CHAPTER FOUR

STAFFING ISSUES IN SCIENCE, ICT AND MATHEMATICS

4.1 INTRODUCTION

This chapter reports on staffing in the responding schools and the issues relating to the attraction and retention of suitably qualified teachers of science, ICT and mathematics. The report focuses on findings in four areas:

- Teachers' perceptions of staffing profiles
- Motivations for teaching in rural or regional schools
- Teacher's reflections on their teacher education and preparation
- Teaching qualifications.

The findings emerged from analyses of responses to questions common to the four teacher surveys (primary, secondary science, secondary mathematics and secondary ICT). They represent the views of 2940 respondents, of whom 1576 (54%) were primary teachers and 1364 were (46%) secondary teachers. The secondary respondents included 580 science teachers, 237 ICT teachers and 547 mathematics teachers. Approximately 64% of respondents were classroom teachers, 18% were Subject Coordinators or Heads of Department (these were secondary respondents only) and about 19% were Senior School Management (Principals or Deputy/Assistant Principals). Where tables or other comparisons based on these samples do not add up to the totals reported here, it is because of missing responses to particular items.

4.2 SCHOOL STAFFING PROFILES

Teachers were asked for their perceptions of annual staff turnover rates in their schools and the difficulty of filling vacant positions. Whereas primary teachers were asked to rate the difficulty of filling general teaching vacancies at their schools, the secondary teachers were asked to rate the difficulty of filling vacancies in their subject areas at their schools. To increase the reliability of estimates, teachers were advised to consult with school administration if unsure about their responses to this section of the survey. Responses to these questions were summarised using cross-tabulations, and patterns in the tables evaluated for statistical significance using the standard chi-square contingency table test.

4.2.1 Teachers' perceptions of staff turnover rates

Table 4.1 shows that nearly 35% of all respondents estimated a turnover rate at their school exceeding 10% each year, while about 13% estimated a rate exceeding 20%. Cross-tabulations revealed a number of significant differences across MCEETYA Schools Geographical Location Classification (MSGLC) category and Type of School.

Variation with geographic region

There was a significant association between the reported percentage of teachers leaving the school each year and the MSGLC category of school[8]. This was primarily due to significantly more respondents than expected from Metropolitan Areas and Provincial Cities, and significantly fewer respondents than expected from Remote Areas, reporting teacher turnover

[8] $\chi^2(6) = 260.83$; $p < .001$; Cramer's V = .22

rates between 0% and 10%. Conversely, significantly fewer respondents than expected from Metropolitan Areas and Provincial Cities and significantly more respondents than expected from Remote Areas reported teacher turnover rates greater than 20% per year. Figure 4.1 shows that only about 7% of respondents in Metropolitan Area and Provincial City schools reported high turnover rates (>20% per annum), compared with 12% of Provincial Area respondents and about 43% of Remote Area respondents.

Table 4.1 Rates of staff turnover and difficulty of filling vacant positions in schools in different MSGLC categories. [a]

			MSGLC categories				
			Metropolitan Area	**Provincial City**	**Provincial Area**	**Remote Area**	*Overall*
Reported percentage of teachers leaving the school each year	0 - 10%	**Count**	**377**	**424**	**886**	**76**	**1763**
		% of Row	21.4%	24.0%	50.3%	4.3%	100.0%
		% of Column	73.1%	71.6%	65.9%	30.5%	65.2%
	11 - 20%	**Count**	**103**	**126**	**298**	**67**	**594**
		% of Row	17.3%	21.2%	50.2%	11.3%	100.0%
		% of Column	20.0%	21.3%	22.2%	26.9%	22.0%
	> 20%	**Count**	**36**	**42**	**161**	**106**	**345**
		% of Row	10.4%	12.2%	46.7%	30.7%	100.0%
		% of Column	7.0%	7.1%	12.0%	42.6%	12.8%
							2702
How difficult is it to fill vacant positions?	Not difficult	**Count**	**250**	**290**	**524**	**42**	**1106**
		% of Row	22.6%	26.2%	47.4%	3.8%	100.0%
		% of Column	47.3%	47.6%	38.7%	16.7%	40.4%
	Somewhat difficult	**Count**	**135**	**155**	**345**	**61**	**696**
		% of Row	19.4%	22.3%	49.6%	8.8%	100.0%
		% of Column	25.6%	25.5%	25.5%	24.3%	25.4%
	Moderately difficult	**Count**	**98**	**103**	**293**	**78**	**572**
		% of Row	17.1%	18.0%	51.2%	13.6%	100.0%
		% of Column	18.6%	16.9%	21.7%	31.1%	20.9%
	Very difficult	**Count**	**45**	**61**	**191**	**70**	**367**
		% of Row	12.3%	16.6%	52.0%	19.1%	100.0%
		% of Column	8.5%	10.0%	14.1%	27.9%	13.4%
							2741

[a] Shaded cells indicate categories making a significant ($p < .001$) contribution to the overall association between a pair of variables. Pink means *more than an expected number were observed*; green means *fewer than an expected number were observed*. 'Expected' refers to what would be expected if the pair of variables were not associated.

Variation with Type of School

Table 4.2 shows that the reported percentage of teachers leaving the school each year was significantly associated with the Type of School[9]. This was due to significantly more than expected primary respondents reporting a low teacher turnover rate (0% -10%), with fewer reporting moderate turnover rates (11% -20%). Significantly more than expected secondary school respondents reported moderate annual turnover rates (11% - 20), while significantly more than expected combined school respondents reported a high turnover rate (greater than 20%). In view of the previous finding, and the higher representation of combined schools in Remote Areas compared with secondary schools, it is reasonable to suppose that this pattern is related to geographic location.

[9] $\chi^2(4) = 105.13$; $p < .001$; Cramer's V = .14

Figure 4.1 Percentage of primary and secondary respondents in different locations reporting an annual staff turnover greater than 20% (*N*=2702)

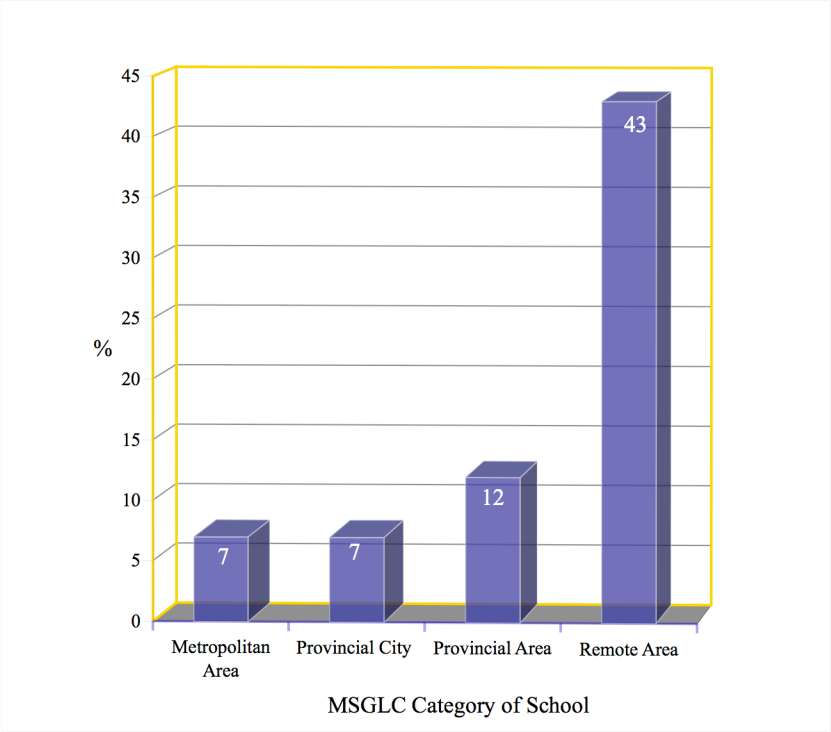

Table 4.2 Reported percentage of teachers leaving the school each year, by Type of School [a]

			Type of School			
			Primary	**Secondary**	**Combined**	*Overall*
Reported percentage of teachers leaving the school each year	**0 - 10%**	**Count**	**919**	**580**	**264**	**1763**
		% of Row	52.1%	32.9%	15.0%	100.0%
		% of Column	71.9%	61.7%	54.5%	65.2%
	11 - 20%	**Count**	**185**	**277**	**132**	**594**
		% of Row	31.1%	46.6%	22.2%	100.0%
		% of Column	14.5%	29.5%	27.3%	22.0%
	> 20%	**Count**	**174**	**83**	**88**	**345**
		% of Row	50.4%	24.1%	25.5%	100.0%
		% of Column	13.6%	8.8%	18.2%	12.8%
			1278	**940**	**484**	**2702**

[a] Shaded cells indicate categories making a significant ($p < .001$) contribution to the overall association between a pair of variables. Pink means *more than an expected number were observed*; green means *fewer than an expected number were observed*. 'Expected' refers to what would be expected if the pair of variables were not associated.

4.2.2 Teachers' perceptions of difficulty in filling vacant teaching positions

Table 4.1 shows that overall, more than 34% of respondents indicated that filling a vacant teaching position in their school was moderately to very difficult, while about 40% of respondents considered that it was not difficult. Cross-tabulations revealed a number of significant differences across MSGLC category and Type of Respondent. Comparisons across School Systems revealed no clear differences in the reported difficulty of filling vacant teaching positions.

Variation with geographic region

There was a significant association between MSGLC category of school and the difficulty of filling a vacant position[10]. Table 4.1 shows that this association was primarily attributable to significantly more respondents than expected from Metropolitan Areas and Provincial Cities indicating that it was not difficult to fill vacant positions, and significantly more respondents than expected from Remote Areas indicating that it was moderately or very difficult to fill vacant positions. Fewer than expected Remote Area respondents felt that filling vacant positions in their school was not difficult. In contrast, fewer than expected Metropolitan City respondents felt that it was very difficult to fill vacant positions in their school.

Variation with type of respondent

Overall, there was a significant association between Survey Respondent Type and reported difficulty of filling a vacant position in the school[11]. Table 4.3 shows that this association was partly attributable to significantly more primary respondents than expected indicating that it was not difficult to fill vacant positions, and significantly more than expected science, ICT and mathematics respondents considered it either moderately or very difficult to fill vacancies in their discipline areas at their schools.

Table 4.3 Reported difficulty of filling vacant primary teaching positions and secondary science, ICT and mathematics teaching positions [a]

			Survey Respondent Type				
			Secondary Science	Secondary Maths	Secondary ICT	Primary	*Overall*
How difficult is it to fill vacant positions?	Not difficult	Count	139	76	34	857	1106
		% of Row	12.6%	6.9%	3.1%	77.5%	100.0%
		% of Column	26.0%	14.9%	15.7%	57.9%	40.4%
	Somewhat difficult	Count	162	143	74	317	696
		% of Row	23.3%	20.5%	10.6%	45.5%	100.0%
		% of Column	30.3%	28.1%	34.1%	21.4%	25.4%
	Moderately difficult	Count	149	145	61	217	572
		% of Row	26.0%	25.3%	10.7%	37.9%	100.0%
		% of Column	27.9%	28.5%	28.1%	14.7%	20.9%
	Very difficult	Count	85	145	48	89	367
		% of Row	23.2%	39.5%	13.1%	24.3%	100.0%
		% of Column	15.9%	28.5%	22.1%	6.0%	13.4%
	Totals		535	509	217	1480	2741

[a] Shaded cells indicate categories making a significant ($p < .001$) contribution to the overall association between a pair of variables. Pink means *more than an expected number were observed*; green means *fewer than an expected number were observed*. 'Expected' refers to what would be expected if the pair of variables were not associated.

