of their physical wellbeing but not to their assessment of their mental and emotional wellbeing. When controlling for level of literacy skill, or for level of literacy skill and income, education level is not related to New Zealanders' assessment of either their physical or mental and emotional wellbeing.*

Key Words: Education, Well Being,

Introduction

Wellbeing – the physical, mental or emotional health of people – is an important outcome for society. Wellbeing can be measured in various ways. For example, the proportion of the population that is obese is one way of measuring physical wellbeing (Ministry of Social Development, 2007) and another is by using summary statistics of the self-assessed health of individuals (Ministry of Health, 2008).

Two Ministry of Education researchers, Elliot Lawes and Ian Schagen, used the results of the Adult Literacy and Life Skills Survey to analyse the relationship between New Zealanders' education level and their assessment of their own wellbeing. The research analysed whether the relationship differed when considering physical wellbeing, as opposed to mental or emotional wellbeing. It also looked into the questions of whether the relationship changed when controlling for literacy skills, income and other factors. This article presents a summary of the key findings of the studies.

The Adult Literacy and Life Skills (ALL) Survey was used by the researchers to measure wellbeing. The survey was conducted in New Zealand in 2006 and also in 12 other countries. A representative sample of New Zealand adults aged between 16 and 65 years living in private households participated in the survey, which was conducted between May 2006 and March 2007.

The ALL Survey measured the proficiency of respondents in several types of literacy skills and also put questions about a number of factors – including respondents' self-assessment of their health, education level, income, employment, gender and ethnicity. This enabled the researchers to examine

the relationship between literacy and health (Satherley and Lawes, 2007, Lawes and Schagen, forthcoming).

In their analysis of the relationship between education, literacy and wellbeing, Lawes and Schagen used a variety of statistical methods. A factor analysis provided the summary measurements of wellbeing, while regression was used to determine the relative strengths of the factors related to wellbeing.

The statistical analysis was done in three stages:

1. excluding literacy skill and income as potential explanatory factors
2. including literacy skill but excluding income as a potential explanatory factor, and
3. including both literacy skill and income.

Wellbeing and its measurement

The items in the survey background questionnaire that addressed the respondents' assessment of their wellbeing are listed in Table 4.1 below. The first 12 items form an internationally accepted assessment of the Medical Outcomes Study Short Form 12, commonly known as the SF-12¹. The 13th item sought to measure the general affect dimension of quality of life.

From the responses to these items, two scales were derived – one measuring physical wellbeing and the other measuring mental and emotional wellbeing.

Table 4.1: Items contributing to wellbeing

How does the respondent feel about life?
What is the respondent's general health?
Is the respondent limited in moderate activities?
Is the respondent limited in climbing stairs?
Has the respondent accomplished less (in a physical sense)?
Is the respondent limited in the kind of work performed (physical)?
Has the respondent accomplished less (in an emotional sense)?
Is the respondent limited in the kind of work performed (emotional)?
Has pain interfered with work?
Is the respondent feeling calm and peaceful?
Does the respondent have lots of energy?
Is the respondent downhearted and sad?
Has health interfered with the respondent's social activities?

Wellbeing is linked to education level, income and literacy skill

The first part of the study looked at the relationships between education level, income and literacy – regardless of wellbeing. Analysis of the survey data showed that there are strong links between education level and literacy skills and between income and literacy skill (Satherley et al, 2008b). The link between education level and income is shown in Table 4.2, where people's incomes were ranked

¹ The SF-12 was developed by the Quality Metric Corporation and is widely used internationally to measure self-assessed health.

and divided into five equal groups called quintiles. For the population at each education level, the figure gives the percentage of that population in the income quintile. Those with higher levels of education have proportionally greater representation in the higher income quintiles.

Table 4.2: Proportional estimates of education level by income

1= lowest income, 5 = highest income	Income quintile					
	1	2	3	4	5	Total
Education level						
Lower secondary or less	26.1	30.5	19.5	15.8	8.1	100
Upper secondary	25.7	23.1	21.9	17.6	11.7	100
Tertiary	12.8	14.9	18.0	23.5	30.8	100

Source: *Adult Literacy and Life Skills Survey*.

