## Gender differences in student achievement : Findings from the 2007 national survey of student achievement

Cuc Nguyen
Patrick Griffin

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## Monitoring student achievement in Vietnam



## Change in reading and mathematics for males and females




Comparison of student achievement across two surveys


|  | 2001 |  | 2007 |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Mean | SD | Mean | SD |
| Vietnamese | 500 | 100 | 522.3 | 97.1 |
| Mathematics | 500 | 100 | 543.3 | 120.6 | for independent learning at secondary school?

## PQOQ日回



## Mathematics



## THE UNIVERSITY OF MELBOURNE <br> Independent levels

- Pre-functional: students need considerable help to enable them to function and participate in Vietnamese society
- Functional: students need assistance to help them cope with secondary education
- Independent: students able to cope in secondary education. females


## Reading



## Mathematics



## Reading Proficiency levels

## Reading Skill Levels

| Level 1 | Matches text at word or sentence level aided by pictures. Restricted to a <br> limited range of vocabulary linked to pictures |
| :--- | :--- |
| Level 2 | Locates text expressed in short repetitive sentences and can deal with text <br> unaided by pictures. Type of text is limited to short sentences and phrases <br> with repetitive patterns. |
| Level 3 | Reads and understands longer passages. Can search backwards or forwards <br> through text for information. Understands paraphrasing. Expanding vocabulary <br> enables understanding of sentences with some complex structure. |
| Level 4 | Links information from different parts of the text. Selects and connects text to <br> derive and infer different possible meanings. |
| Level 5 | Links inferences and identifies an author's intention from information stated in <br> different ways, in different text types and in documents where the message is <br> not explicit. |
| Level 6 | Combines text with outside knowledge to infer various meanings, including <br> hidden meanings. Identifies an author's purposes, attitudes, values, beliefs, <br> motives, unstated assumptions and arguments. |

## Mathematics Proficiency Levels

## Mathematics Skill Levels

| Level 1 | Reads, writes and compares natural numbers, fractions and decimals. Uses single operations <br> of,,$+- x$ and : on simple whole numbers; works with simple measures such as time; <br> recognises simple 3D shapes. |
| :--- | :--- |
| Level 2 | Converts fractions with denominator of 10 to decimals. Calculates with whole numbers using <br> one operation (x,-, + or : ) in a one-step word problem; recognises 2D and 3D shapes. |
| Level 3 | Identifies place value; determines the value of a simple number sentence; understands <br> equivalent fractions; adds and subtracts simple fractions; carries out multiple operations in <br> correct order; converts and estimates common and familiar measurement units in solving <br> problems. |
| Level 4 | Reads, writes and compares larger numbers; solves problems involving calendars and <br> currency, area and volume; uses charts and tables for estimation; solves inequalities; <br> transformations with 3D figures; knowledge of angles in regular figures; understands simple <br> transformations with 2D and 3D shapes. |
| Level 5 | Calculates with multiple and varied operations; recognises rules and patterns in number <br> sequences; calculates the perimeter and area of irregular shapes; measurement of irregular <br> objects; recognised transformed figures after reflection; solves problems with multiple <br> operations involving measurement units, percentage and averages. |
| Level 6 | Problem solving with periods of time, length, area and volume; embedded and dependent <br> number patterns; develops formulae; recognises 3D figures after rotation and reflection and <br> embedded figures and right angles in irregular shapes; use data from graphs |

## Student achievement by gender and ethnicity

## Reading



## Mathematics



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## Student achievement by gender and region

Student reading scores by gender


Student maths scores by gender


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Looking closely at the differences in score points


## Multi level modelling

## Student

- Socio-economic status
- Student characteristics
-Learning conditions
-Learning support recieved from teachers
-Student attitudes to learning


## School

- School Socio-economic status
- School learning conditions
- School climate
- School environment / student perspectives


## Province

- Province socio-economic status
- Province school quality
- Province teaching staff qualifications


## Findings from Multi-level modelling

| Reading | Mathematics |
| :---: | :---: |
| -Gender <br> - Family wealth | -Family wealth <br> - Parent education <br> - Frequency of principal's observation of class teaching <br> - Teacher feedback on student assessment <br> - Enrolment in full day schooling |

Gender differences in grade 5 student achievement

- Females outperformed males in reading
- Gender was an important factor associated with reading achievement
- There were no differences in mathematics achievement
- The trend in gender differences was consistent across regions and ethnicity groups

Gender differences - summary

- The gender trend for primary schools was consistent with the gender trend for lower secondary schools (Nguyen, 1998; Nguyen and Griffin, 2003)


## Factors influencing student withdrawal from schools



- Gender
- Family social background
- Family wealth
- Students' achievement
- Parents' attitudes
- Parents of female students had less positive attitudes towards schooling
- Education as a constrain for female marriage prospects but an advantage for male marriage prospects
- More urgent needs for females to be trained with working skills at early age
- Males will stay with parents and be responsible for family future, so males are given priority and encouragement


## THE UNIVERSITY OF MELBOURNE <br> Differential item functioning

- DIF occurs when examinees from different groups show differing probabilities of success on the item after matching on the underlying ability that the item is intended to measure


## Example of items in favour of females

Characteristic Curve(s) By Score
item:29 (P29)


## Item 29- in favour of females

## Tomentose Rose Myrthe

Tomentose Rose Myrthe and Cornflower are in the same family, both grow in midland areas, in impoverished pieces of land.

Tomentose Rose Myrthe is popular because of the beauty of its flower colour. Cornflower is pinky purple, Tomentose Rose Myrthe flower is purplish like the light colour of a girl's cheek. Although it is not scented, it is fresh like pervasive happiness, making the stony hillside more lovely and likeable.

A Tomentose Rose Myrthe fruit looks like a tiny plump chubby buffalo with intact fuzz. The buffalo's horn is the fruit ear. That is the very old calyx. The buffalo is just equal to a finger, very sweet and has an acrid aftertaste. After eating a Tomentose Rose Myrthe fruit, all our lips, tongues and teeth turn purple. It is likely that after a Tomentose Rose Myrthe withers and then turns into fruit, the purple colour still remains in treacle.
According to BANG SON

1. 29. What is the colour of Tomentose Rose Myrthe flower?
A. Pinky purple.
B. Deep purple.
C. Purplish.
D. Dark purple.

## Example of items in favour of males

Characteristic Curve(s) By Score item:39 (P39)


## Item 39 - in favour of males

## The Earth

The Earth is like a spaceship flying in the space. It revolves around the sun with a velocity of roughly $107,000 \mathrm{~km} / \mathrm{h}$.

The Earth is about 4.6 billion years old. In its initial stage, the Earth was cold. Gradually, it got so hot that metal and stone melted. Metal was buried under the ground while stone emerged on the surface. When the Earth cooled down, steam was condensed into rain which then poured down to create oceans. The Earth is a planet with water and life (water accounts for $3 / 4$ of the Earth's surface). Volcanoes, earthquakes, climate and humans can all change the Earth in many different ways.

1. 39. What is the difference between the Earth and other planets?
A. The Earth is a cold planet.
B. The Earth is a hot planet.
C. The Earth is the oldest planet.
D. The Earth has water and life.

# -Learning differences 

 -Differential item functioning-Gender awareness

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