Responses to this question were also analysed across MSGLC category for each Survey Respondent Type. There were no significant associations between the variables for ICT respondents. For primary respondents, the difficulty of filling vacant teaching positions and MSGLC category of school were significantly associated[12]. Table 4.4 shows that this association was mainly attributable to significantly more respondents than expected from Metropolitan and Provincial Cities indicating that it was not difficult to fill vacant primary positions, and significantly more respondents than expected from Remote Areas indicating that it was moderately or very difficult to fill vacant positions.

[10] $\chi^2(9) = 123.40$; $p < .001$; Cramer's V = .12
[11] $\chi^2(9) = 497.93$; $p < .001$; Cramer's V = .25
[12] $\chi^2(9) = 183.68$; $p < .001$; Cramer's V = .20

The difficulty of filling a vacant secondary science position was significantly associated with MSGLC category of school[13]. Table 4.4 shows that this association was mainly attributable to significantly more than expected respondents from Metropolitan Areas indicating that it was not difficult to fill vacant science positions, and significantly more than expected respondents from Remote Areas indicating that it was very difficult to fill vacant positions.

Table 4.4 Reported difficulty of filling vacant primary and secondary science, ICT and mathematics teaching positions in different MSGLC categories[a]

			MSGLC Categories				Overall
			Metropolitan Area	Provincial City	Provincial Area	Remote Area	
How difficult is it to fill vacant primary teaching positions?	Not difficult	Count	157	243	425	32	857
		% within Row	18.3%	28.4%	49.6%	3.7%	100.0%
		% within Column	73.4%	72.1%	55.3%	20.0%	57.9%
	Somewhat difficult	Count	39	65	166	47	317
		% within Row	12.3%	20.5%	52.4%	14.8%	100.0%
		% within Column	18.2%	19.3%	21.6%	29.4%	21.4%
	Moderately difficult	Count	12	26	126	53	217
		% within Row	5.5%	12.0%	58.1%	24.4%	100.0%
		% within Column	5.6%	7.7%	16.4%	33.1%	14.7%
	Very difficult	Count	6	3	52	28	89
		% within Row	6.7%	3.4%	58.4%	31.5%	100.0%
		% within Column	2.8%	.9%	6.8%	17.5%	6.0%
How difficult is it to fill vacant science teaching positions?	Not difficult	Count	49	26	56	8	139
		% within Row	35.3%	18.7%	40.3%	5.8%	100.0%
		% within Column	37.4%	23.2%	22.2%	20.0%	26.0%
	Somewhat difficult	Count	40	34	82	6	162
		% within Row	24.7%	21.0%	50.6%	3.7%	100.0%
		% within Column	30.5%	30.4%	32.5%	15.0%	30.3%
	Moderately difficult	Count	32	30	75	12	149
		% within Row	21.5%	20.1%	50.3%	8.1%	100.0%
		% within Column	24.4%	26.8%	29.8%	30.0%	27.9%
	Very difficult	Count	10	22	39	14	85
		% within Row	11.8%	25.9%	45.9%	16.5%	100.0%
		% within Column	7.6%	19.6%	15.5%	35.0%	15.9%
How difficult is it to fill vacant ICT teaching positions?	Not difficult	Count	11	7	15		34
		% within Row	32.4%	20.6%	44.1%	2.9%	100.0%
		% within Column	20.4%	16.7%	14.9%	5.0%	15.7%
	Somewhat difficult	Count	16	12	41	5	74
		% within Row	21.6%	16.2%	55.4%	6.8%	100.0%
		% within Column	29.6%	28.6%	40.6%	25.0%	34.1%
	Moderately difficult	Count	16	16	23	6	61
		% within Row	26.2%	26.2%	37.7%	9.8%	100.0%
		% within Column	29.6%	38.1%	22.8%	30.0%	28.1%
	Very difficult	Count	11	7	22	8	48
		% within Row	22.9%	14.6%	45.8%	16.7%	100.0%
		% within Column	20.4%	16.7%	21.8%	40.0%	22.1%
How difficult is it to fill vacant mathematics teaching positions?	Not difficult	Count	33	14	28	1	76
		% within Row	43.4%	18.4%	36.8%	1.3%	100.0%
		% within Column	25.6%	11.9%	12.1%	3.2%	14.9%
	Somewhat difficult	Count	40	44	56	3	143
		% within Row	28.0%	30.8%	39.2%	2.1%	100.0%
		% within Column	31.0%	37.3%	24.2%	9.7%	28.1%
	Moderately difficult	Count	38	31	69	7	145
		% within Row	26.2%	21.4%	47.6%	4.8%	100.0%
		% within Column	29.5%	26.3%	29.9%	22.6%	28.5%
	Very difficult	Count	18	29	78	20	145
		% within Row	12.4%	20.0%	53.8%	13.8%	100.0%
		% within Column	14.0%	24.6%	33.8%	64.5%	28.5%

[a] Shaded cells indicate categories making a significant ($p < .001$) contribution to the overall association between a pair of variables. Pink means *more than an expected number were observed*; green means *fewer than an expected number were observed*. 'Expected' refers to what would be expected if the pair of variables were not associated.

[13] $\chi^2(9) = 29.17$; $p < .001$; Cramer's V = .14

The difficulty of filling a vacant secondary mathematics position was significantly associated with MSGLC category of school[14]. Table 4.4 shows that this association was mainly attributable to significantly more respondents than expected from Metropolitan Areas indicating that it was not difficult to fill vacant mathematics positions, and significantly more respondents than expected from Remote Areas indicating that it was very difficult to fill vacant positions. A sizeable percentage of respondents from Provincial Areas also reported it to be very difficult to fill vacant mathematics positions.

Patterns in the data can be seen more clearly in Figures 4.2, 4.3 and 4.4. Figure 4.2 compares the proportions of primary respondents in different MSGLC categories reporting it is 'not difficult' to fill vacancies in their schools with those reporting it is 'very difficult'. Figure 4.3 shows the same levels of difficulty reported by secondary respondents (combined) in different locations. Both figures show the greater degree of difficulty in filling positions in Provincial and Remote Areas. However, it is clear that, overall, secondary respondents considered it more difficult to fill vacant positions in their subject areas than did primary respondents, and that the relative difficulty of filling secondary science, ICT and mathematics positions in non-metropolitan areas is more acute.

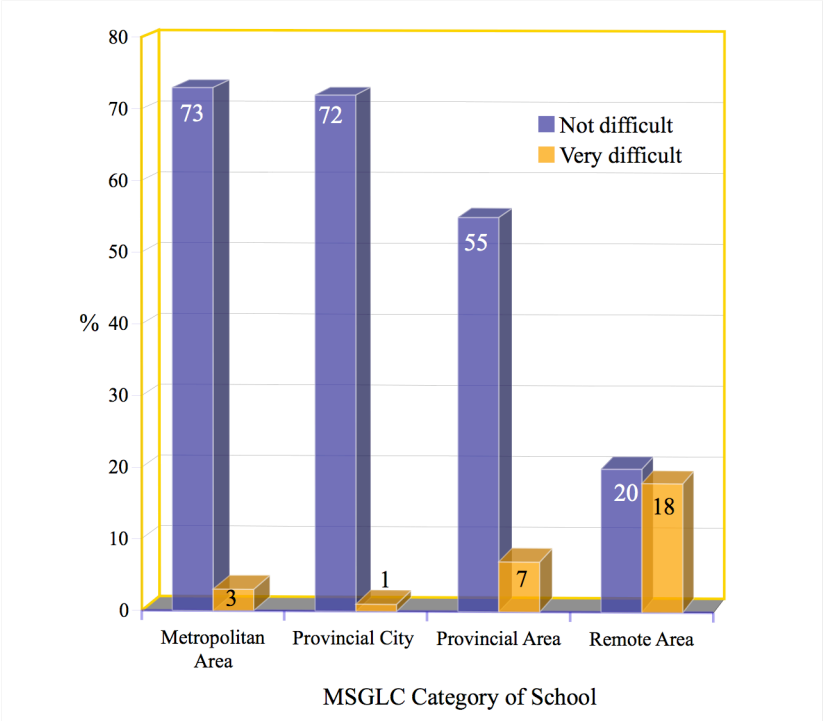

Figure 4.2 Reported difficulty of filling vacant primary teaching positions in different locations [only respondents reporting the situation as 'not difficult' and 'very difficult' are shown here] ***(N=1480)***

Figure 4.3 compares the proportions of science, ICT and mathematics teachers in different locations reporting that it is 'very difficult' to fill vacancies in their subject areas. While the overall tendency for greater difficulty in Provincial and Remote Area schools is apparent, the figure shows this patterns to be strongest among mathematics respondents.

[14] $\chi^2(9) = 50.88$; $p < .001$; Cramer's V = .18

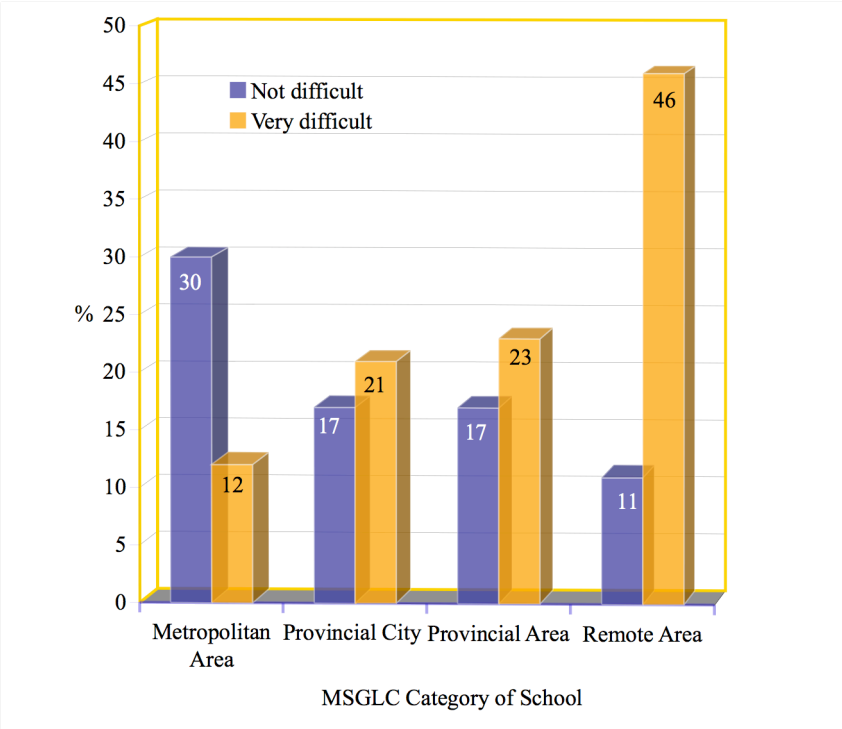

Figure 4.3 Reported difficulty of filling vacant secondary teaching positions in different locations [only respondents reporting the situation as 'not difficult' and 'very difficult' are shown here] ***(N (science, ICT and mathematics combined)=1261)***