The study provided evidence that education level, income and literacy skill are linked with wellbeing. Physical wellbeing, as reported by survey respondents, is lower at lower levels of education, and mental and emotional wellbeing is higher at higher education levels. Figures 4.23 and 4.24 show physical and mental and emotional wellbeing graphed against education level. In these figures, education level is classified as lower secondary or less, upper secondary, or tertiary.

For each of the wellbeing figures that follow, mean values are indicated by diamonds and 95 percent confidence intervals for the mean indicated by vertical bars.

Figure 4.23: Physical wellbeing by education level

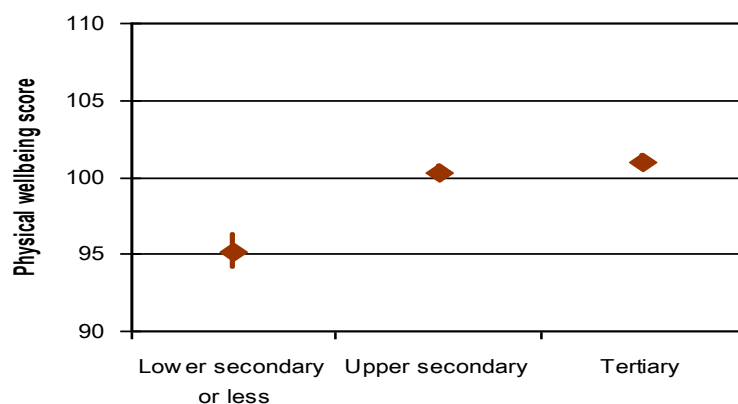
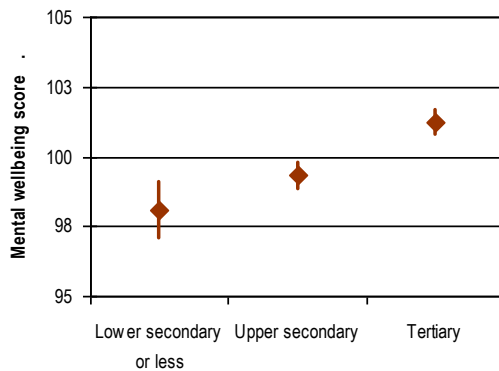


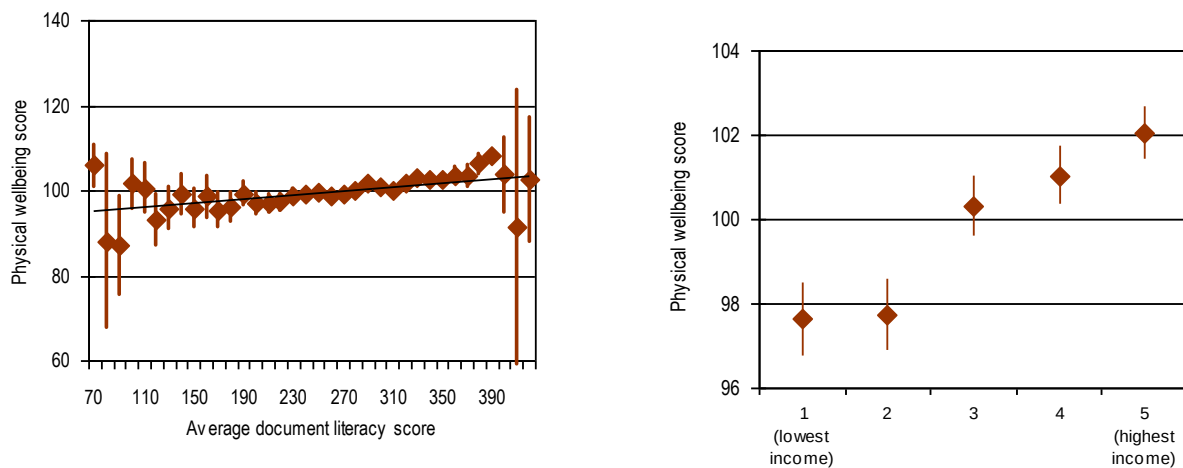
Figure 4.24: Mental and emotional wellbeing by education level

