

The imagined curriculum:

Student choice, gender, and the decline in CIT enrolments

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Fluctuations in CIT enrolments 1995-2005

- Data: Year 12, numbers enrolled in CIT, from VCAA, SSABSA, and NSW-BOS reports
- In NSW, 1995-2000: a 35% increase in senior CIT enrolments
- 2000-2005: a 40% decrease in CIT enrolments
- Rises and falls were similar in Vic and SA

Persistence of the gender gap in senior-level CIT enrolments

- From 1995-2000, the actual *numbers* of girls taking CIT in Australia increased (because overall enrolments increased)
- However, the 'percent female' did not increase
- During the 2000-2005 period, as overall CIT enrolments decreased, the percent female also decreased

Research questions:

-  How do year 10 students decide whether or not to take CIT subjects in the senior years?
-  Which students choose CIT subjects?
-  Why do they choose CIT subjects? and
-  In what ways might this choice be gendered?

CIT subjects in the senior years

- There are three clusters of CIT subjects
 - Software development, IT systems
 - Information processing and publishing
 - VET Information Technology
- Each state - NSW, SA, and Vic - offers a subjects that representing the 3 clusters

Data gathering

- Survey of Secondary students, conducted late in year 10 or early year 11, in 22 schools in Vic, SA, and NSW
- Overall N= 1437 across three states
- Four group interviews were conducted with students in each of these schools, Hi-Lo interest, male-female
- Interviews with IT teachers in each school
- Data on Year 12 enrolments in ICT subjects has been obtained from BOS, VCAA, SSABSA

1. How do year 10 students decide whether or not to take CIT subjects?

- Theoretically, they could examine the *intended* curriculum
- The 'reputation' of CIT in each school depends on how it is *enacted* in that school;
- Students' experiences in junior-level CIT subjects will contribute to their *imaginings* about year 11-12 CIT subjects

The imagined curriculum

- In NSW, SA and Vic, CIT curricula in the Primary and Junior Secondary years focuses on computer literacy and application packages. We believe this is also true in Qld, WA and Tas
- Thus, CIT is devoid of content that introduces the theoretical principles of computer science (eg, algorithmic thinking)
- Students imagine that senior CIT will be 'more of the same'

Interviewer:

What would it be like to study IT in year 11?

“ --- well, between year 8 and 10 we just did Excel from worksheets, the main difference was it was harder, but more of the same thing. Still Excel, and more of it. So probably Year 11 will be more of the same. “

Craig, year 10 boy, SA.

2. Which students choose which CIT subjects?

- Males outnumber females in all CIT subjects but the data from our surveys indicate that girls make up:
 - one in five of those choosing software design
 - two in five of those choosing information processing and publishing, and
 - one in four of those choosing VET-IT

3 & 4. Why do students choose these subjects, and in what ways might their choices be gendered?

- One approach to theorising subject choice involves using expectancy-value (EV) theory
- Simplified, EV suggests that students will choose to participate in a task if
 - They think they are good at it
 - They think they will do well at it, and
 - They place value on the task or consider it important

- From our survey data, we developed a measure of perceived IT ability (pITA)
 - It identifies students who think they are ‘really good at IT’ or really good with computers
 - “Here are some things you can do with computers, mobile phones, and so on
 - ‘How good are you at ...?’
 - ‘No good at all’ – to ‘Very Good’

- Exploratory Factor Analyses was used to develop the pITA scale
- Two factors were identified
 - one relates to common 'low-level' computing skills
 - the other relates to 'higher-level' skills
 - some items were eliminated, e.g., 'doing e-mail and SMS' is so universal that it does not discriminate between 'high' and "low" pITA students

Items making up the pITA scale

➤ **Low Tech skills**

- Installing games and programs
- Buying products online
- Customising
- Fixing the computer
- Playing games
- Swapping/ sharing data
- Downloading

➤ **High Tech skills**

- Building web pages
- Creating web pages using programmes

Descriptive data based on the pITA scale
<1 σ = Lo pITA, midrange pITA, >1 σ = Hi pITA

	boys	girls
% hi-pITA	68	32
% lo-pITA	39	61

pITA only *partially* predicts who will study senior-level CIT subjects

- Approximately 30% of students with hi-pITA scores said they will study CIT
- This is no greater than the average level of participation in CIT across the whole sample
- While 33% of boys with hi-pITA scores intend to take a senior CIT subject, only 23% of girls with hi-pITA scores intend to do so

Why is it that students with hi-pITA scores are not more highly represented among those taking CIT subjects?

A possible explanation –

- 70 percent of hi-pITA students say they learn more about computers at home than at school
- Less than 20 percent of hi-pITA students say they ‘mostly about computers at school’

33% of boys with hi-pITA scores intend to take a senior CIT subject, compared with only 23% of girls intending to do so

- Expectancy-Value theory studies indicate that boys report higher 'perceived ability' than girls on maths, even when performance measures are equal
- Girls choose subjects they value, not just subjects they are good at,
- Our interview data: Boys tell us "the girls can do it, but they are just not interested"

- What implications does this have for curriculum reform in CIT, for teacher professional development, and for the *location* of CIT learning?