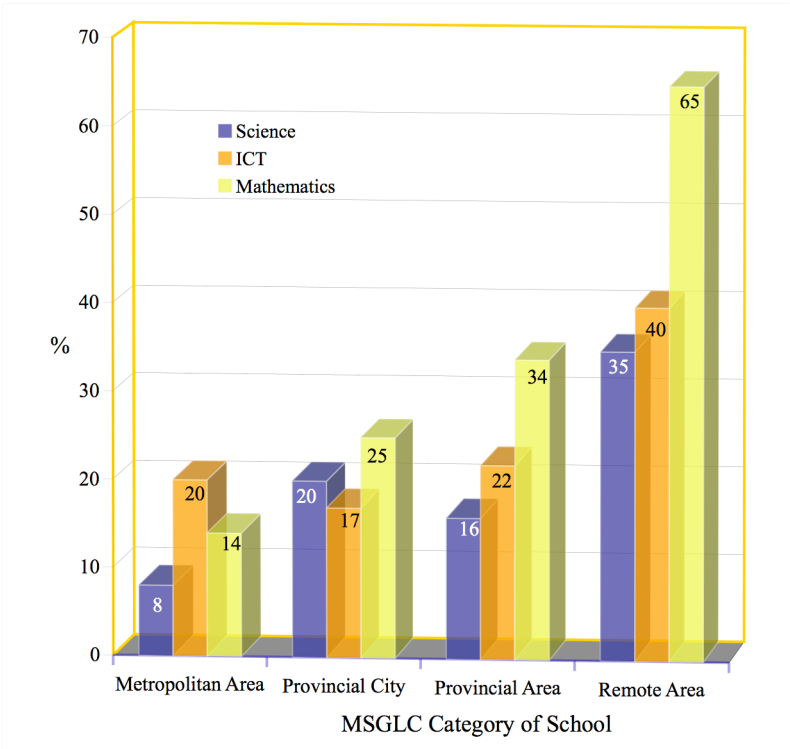

Figure 4.4 Percentages of science, ICT and mathematics respondents in different locations reporting that it is 'very difficult' to fill teaching vacancies in their subject areas (*N*=1261)

4.2.3 Summary of findings and implications

1. Overall, about 13% of respondents reported a high annual staff turnover (>20% p.a.) in their schools.
2. Reported rates varied significantly with location. Almost twice as many respondents from Provincial Area schools, and about six times as many from Remote Area schools, reported a high staff turnover rate (>20% p.a.) compared with their colleagues in Metropolitan and Provincial City schools.
3. The evidence indicates that it is significantly more difficult to fill vacant secondary science, ICT and mathematics positions than to fill vacant primary positions. Furthermore, the findings show that vacant primary and secondary positions are substantially more difficult to fill in Provincial and Remote Areas of Australia. Again, this problem appears more acute for secondary teachers.
4. The findings suggest that primary teachers in Provincial Areas are more than twice as likely, and those in Remote Areas up to six times more likely, than those in Metropolitan areas to be working at a school in which it is very difficult to fill vacant teaching positions.
5. Results indicate that secondary science, ICT and mathematics teachers in Provincial Areas are about twice as likely, and those in Remote Areas about four times as likely as those in Metropolitan Areas to be working at a school in which it is very difficult to fill vacant teaching positions in those subjects. Teachers in Provincial City schools are also more likely than those in Metropolitan Area schools to consider it very difficult to fill teacher vacancies in these subjects.
6. Among secondary teachers, the evidence suggests that it is more difficult to fill vacant mathematics positions in Provincial and Remote Areas, than to fill science and ICT vacancies in these locations.
7. The difficulty in filling vacant ICT positions appears to vary less with geographical location. However, ICT teachers seem to be in shorter supply in Metropolitan Areas than are science or mathematics teachers.

4.3 DESTINATION SCHOOLS OF CITY AND COUNTRY EDUCATED TEACHERS

Primary and secondary teachers were asked to indicate where they had lived while undertaking their high school education. Responses to this item served as a rough indicator of where they spent their formative years. Teachers were also asked where they had lived while completing their initial teacher education. Responses to these items were compared to the locations of their current schools. About 46% of respondents completed their high school studies in Regional (defined as having a population between 25 000-50 000[15]) or Rural Centres (defined as having a population fewer than 25 000) and 43% in Metropolitan Areas (population >100 000). However, the majority (about 62%) of respondents undertook their initial teacher education while in a Metropolitan Area; only about 23% did their initial teacher education in a Regional or Rural Centre. Female respondents tended to be somewhat more likely to have done their initial teacher education outside a Metropolitan Area.

Table 4.5 summarises the relationships between the site of respondents' high school education, the MSGLC category of their current school, and the Survey Respondent Type. The location where respondents did most of their high school study was significantly associated with the

[15] This simpler, population based, classification was necessary as teachers were being asked to identify their locations during these periods without reference to the CD ARIA Plus indices. The classification 'Regional Centre' corresponds to the MSGLC sub-category Provincial City 2.1.2, while 'Rural Centre' corresponds to Provincial Areas and Remote Areas (see Table 1.1).

location of their current school[16]. Here, significantly more respondents than expected who now teach in Provincial Cities did most of their high school study in either a Regional or a Rural Centre. Likewise, significantly more respondents than expected who now teach in Provincial Areas did most of their high school study in a Rural Centre. Significantly more respondents now teaching in Metropolitan Areas did their high school study in a Metropolitan Area.

Table 4.5 Breakdown of current MSGLC categories of respondents, by locations where they undertook high school study [a]

			Location of school in which you did most of your High School study				
			Metro. Area	Provincial City	Regional centre	Rural centre	*Overall*
MSGLC categories of current school	Metropolitan Area	**Count**	**388**	**46**	**45**	**86**	**565**
		% of Row	68.7%	8.1%	8.0%	15.2%	100.0%
		% of Column	31.2%	14.0%	12.8%	8.9%	19.5%
	Provincial City	**Count**	**202**	**130**	**125**	**187**	**644**
		% of Row	31.4%	20.2%	19.4%	29.0%	100.0%
		% of Column	16.3%	39.6%	35.6%	19.3%	22.3%
	Provincial Area	**Count**	**534**	**118**	**150**	**611**	**1413**
		% of Row	37.8%	8.4%	10.6%	43.2%	100.0%
		% of Column	43.0%	36.0%	42.7%	63.1%	48.9%
	Remote Area	**Count**	**119**	**34**	**31**	**85**	**269**
		% of Row	44.2%	12.6%	11.5%	31.6%	100.0%
		% of Column	9.6%	10.4%	8.8%	8.8%	9.3%
		Totals	**1243** (43%)	**328** (11%)	**351** (12%)	**969** (34%)	**2891**

[a] Shaded cells indicate categories making a significant ($p < .001$) contribution to the overall association between a pair of variables. Pink means *more than an expected number were observed*; green means *fewer than an expected number were observed*. 'Expected' refers to what would be expected if the pair of variables were not associated.

Table 4.6 compares the MSGLC categories of respondents' current schools and the location where they lived while doing their initial teacher education. These variables were also significantly associated[17]. Here, significantly more respondents than expected now teaching in a Metropolitan Area lived in a Metropolitan Area while doing their initial teacher education. In addition, significantly more respondents than expected who now teach in a Provincial City also lived in a Provincial City while doing their initial teacher education.

Significantly more respondents than expected who now work in Provincial Areas lived in a Rural Centre while doing their initial teacher education and significantly fewer than expected lived in a Metropolitan Area while doing their initial teacher education. Conversely, significantly fewer respondents than expected who now work in a Metropolitan Area lived in a Provincial City, Regional Centre or Rural Centre while doing their initial teacher education. Again, Remote Area respondents did not contribute significantly to this relationship. Figure 4.5 shows that 73% of respondents who lived in rural centres when completing their teacher education are currently working in Provincial Area or Remote Area schools. Only 5% of respondents who lived in rural centres during their teacher education are now working in metropolitan schools.

[16] $\chi^2(9) = 316.31$; $p < .001$; Cramer's V = .19
[17] $\chi^2(9) = 170.51$; $p < .001$; Cramer's V = .14

Table 4.6 Breakdown of current MSGLC categories of respondents, by locations where they lived while completing their initial teacher education [a]

			Location of Area where you lived while doing initial teacher education				
			Metro. Area	Provincial City	Regional centre	Rural centre	*Overall*
MSGLC categories	Metropolitan Area	Count	**461**	**50**	**39**	**17**	**567**
		% of Row	81.3%	8.8%	6.9%	3.0%	100.0%
		% of Column	25.8%	11.0%	11.2%	5.5%	19.6%
	Provincial City	Count	**332**	**150**	**96**	**65**	**643**
		% of Row	51.6%	23.3%	14.9%	10.1%	100.0%
		% of Column	18.6%	33.0%	27.5%	21.1%	22.2%
	Provincial Area	Count	**807**	**215**	**186**	**208**	**1416**
		% of Row	57.0%	15.2%	13.1%	14.7%	100.0%
		% of Column	45.2%	47.4%	53.3%	67.5%	48.9%
	Remote Area	Count	**184**	**39**	**28**	**18**	**269**
		% of Row	68.4%	14.5%	10.4%	6.7%	100.0%
		% of Column	10.3%	8.6%	8.0%	5.8%	9.3%
		Total	**1784** (62%)	**454**(15%)	**349**(12%)	**308**(11%)	**2895**
Survey Respondent Type	Secondary Science	Count	**404**	**67**	**43**	**62**	**576**
		% of Row	70.1%	11.6%	7.5%	10.8%	100.0%
		% of Column	22.6%	14.8%	12.3%	20.1%	19.9%
	Secondary Maths	Count	**388**	**56**	**45**	**53**	**542**
		% of Row	71.6%	10.3%	8.3%	9.8%	100.0%
		% of Column	21.7%	12.3%	12.9%	17.2%	18.7%
	Secondary ICT	Count	**178**	**23**	**20**	**13**	**234**
		% of Row	76.1%	9.8%	8.5%	5.6%	100.0%
		% of Column	10.0%	5.1%	5.7%	4.2%	8.1%
	Primary	Count	**814**	**308**	**241**	**180**	**1543**
		% of Row	52.8%	20.0%	15.6%	11.7%	100.0%
		% of Column	45.6%	67.8%	69.1%	58.4%	53.3%

[a] Shaded cells indicate categories making a significant ($p < .001$) contribution to the overall association between a pair of variables. Pink means *more than an expected number were observed*; green means *fewer than an expected number were observed*. 'Expected' refers to what would be expected if the pair of variables were not associated.