Adding in literacy and income



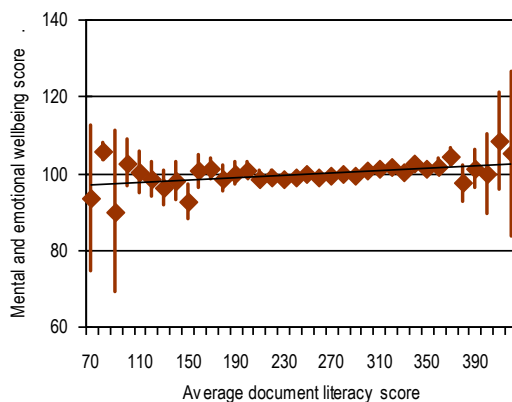
An important workplace skill is document literacy, or the ability to read discontinuous text such as charts, tables and figures. Physical and mental and emotional wellbeing are higher at higher levels of literacy skill. Figures 4.25 and 4.26 show the data from the physical and mental and emotional wellbeing factors graphed against average document literacy skill together with a line of best fit (Satherley et al, 2008b).

Figure 4.25: Physical wellbeing by average document literacy score



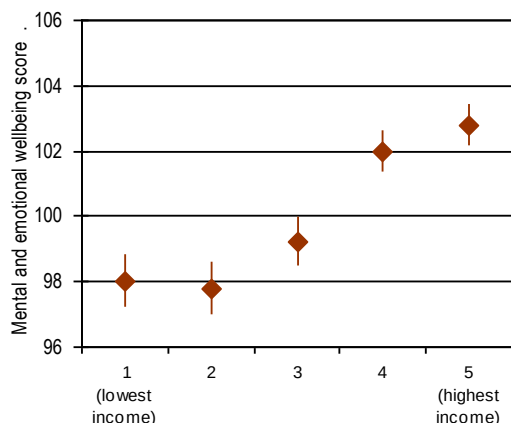
Note: **There is greater variation in wellbeing at the extremes of the document literacy scores due to the smaller number of respondents with these scores.**

Figure 4.26: Mental and emotional wellbeing by average document literacy score



Higher income was associated with higher reported wellbeing. In particular, people in income quintiles 1 and 2 (together representing the lowest 40 percent of incomes) reported lower physical and mental and emotional wellbeing. Those in income quintiles 4 and 5 (together representing the highest 40 percent of incomes) reported that they have better physical and mental and emotional wellbeing (Figures 4.27 and 4.28).

Figure 4.28: Mental and emotional wellbeing by income



To summarise, there are strong links between education level, income and literacy skill, and strong links between each of these and wellbeing.

Further questions that arise are:

- When controlling for factors such as gender and ethnicity, does education level continue to be positively related to New Zealanders' assessment of their wellbeing?
- When also controlling for skill level, does education level continue to be positively related to New Zealanders' assessment of their wellbeing?
- When also controlling for skill level and income, does education level continue to be positively related to New Zealanders' assessment of their wellbeing?

These questions were explored by Lawes and Schagen – their findings are summarised as follows.

Further influences on wellbeing

A number of background variables related to wellbeing were selected for further analysis. The variables were chosen because they are demographic factors often related to education level. Linear regression was used to explore the relationship between the explanatory variables and each of physical and mental and emotional wellbeing. The variables were:

- *gender* – measures the relationship between wellbeing and being female
- *urban* – measures the relationship between wellbeing and living in an urban community as opposed to a rural community
- *English as an additional language* – measures the relationship between wellbeing and having English as an additional language
- *foreign born* – measures the relationship between wellbeing and being born outside of New Zealand
- *Māori* – measures the relationship between wellbeing and identifying as Māori

- *Pasifika, Asian and the Other ethnic group* – measures the relationship between wellbeing and identifying as an ethnic group (the default identification is New Zealand European). A single respondent can identify with several ethnic groups
- *education level* – measures the relationship between wellbeing and highest level of education
- *age of completion of education* – measures the relationship between wellbeing and leaving education before age 17 years; and between wellbeing and leaving education after age 24 years
- *having remedial reading while at school and attitude to mathematics while at school* – measures the relationship between wellbeing and having remedial reading at school, and between wellbeing and attitude to mathematics while at school
- *employment* – measures the relationship between wellbeing and being employed
- *age* – measures the relationship between wellbeing and age
- *literacy* – measures the relationship between wellbeing and literacy. Here literacy is measured as the average of the values for prose literacy, document literacy, numeracy and problem-solving (Satherley et al, 2007), and
- *income* – measures the relationship between wellbeing and income.