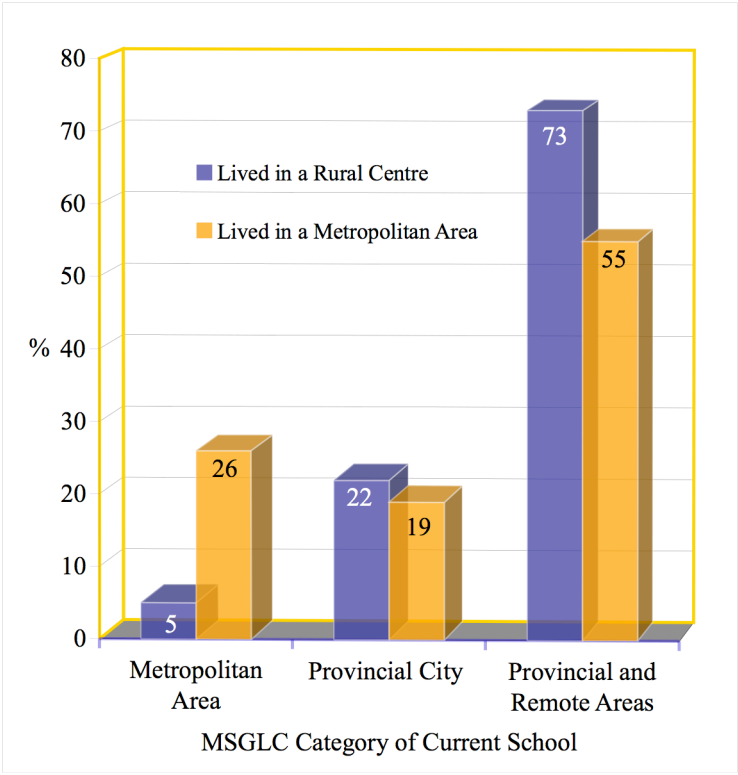

Figure 4.5 Current teaching locations of respondents who lived in either a Metropolitan Area or a Rural Centre when undertaking their initial teacher education *(N*=2895*)*

Respondent type and destination school

Respondent Type and location of area where respondents lived while doing their initial teacher education were also significantly associated[18]. Table 4.6 shows that significantly more secondary science, ICT and mathematics respondents than expected lived in a Metropolitan Centre while doing their initial teacher education. Significantly more primary respondents than expected lived in either a Provincial City or Regional Centre while doing their initial teacher education, though significantly fewer lived in Metropolitan Centres. Significantly fewer than expected secondary science respondents lived in Regional Centres and significantly fewer than expected secondary mathematics respondents lived in Provincial Cities.

School Type and destination school

The Type of School in which respondents were currently teaching was significantly associated[19] with the location where they lived while doing their initial teacher education. Table 4.6 shows that significantly more secondary school respondents than expected lived in a Metropolitan Centre while doing their initial teacher education and significantly more primary school respondents than expected lived in either a Provincial City or Provincial Area while doing their initial teacher education. Significantly fewer secondary school respondents than expected lived in either a Provincial City or Regional Centre while doing their initial teacher education. Significantly fewer primary school respondents than expected lived in a Metropolitan Centre while doing their initial teacher education and significantly fewer combined school respondents than expected lived in a Provincial City while doing their initial teacher education.

Summary of findings and implications

1. The findings revealed a tendency for teachers who attended high school in a rural or regional centre to move to a larger centre when undertaking their teacher training. This is not surprising, as nearly all universities and teachers' colleges are, or were, located in large centres, with most in the capital cities. In some states there are no such institutions outside Metropolitan Areas.
2. The findings exposed a tendency for teachers to gain employment in locations similar to that in which they lived while undertaking pre-service education. The study found that 73% of respondents who lived in rural centres when completing their teacher education are currently working in Provincial Area or Remote Area schools. Only 5% of respondents who lived in rural centres during their teacher education are now working in Metropolitan schools.
3. On the other hand, the findings did not provide any evidence that teachers who lived in Rural Centres while attending high school or completing teacher education gain employment in Remote Areas. Rather, there appears to be a pattern of drift to larger centres.
4. The findings revealed that a greater-than-expected proportion (over 70%) of science, ICT and mathematics teachers lived in metropolitan centres during their teacher education. In view of finding 2, above, it is likely, therefore, that beginning teachers in these subject areas will tend to seek employment in Metropolitan rather than Provincial or Remote Area schools.

[18] $\chi^2(9) = 124.81$; $p < .001$; Cramer's V = .12

[19] $\chi^2(6) = 117.90$; $p < .001$; Cramer's V = .14

4.4 MOTIVATIONS FOR TEACHING IN RURAL AND REGIONAL SCHOOLS

The four teacher surveys offered a range of items suggesting possible motivating factors that may have influenced decisions about their choice of school. Teachers were asked to rate each items on a scale according to its influence on their decisions to:

- initially teach in a rural or regional school[20]
- continue to teach in a rural or regional school
- leave a rural or regional school for a metropolitan school.

In addition, those respondents who had not taught in a rural or regional school were asked about possible factors that might motivate them to take up a position in such a school in the future. To further explore rural/regional teaching motivation responses, a number of MANCOVAs were conducted to compare the degree of motivator influence on decision making, as perceived by various categories of respondents. One set of MANCOVA analyses was conducted for each of the four decisions. For each set of motivating factors, six MANCOVA analyses were conducted, each focusing on a single independent variable or comparison variable: Sex of Respondent; Age of Respondent; School System; MSGLC Category of School; Survey Respondent Type; and Type of School.

Teachers were also given the opportunity to expand on their responses by adding qualitative comments about their decisions. Where appropriate, representative comments are included to illustrate findings.

4.4.1 Initial decision to teach in a rural or regional school.

Table 4.7 summarises, at the level of the entire combined teacher sample, the average responses to the items dealing with how influential different factors were in respondents' initial decision to teach in a rural or regional school. The most influential motivating factors overall were job availability and educational authority placement. The least influential factors were the availability of a rural or remote allowance, rent subsidy (though many of the respondents would not have qualified for these incentives), and affordable housing and promotion opportunities.

Table 4.7 Overall average ratings, standard deviations and valid N for the initial decision items (items are listed in descending order of mean rating)

How influential were the following on your initial decision to teach in a rural or regional school?	Mean	s.d.	Valid N
Job availability	**2.41**	1.23	2388
Education authority placement	**2.26**	1.30	2416
Previously lived in the same or similar location	**1.99**	1.17	2408
Lifestyle change	**1.84**	1.07	2395
Family connections in the location	**1.78**	1.15	2410
Spouse's/Partner's employment situation	**1.70**	1.15	2402
Bond/contract with educational provider	**1.61**	1.10	2381
Promotion	**1.43**	.89	2372
Affordable housing	**1.38**	.75	2390
Rent subsidy	**1.21**	.59	2392
Rural or remote area allowance	**1.14**	.48	2389

[20] As it was unlikely that teachers would know the MSGLC categories of their past or present school locations, an approximate definition for 'rural and regional' based on local population <50 000 was provided as a guide.

The contexts of respondents' motivation were illustrated by their additional comments, of which the following were typical:

> I was a bonded student. That is, I received free education and in exchange agreed to teach in any location. Bring it back! (Science teacher, Provincial Area, SA)
>
> I was imported from the U.K. in 1975, and went where I was sent. (ICT teacher, Provincial City, NSW)
>
> It was a compulsory requirement from the department for all teachers to have country teaching experiences. (Mathematics teacher, Metropolitan Area, SA)

A principal components analysis of the initial decision items (Appendix 4.1) produced three substantive components: Financial and Advancement Incentives, Family Links, Job/Career Requirements. Scores on these three components were analysed using a series of MANCOVAs in order to make specific group comparisons. Table 4.8 presents the mean ratings and their associated standard errors on the three components across the categories of these four comparison variables: Sex, Age, School System, and Survey Respondent Type.

Table 4.8 Mean ratings on teacher motivation components regarding respondent's initial decision to teach in a rural or regional school, broken down by Sex, Age of Respondent and School System [ratings on 1 (Not Influential) to 4 (Extremely Influential) scale] [a]

			Initial Decision Components			
			Financial & advancement Incentives	Family links	Job/Career requirements	Valid N
Sex of respondent	Male	Mean	**1.37**	**1.60**	**2.31**	
		s.e.(Mean)	.02	.03	.02	966
	Female	Mean	**1.24**	**1.98**	**2.40**	
		s.e.(Mean)	.01	.02	.02	1375
Age of respondent	≤ 30 years	Mean	**1.38**	**1.85**	**2.32**	
		s.e.(Mean)	.02	.04	.03	412
	31 - 40 years	Mean	**1.31**	**1.82**	**2.29**	
		s.e.(Mean)	.02	.04	.03	491
	41 - 50 years	Mean	**1.24**	**1.89**	**2.38**	
		s.e.(Mean)	.02	.03	.03	762
	> 50 years	Mean	**1.27**	**1.73**	**2.42**	
		s.e.(Mean)	.02	.03	.03	669
School System	Government	Mean	**1.30**	**1.78**	**2.41**	
		s.e.(Mean)	.01	.02	.02	1691
	Catholic Systemic	Mean	**1.25**	**1.93**	**2.25**	
		s.e.(Mean)	.02	.04	.04	392
	Independent	Mean	**1.26**	**1.91**	**2.23**	
		s.e.(Mean)	.03	.05	.04	258
Survey Respondent Type	Secondary Science	Mean	**1.33**	**1.79**	**2.27**	
		s.e.(Mean)	.02	.04	.04	431
	Secondary Mathematics	Mean	**1.27**	**1.69**	**2.34**	
		s.e.(Mean)	.03	.04	.04	423
	Secondary ICT	Mean	**1.33**	**1.72**	**2.37**	
		s.e.(Mean)	.04	.07	.05	182
	Primary	Mean	**1.28**	**1.89**	**2.40**	
		s.e.(Mean)	.01	.03	.02	1305

[a] Shading denotes components where significant or suggestive mean differences exist between the groups being compared. Gold shading indicates significant differences ($p < .001$) on a component; light blue shading indicates suggestive differences ($p < .01$) on a component.

Variation with sex

The multivariate test for Sex of Respondent differences was significant[21]. Follow-up tests revealed that the primary reasons for this significant multivariate difference were significant univariate differences on the Financial and Advancement Incentives and Family Links components, and a suggestive difference on the Job/Career Requirements component. Male respondents rated the Financial and Advancement Incentives component as significantly more influential on their initial decision than female respondents, whereas female respondents rated the Family Links as significantly more influential and Job/Career Requirements as suggestively more influential than male respondents. This pattern was consistent with teachers' comments:

> I have taught in rural areas all my life. Most positions have been taken up due to proximity to my husband's work. (Primary teacher, Provincial Area, Vic)
>
> I married a farmer and thus chose to apply for this school. (Mathematics teacher, Provincial Area, WA)

Figure 4.6 displays a profile plot of the original initial decision item means (ordered by component – labelled across the top of the graph) by Sex of Respondent[22]. Figure 4.6 shows that the chief reason that Financial and Advancement Incentives differed was because male respondents felt that promotion was a more influential motivating factor. Within the Family Links component, male respondents rated all items, but especially spouse's/partner's employment situation, as substantially less influential on their initial decision compared to their female colleagues. Lifestyle change was more influential for male respondents and job availability was more influential for female respondents.

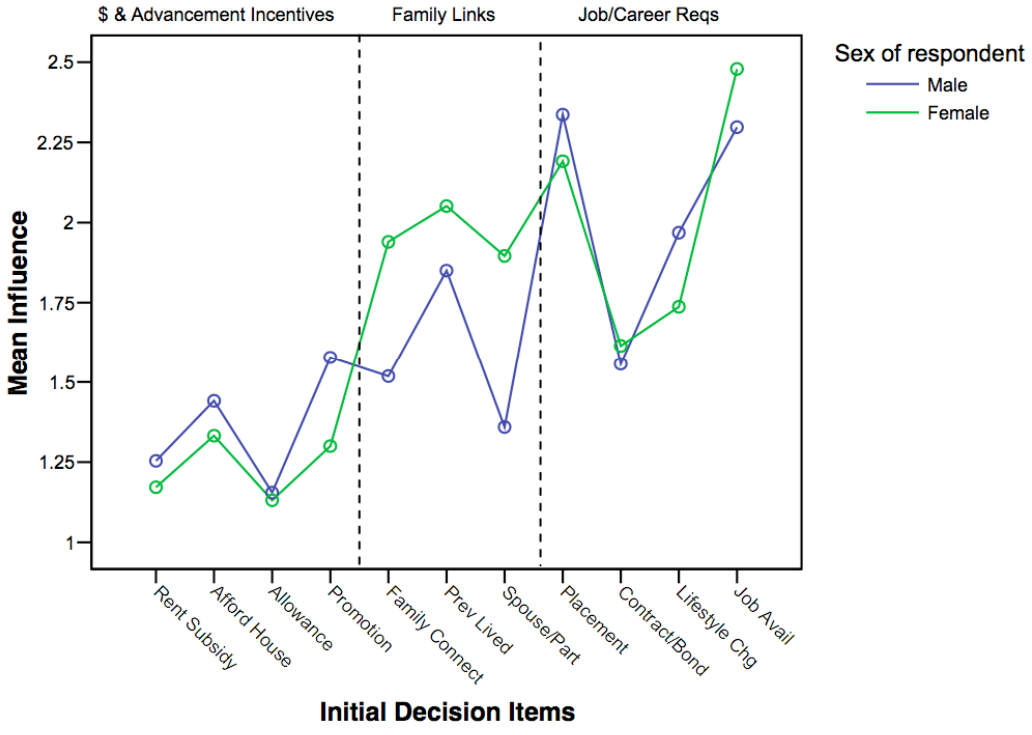

Figure 4.6 Profile plot of means for the eleven initial decision items compared, by Sex of Respondent (Table 4.7 for item names in full)

[21] Wilks' lambda = .933, $F(3, 23347) = 56.08$, $p < .001$, partial $\eta^2 = .07$

[22] In this figure, the unreversed lifestyle change item has been used so that it is clear which group found the item more influential.

Variation with age of respondent

The multivariate test for Age of Respondent differences across the three initial decision components was significant[23]. Follow-up tests revealed that the main reasons for this significant multivariate difference were a significant univariate difference on the Financial and Advancement Incentives component and suggestive differences on the remaining two components. The youngest two cohorts of respondents rated the Financial and Advancement Incentives component as substantially more influential on their initial decision than their older colleagues. Furthermore, Family Links were least influential on the oldest cohort of respondents but Job/Career Requirements became progressively more influential as age increased. Figure 4.7 shows the profile plot of the original initial decision item means by Age of Respondent. The youngest respondents clearly felt that the financial incentives (rent subsidy, allowance and affordable housing) in the component were more influential on their initial decision than it was for their older colleagues. Having previously lived in the same or similar area was also most influential for the youngest cohort. Having a contract or bond with an educational provider was substantially more influential for members of the oldest cohort of respondents; conversely, job availability was least influential for this cohort.

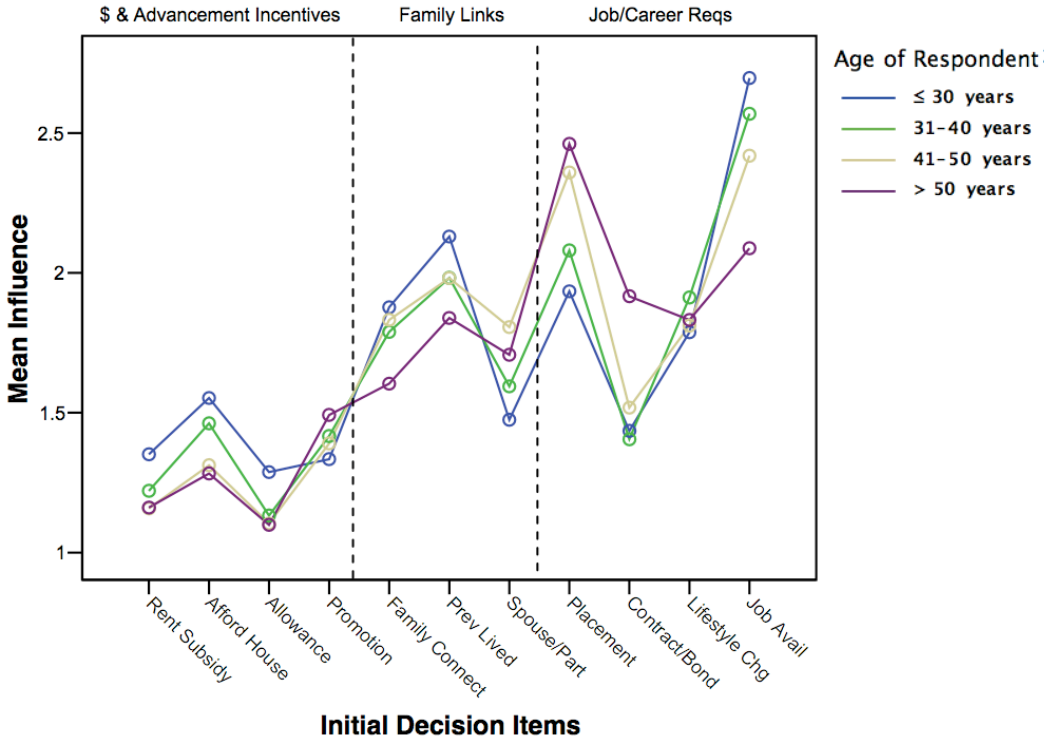

Figure 4.7 Profile plot of means for the eleven initial decision items, compared by Age of Respondent (Table 4.7 for item names in full)

Variation with school system

The multivariate test for school system differences across the three initial decision components was also significant[24]. Follow-up tests revealed that the primary reasons for this significant multivariate difference were a significant univariate difference on the Job/Career Requirements component and a suggestive difference on the Family Links component. Respondents from Government schools rated the Job/Career Requirements component as substantially more

[23] Wilks' lambda = .981, $F(9, 5658.59) = 5.00$, $p < .001$, partial $\eta^2 = .01$

[24] Wilks' lambda = .981, $F(6, 4666) = 7.35$, $p < .001$, partial $\eta^2 = .01$

influential on their initial decision than their colleagues from the other school systems. Respondents from Catholic Systemic and Independent schools rated Family Links as more influential than did colleagues from Government schools. Figure 4.8 shows the profile plot of the original initial decision item means by School System. Respondents from Government schools rated educational authority placement as substantially more influential on their initial decision than it was for respondents from either Catholic Systemic or Independent schools. Conversely, respondents from Catholic Systemic and Independent schools rated both having previously lived in the same or similar area and having family connections in the location as more influential on their initial decision than did colleagues from Government schools.

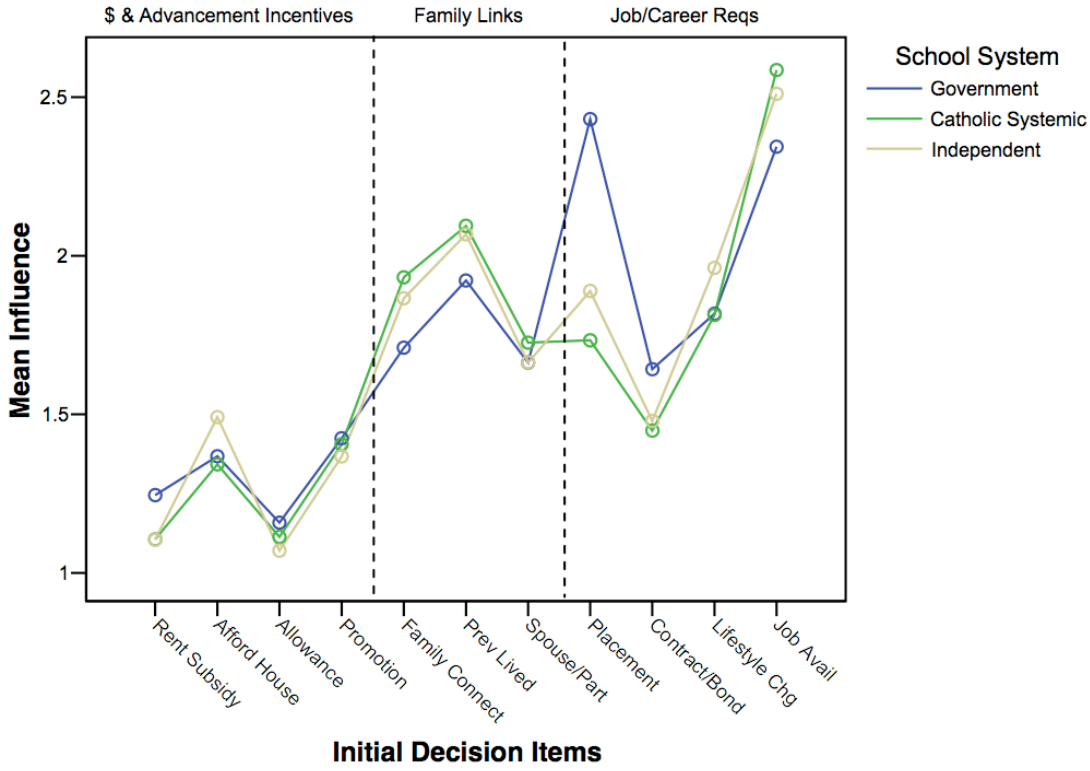

Figure 4.8 Profile plot of means for the eleven initial decision items, compared by School system (Table 4.7 for item names in full)

4.4.2 Decisions to continue teaching in a rural or regional school

Table 4.9 summarises, at the level of the entire combined sample, the average responses to the items dealing with how influential different factors were in a respondent's decision to continue teaching in a rural or regional school.

The most influential motivating factors overall were enjoyment of the lifestyle and the community spirit. For example:

> I really wanted to teach and live in a small rural community. This was not only influenced by lifestyle and community, but also by the students in rural schools. (Mathematics teacher, Provincial Area, Vic.)

> Best decision I ever made to leave the inertia and stagnation of a large city school and come to the flexibility, vitality and innovation in a smaller centre. (Science teacher, Provincial Area, Qld)

Family links and partner's employment were also very influential. For example:

> I have continued to teach in Western region due to my family commitments and enjoyment of the lifestyle. (Primary teacher, Provincial Area, NSW)
>
> My wife and I both enjoy teaching in a regional centre. We believe it is a better place to live and work than a large city or metropolitan region. It is also a safer place to raise a family, in our opinion. (Mathematics teacher, Provincial Area, WA)

Smaller class sizes was also seen as being an attractive characteristic of many rural schools:

> I wanted my first position to be in a small school with small class sizes (Mathematics teacher, Provincial City, Qld)

Least influential were the availability of a rural or remote allowance, rent subsidy (though again, these would not be available to all teachers), and the opportunity to work with Indigenous students.

Table 4.9 Overall average ratings, standard deviations and valid N for the continuance decision items (items are listed in descending order of mean rating)

How influential were the following on your decision to continue teaching in a rural or regional school?	Mean	s.d.	Valid N
Enjoyment of lifestyle	**2.87**	1.04	2253
Community spirit	**2.43**	1.00	2234
Spouse's/partner's employment situation	**2.16**	1.25	2245
Family connections in the location	**2.11**	1.24	2239
Smaller class sizes	**1.84**	.97	2232
Opportunity for promotion	**1.71**	.93	2239
Expense of moving to the city	**1.66**	.99	2225
Affordable housing	**1.61**	.91	2232
Opportunity to work with Indigenous students	**1.29**	.65	2232
Rent subsidy	**1.26**	.67	2222
Rural or remote area allowance	**1.24**	.63	2222

A principal components analysis of the continuance decision items (Appendix 4.2) yielded four substantive components: Living Costs, Work Context, Lifestyle, and Family Situation. Scores on these four components were analysed using a series of six MANCOVAs in order to make specific group comparisons. Table 4.10 presents the mean ratings and their associated standard errors on these four components across the categories of two of these comparison variables, Sex and Age of Respondent. The other MANCOVAs revealed no meaningful or significant patterns.