The interaction between the variables employment and age was also examined. The regression was again carried out in three stages:

1. excluding literacy skill and income as potential explanatory factors
2. including literacy skill but excluding income as a potential explanatory factor, and
3. including both literacy skill and income.

The percentages of the variance explained by the model for physical wellbeing were 9.4 percent at stage 1 of the model, 9.7 percent at stage 2 of the model and 10.6 percent at stage 3 of the model.

The percentages of the variance explained by the model for mental and emotional wellbeing were 6.9 percent at stage 1 of the model, 6.9 percent at stage 2 of the model and 7.8 percent at stage 3 of the model.

Education, literacy and income influence wellbeing differently

Physical wellbeing and mental and emotional wellbeing were measured against the factors discussed earlier.

When controlling for other factors, education level is positively related to New Zealanders' assessment of their physical wellbeing. However, when also controlling for literacy skill, or for literacy skill and income, education level is not related to New Zealanders' assessment of their physical wellbeing.

The analysis also showed that education level is not related to New Zealanders' assessment of their mental and emotional wellbeing nor does this change when also controlling for literacy skill or literacy skill and income.

Further key findings of the study:

- When literacy skill and income are included in the model, they are both positively related to physical wellbeing to a significant extent.
- Physical wellbeing is positively related to being currently employed, and to having had a positive attitude to mathematics at school. When literacy skill is included in the model, physical wellbeing is also positively related to having English as an additional language.

- Physical wellbeing is negatively related to age, to having remedial reading at school, and to identifying as Māori ethnicity (but not when literacy skill is included).
- Physical wellbeing is negatively related to having completed education at age 24 years or older, but not when income is included in the model. In other words, those who completed their education at age 24 years or over tend to have a lower income. A lower income is more strongly associated with lower physical wellbeing than is educational completion age.
- Physical wellbeing is negatively related to identifying with Māori, but not when literacy skill is taken into account. In other words, those who identify with Māori tend to have lower literacy and having a lower literacy skill is more strongly associated with lower physical wellbeing than is identifying with Māori.
- There are no significant relationships between physical wellbeing and gender, being born outside New Zealand, living in an urban community, leaving education before age 17 years, or identifying with Pasifika, Asians or the Other ethnic group.
- Literacy skill and income do not have a significant relationship to mental and emotional wellbeing when included in the model.
- Mental and emotional wellbeing is positively related to being currently employed, and to having had a positive attitude to maths at school.
- Mental and emotional wellbeing is significantly lower for females, those who live in urban communities, those completing education at age 24 years or over, and those who had remedial reading at school.
- There are no significant relationships between mental and emotional wellbeing and being born outside New Zealand, leaving education before age 17 years, having English as an additional language, or identifying with Māori, Pasifika, Asians or the Other ethnic group.

Conclusion

Internationally, there is evidence that, in developed countries, full participation in society and the labour market is linked to the capacity to accumulate knowledge and to develop and maintain a broad range of skills. Knowledge and skills are acquired through the education system.

The Adult Literacy and Life Skills Survey is a powerful tool that enables international comparisons as well as trend analysis. The most recent ALL Survey builds on International Adult Literacy Survey which was undertaken in 24 countries – including New Zealand – in 1996. Comparisons provide a picture of some of the changes that may have occurred, both nationally and internationally, over the previous decade.

Some of the findings of the study by Lawes and Schagen suggest that education can provide improvements in wellbeing. The study indicates that:

- there are positive relationships between both physical and mental and emotional wellbeing and each of education level, literacy skill and income
- when controlling for factors such as gender, age and ethnicity, education level is positively related to New Zealanders' assessment of their physical wellbeing but not to their assessment of their mental and emotional wellbeing
- when controlling for level of literacy skill, or for level of literacy skill and income, education level is not related to New Zealanders' assessment of either their physical or mental and emotional wellbeing.

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