Table 4.10 Mean ratings on teacher motivation components regarding respondent's decision to continue teaching in a rural or regional school, broken down by Sex and Age of Respondent [ratings on 1 (Not Influential) to 4 (Extremely Influential) scale] [a]

			Continuance Decision Components				
			Living costs	Work context	Lifestyle	Family situation	Valid N
Sex of respondent	Male	Mean	1.49	1.64	2.71	1.81	
		s.e.(Mean)	.02	.02	.03	.03	902
	Female	Mean	1.41	1.59	2.59	2.35	
		s.e.(Mean)	.02	.02	.02	.03	1278
Age of respondent	≤ 30 years	Mean	1.64	1.85	2.53	1.98	
		s.e.(Mean)	.03	.03	.04	.05	398
	31 - 40 years	Mean	1.48	1.69	2.71	2.15	
		s.e.(Mean)	.03	.03	.04	.05	458
	41 - 50 years	Mean	1.37	1.51	2.66	2.24	
		s.e.(Mean)	.02	.02	.03	.04	709
	> 50 years	Mean	1.37	1.51	2.64	2.07	
		s.e.(Mean)	.02	.02	.04	.04	608

[a] Shading denotes components where significant or suggestive mean differences exist between the groups being compared. Gold shading indicates significant differences ($p < .001$) on a component; light blue shading indicates suggestive differences ($p < .01$) on a component.

Variation with sex

The multivariate test for Sex of Respondent differences across the four continuance decision components was significant[25]. Follow-up tests revealed that the primary reasons for this multivariate difference were a significant univariate difference on the Family Situation component and suggestive differences on the Living Costs and Lifestyle components. Female respondents assessed the Family Situation component as significantly more influential on their decision to continue teaching in a rural or regional school than it was for male respondents. However, both the Living Costs and Lifestyle components were somewhat more influential on the continuance decision for male respondents. Figure 4.9 displays the profile plot of original continuance decision item means (ordered by component and labelled across the top of the graph) by Sex of Respondent. The figure makes it clear that the reason for differences on the Family Situation component was that female respondents rated both family connections and spouse's/partner's employment situation as much more influential compared with male responses. On the other hand, male respondents rated affordable housing, the expense of moving to the city and lifestyle as more influential on their decision to continue teaching in a rural or regional school.

Variation with age of respondent

The multivariate test for Age of Respondent differences was also significant[26]. Follow-up investigation revealed that the primary reasons for this significant multivariate difference were significant univariate differences on the Living Costs, Work Context and Family Situation components. The youngest cohort of respondents rated the Living Costs and Work Contexts components as being substantially more influential on their continuance decision than they were for their older colleagues. Conversely, the Family Situation component was substantially less influential for both the youngest and the oldest cohorts. Figure 4.10 shows the profile plot of original continuance decision item means by Age of Respondent. Within the Living Costs component, respondents less than 31 years of age reported a substantially greater degree of influence attached to affordable housing, rent subsidy and the rural or remote allowance than did their older colleagues.

[25] Wilks' lambda = .917, $F(4, 2172) = 49.15$, $p < .001$, partial $\eta^2 = .08$

[26] Wilks' lambda = .921, $F(12, 5723.052) = 15.16$, $p < .001$, partial $\eta^2 = .03$

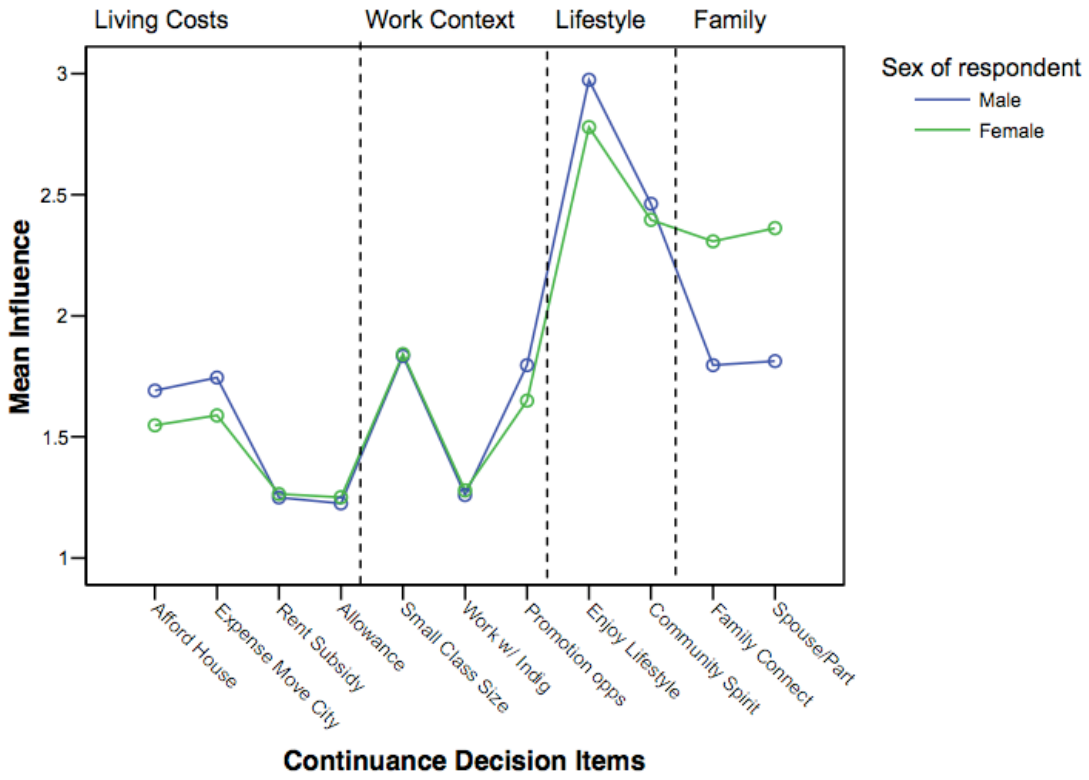

Figure 4.9 Profile plot of means for the eleven continuance decision items, compared by Sex of Respondent (Table 4.9 for item names in full)

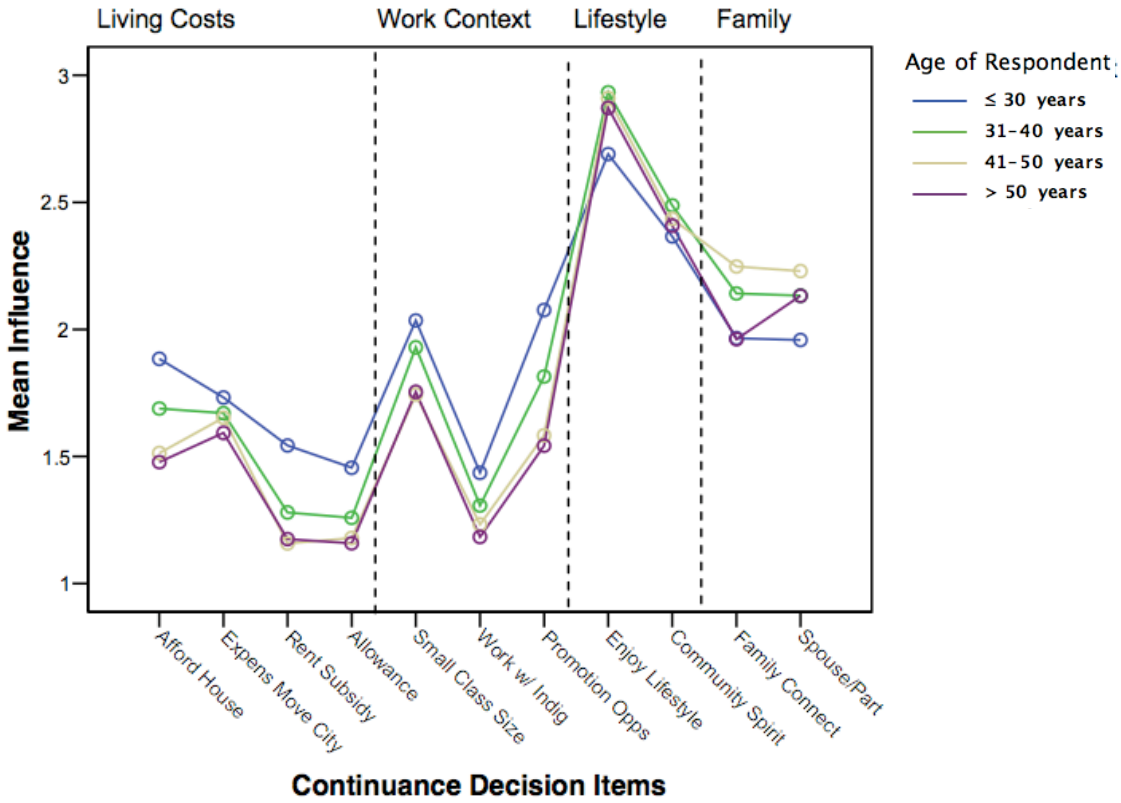

Figure 4.10 Profile plot of means for the eleven continuance decision items, compared by Age of Respondent (Table 4.7 for item names in full)

Promotion opportunities were especially influential for members of the youngest cohort as well. Both of the items within the Family Situation component were substantially more influential for respondents in the middle two age cohorts. Not surprisingly, the spouse's/partner's employment situation was least influential for the youngest cohort (many of whom may not have had a spouse or partner).

4.4.3 Decision to leave a rural or regional school for a metropolitan school

Teachers who had at one time left a rural or regional school to work in a metropolitan school were asked to rate a range of items in terms of their influence on that decision. At least 682 (23%) of respondents made one or more ratings. Table 4.11 summarises, at the level of the entire combined sample, the average responses to the items.

Table 4.11 Overall average ratings, standard deviations and valid N for the 'decision to leave' items (items are listed in descending order of mean rating)

If you left a rural or regional school for a metropolitan school, how influential were the following?	Mean	s.d.	Valid N
Spouse's/partner's employment situation	**2.16**	1.27	678
Educational opportunities for your own children	**1.97**	1.18	682
Sense of social isolation	**1.88**	1.05	669
Sense of professional isolation	**1.75**	.94	679
Limited essential services	**1.72**	.96	655
Education authority placement	**1.71**	1.06	670
Reduced cost of travelling	**1.67**	.93	670
Opportunity for promotion	**1.65**	.95	687
Problems within the school	**1.51**	.90	668
Problems in the community	**1.43**	.83	666

The most influential motivating factors for the majority of those who left were spouse's/partner's employment situation, educational opportunities for their own children and a sense of social isolation. For example:

> My spouse lived in the city whilst I was in the country on a two-year posting. (Primary Teacher, Metropolitan Area, Qld)

> I felt it was time to expose my children to city life. They had spent most of their lives in country towns. (Mathematics teacher, Metropolitan Area, NSW)

Least influential, overall, were problems within the school or community.

A principal components analysis of the decision to leave items (Appendix 4.3) produced three substantive components: Work and Professional Context issues, Problems and Family Situation. Scores on these three components were analysed using a series of MANCOVAs in order to make specific group comparisons. Table 4.12 shows the mean ratings and their associated standard errors on the three components across three categories of comparison variables. MANCOVAs for Sex of Respondent, School System and Survey respondent Type revealed no significant differences. The three MANCOVAs in Table 4.12 revealed only suggestive differences. Obviously, with the reduced number of respondents for these analyses, significant differences were much harder to detect.

Table 4.12 Mean ratings on teacher motivation components regarding respondent's decision to move from a rural/regional school to a metropolitan school, broken down by respondents' sex and age, school system and MSGLC categories [ratings on 1 (Not Influential) to 4 (Extremely Influential) scale] [a]

			Decision to Leave Component			
			Work & professional context	Problems	Family situation	Valid N
Age of respondent	≤ 30 years	Mean	1.87	1.75	1.94	
		s.e.(Mean)	.07	.10	.12	69
	31 - 40 years	Mean	1.75	1.58	1.98	
		s.e.(Mean)	.06	.07	.09	119
	41 - 50 years	Mean	1.69	1.43	2.15	
		s.e.(Mean)	.04	.05	.06	232
	> 50 years	Mean	1.72	1.37	2.01	
		s.e.(Mean)	.04	.05	.06	225
Type of School	Primary	Mean	1.68	1.34	2.13	
		s.e.(Mean)	.04	.05	.06	306
	Secondary	Mean	1.82	1.60	1.96	
		s.e.(Mean)	.05	.06	.07	235
	Combined	Mean	1.69	1.58	2.00	
		s.e.(Mean)	.06	.08	.09	105

[a] Shading denotes components where significant or suggestive mean differences exist between the groups being compared. Gold shading indicates significant differences ($p < .001$) on a component; light blue shading indicates suggestive differences ($p < .01$) on a component.

Variation with age of respondent

The multivariate test for Age of Respondent differences across the three 'decision to leave' components was suggestive[27]. Follow-up tests revealed that the primary reason for this suggestive multivariate difference was a suggestive univariate difference on the Problems component. Respondents less than 30 years of age rated the Problems component as substantially more influential on their decision to leave than it was for their older colleagues. Figure 4.11 presents the profile plot of the original decision to leave item means by Age of Respondent. The figure shows that respondents less than 30 years old clearly indicated a greater degree of influence attached to problems in school as being a reason for leaving a rural or regional school (the level of the mean placed this outcome close to but still below the somewhat influential scale point).

Variation with type of school

The multivariate test for Type of School differences across the three 'decision to leave' components was suggestive[28]. Follow-up tests revealed that the primary reason for this suggestive multivariate difference was a suggestive univariate difference on the Problems component. Respondents from primary schools rated the Problems component as substantially less influential on their decision to leave than it was for their colleagues from secondary or combined schools. Figure 4.12 presents the profile plot of the original 'decision to leave' item means by Type of School. The figure shows that respondents from primary schools clearly indicated a substantially lesser degree of influence attached to problems in school and problems in the community as being reasons for leaving a rural or regional school.

[27] Wilks' lambda = .963, $F(9, 1548.007) = 2.67$, $p = .005$, partial $\eta^2 = .01$

[28] Wilks' lambda = .970, $F(6, 1276) = 3.23$, $p = .004$, partial $\eta^2 = .01$

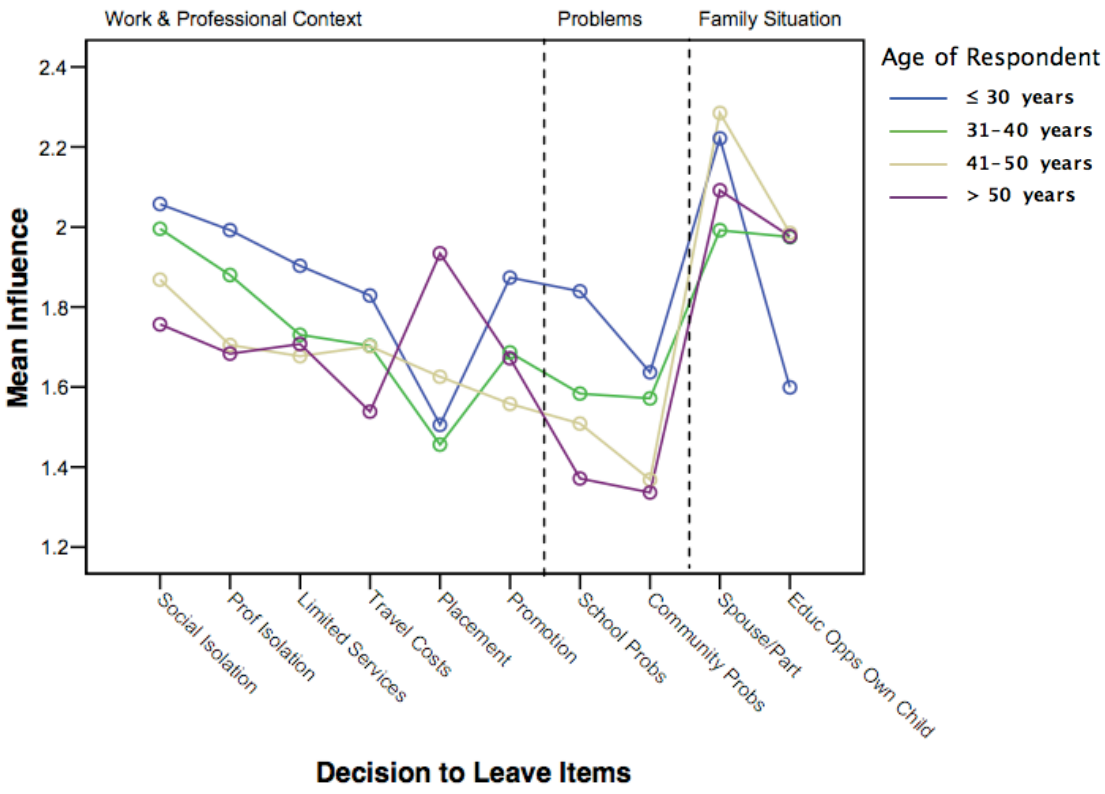

Figure 4.11 Profile plot of means for the ten decisions to move to a metropolitan school items, compared by Age of Respondent (Table 4.11 for item names in full)

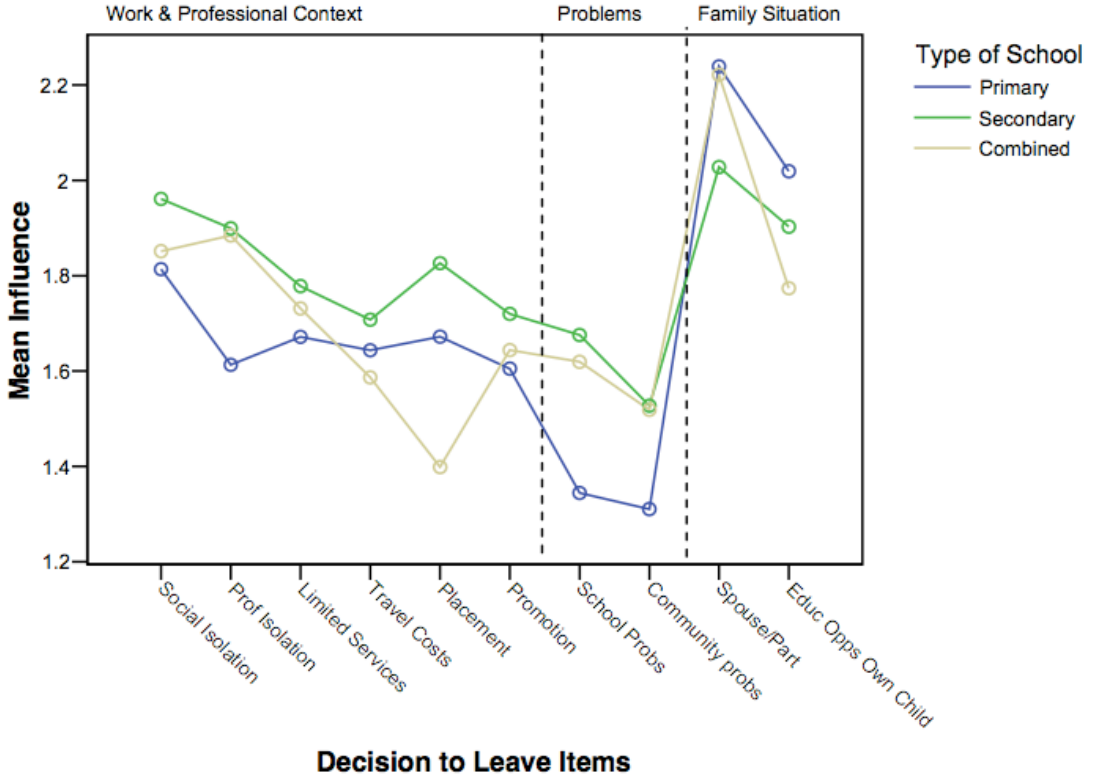

Figure 4.12 Profile plot of means for the ten decisions to move to a metropolitan school items, compared by Type of School (Table 4.11 for item names in full)

4.4.4 Motivations for moving from a metropolitan school to a rural or regional school

Respondents who had only ever taught in metropolitan schools were asked to rate a range of items on their motivational value for taking up a position in a rural or regional school. Table 4.13 summarises, at the level of the entire combined sample, the average responses to the items dealing with how influential different factors would be in motivating respondents, who had not taught in a rural or regional school at some point in their careers, to take up a position in a rural or regional school. At least 603 (about 21%) respondents made one or more ratings indicating what might motivate them to take up a position in a rural or regional school. The most influential motivating factors overall were smaller class sizes, preference for future transfers, affordable housing and rent subsidy. The results with affordable housing and rent subsidy provide an interesting contrast with the initial decision results where these factors were among the least important overall. This perhaps reflects the changing economic times and living costs associated with working in metropolitan areas. Least influential potential motivating factors were opportunity to work with Indigenous students, other factors (listed by a small minority of respondents and to be qualitatively analysed elsewhere) and smaller school staff.

Table 4.13 Overall average ratings, standard deviations and valid N for the motivation to take up a rural or regional teaching position items (items are listed in descending order of mean rating)

How influential would the following be in motivating you to take up a position in a rural or regional school?	Mean	s.d.	Valid N
Smaller class sizes	**2.10**	1.00	603
Preference for future transfers	**2.09**	1.11	590
Affordable housing	**2.05**	1.02	598
Rent subsidy	**2.05**	1.03	597
Travel subsidy	**2.01**	1.03	593
Rural or remote area allowance	**1.98**	.98	596
More holidays	**1.93**	.98	595
Improved opportunities for promotion	**1.89**	.95	600
Smaller school staff	**1.63**	.83	595
Opportunity to work with Indigenous students	**1.42**	.71	596

A principal components analysis of the motivation to take up items (Appendix 4.4) revealed two substantive components: Financial and Advancement Incentives and Work Conditions. Scores on these two components were analysed using six MANCOVAs in order to make comparisons across Sex, Age of Respondent, MSGLC Category, School System, Respondent Type and Type of School. Table 4.14 shows the mean ratings and associated standard errors on this component across the Age of Respondent category, which was the only one to exhibit significant differences.

Variation with age of respondent

Only the multivariate test for Age of Respondent differences across these two components showed any differences and these were suggestive at best[29]. Follow-up tests revealed that the primary reason for this suggestive multivariate difference was a suggestive univariate difference on the Financial and Advancement Incentives component. Respondents less than 30 years of age rated the Financial and Advancement Incentives component as substantially more influential as a potential motivator for taking up a rural or regional position than it was for their older colleagues. Figure 4.13 presents the profile plot of the original motivation item means by Age of Respondent. The figure shows that respondents less than 30 years old clearly indicated a greater degree of influence attached to all of the items within the Financial and Advancement component, but most especially for rent subsidy and preference for future transfers (the level of

[29] Wilks' lambda = .969, $F(6, 1172) = 3.08$, p = .005, partial $\eta^2 = .02$

the means placed these outcome for all items except promotion opportunity above the 'somewhat influential' scale point).

Table 4.14 Mean ratings on teacher motivation components regarding what would motivate respondents to take up a teaching position in a rural or regional school, broken down by respondents' age [ratings on 1 (Not Influential) to 4 (Extremely Influential) scale] [a]

			Motivate to Take Up Position Components		
			Financial & advancement incentives	Work conditions	Valid N
Age of respondent	≤ 30 years	Mean	2.24	1.83	
		s.e.(Mean)	.07	.06	131
	31 - 40 years	Mean	1.95	1.75	
		s.e.(Mean)	.08	.06	122
	41 - 50 years	Mean	1.97	1.68	
		s.e.(Mean)	.06	.05	184
	> 50 years	Mean	1.85	1.66	
		s.e.(Mean)	.07	.05	157

[a] Shading denotes components where significant or suggestive mean differences exist between the groups being compared. Gold shading indicates significant differences ($p < .001$) on a component; light blue shading indicates suggestive differences ($p < .01$) on a component.

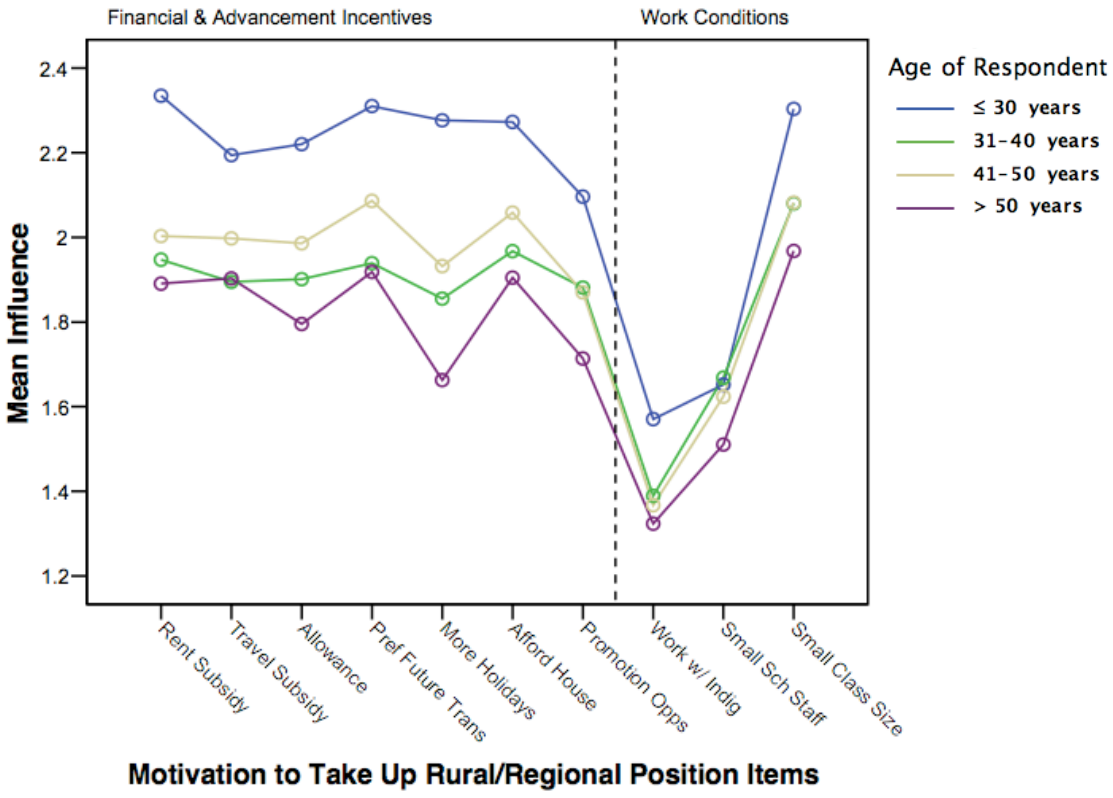

Figure 4.13 Profile plot of means for the ten motivation to take up a rural or regional position items, compared by Age of respondent (Table 4.13 for item names in full)

4.4.5 Summary of findings and implications

Motivations for moving to rural or regional schools

1. Overall, teachers initially taking up positions in these schools appear to have been motivated mostly by job availability, educational authority placement, and having previously lived in the same or a similar location.
2. The influence of motivational factors seems to vary with the sex of the teacher. Male respondents were generally more motivated by financial and advancement considerations whereas females placed greater priority on family factors, such as spouse employment or location of other family members.
3. There is evidence that the influence of motivational factors has changed over time. Those who started their teaching careers 30 or so years ago were often allocated to rural or regional schools by education authorities, either through placement or scholarship bonds. However, these systems were not so influential (or perhaps extant) among younger teachers who were more motivated by job availability and whether they had previously lived in the same or a similar location. Younger teachers were also more motivated by financial inducements such as rent subsidies, affordable housing and allowances, while older teachers were more influenced by the situation of their partners.
4. Respondents from Government schools were more likely to have taken up a position at a rural or regional school due to education authority placement than were teachers in other systems.
5. The low mean ratings for subsidies and allowances possibly reflect the relatively small number of respondents who qualified for these incentives.

Motivations for remaining at a rural or regional school

1. The greatest influences on teachers' decisions to stay in rural and regional schools were their enjoyment of the lifestyle and community spirit. Family links and partner's employment were also very influential.
2. The highest motivating school characteristic was small class sizes.
3. Female teachers considered the family situation to be more influential than did males, who rated the cost of living and quality of the lifestyle higher than did females.
4. Consistent with the findings on initial motivations, younger teachers were more inclined to remain in a rural or regional school because of financial considerations than were their older colleagues.
5. Promotion or advancement opportunities were also a greater incentive among younger teachers.

Motivations for leaving a rural or regional school

1. Respondents had a wide variety of mainly personal reasons for leaving rural and regional schools.
2. For the most part, these reasons were family related, such as changes in a partner's employment situation, or to improve educational opportunities for their own children.
3. Other teachers left due to a sense of social or professional isolation.
4. While problems with the school or community were the least influential factors, younger teacher tended to rate these as more influential than did older teachers.
5. Primary teachers rated these problems as less influential on their decisions than did teachers at secondary or combined schools. Professional isolation was a greater motivation among secondary and combined school respondents.

Motivations for moving from a metropolitan to a rural or regional school

1. Metropolitan teachers considered that smaller class sizes and preference for future transfers had the highest motivational value in terms of moving to a rural or regional school.
2. Financial incentives such as cheaper housing, rent and travel subsidies and allowances were also potentially influential.
3. Opportunities to work with a smaller staff, or with Indigenous students were the least influential items.
4. The youngest group of teachers considered financial and advancement incentives to be substantially more influential than did their older colleagues.

4.5 PERCEPTIONS OF TEACHER EDUCATION AND PREPARATION

All teachers were asked to rate their perceptions of how well their initial teacher education had prepared them for various aspects of their careers, particularly for teaching in rural and regional schools. The findings in this section refer to the suitability and effectiveness of respondents' pre-service education, not to their current skill levels.

4.5.1 Primary teacher preparation

Table 4.15 displays primary respondents' overall mean ratings for how well their teacher education prepared them for handling different facets of teaching. The general impression is that teacher education prepared respondents best for teaching primary mathematics, somewhat less well for teaching primary science, teaching in rural/regional schools and managing student behaviour and least well for teaching Non-English Speaking Background (NESB) and Indigenous students and for using ICT across the curriculum.

Table 4.15 Overall average ratings, standard deviations and valid N for preparation items (items are listed in descending order of mean rating) [Ratings on a 1 (Not at all prepared) to 5 (Extremely well prepared) scale]

How well do you think your teacher education prepared you for:	Mean	s.d.	Valid N
teaching mathematics?	**3.09**	.96	1546
teaching science?	**2.60**	.96	1545
teaching in rural and regional schools?	**2.57**	1.17	1543
managing student behaviour?	**2.55**	1.03	1548
teaching gifted and talented students?	**1.98**	.97	1549
teaching special needs students?	**1.94**	1.02	1550
using ICT across the curriculum?	**1.77**	1.03	1537
teaching Indigenous students?	**1.72**	.94	1550
teaching NESB students?	**1.52**	.84	1551

Table 4.15, however, gives only a whole-of-sample impression. A principal components analysis of the preparation items (Appendix 4.5) showed two substantive components: Specific Teaching Skills Preparation and General Teaching Preparation. Scores on these two components were analysed using a series of MANCOVAs in order to make specific group comparisons. Two MANCOVAs were conducted, comparing mean levels of preparation on the two components by Age of Respondent and Location During Initial Teacher Education. Table 4.16 shows the means and standard errors for the two preparation components for the categories of the two independent variables.

Table 4.16 Breakdown of the two teacher preparation components, by Age of Respondent and Location During Initial Teacher Education [ratings on 1 (Not Prepared) to 5 (Extremely Well Prepared) scale] [a]

			Preparation Component		Valid N
			Specific teaching skills preparation	General teaching preparation	
Age of respondent	≤ 30 years	Mean	2.24	2.88	
		s.e.(Mean)	.04	.04	307
	31 - 40 years	Mean	1.89	2.69	
		s.e.(Mean)	.04	.04	305
	41 - 50 years	Mean	1.67	2.68	
		s.e.(Mean)	.03	.03	516
	> 50 years	Mean	1.50	2.61	
		s.e.(Mean)	.03	.04	388
Location during initial teacher education	Metropolitan centre	Mean	1.74	2.61	
		s.e.(Mean)	.03	.03	798
	Provincial City	Mean	1.79	2.84	
		s.e.(Mean)	.04	.05	299
	Regional centre	Mean	1.83	2.81	
		s.e.(Mean)	.05	.05	235
	Rural centre	Mean	1.88	2.76	
		s.e.(Mean)	.06	.06	175

[a] Shading denotes components where significant or suggestive mean differences exist between the groups being compared. Gold shading indicates significant differences ($p < .001$) on a component; light blue shading indicates suggestive differences ($p < .01$) on a component.

Variation with age of respondent

The multivariate test for Age of Respondent differences across the two components was significant[30]. Follow-up tests revealed that the reasons for this significant multivariate difference were significant univariate differences on both preparation components. Table 4.16 shows that the youngest primary teachers tended to feel substantially better prepared in the area of both specific teaching skills and general teaching than did their older colleagues. The oldest respondents felt least prepared in both areas, but especially so in terms of specific teaching skills. Figure 4.14 displays a profile plot of original preparation item means by Age of Respondent. Clearly, the youngest cohort of respondents felt substantially better prepared for teaching gifted and talented (most notable difference), Indigenous and special needs students, as well as for managing student behaviour. No age category of primary respondents felt particularly well prepared for teaching NESB students.

Variation with location during initial teacher education

The multivariate test for Location During Initial Teacher Education differences across the two components was significant[31]. Follow-up tests revealed that the chief reason for this significant multivariate difference was a significant univariate difference on the General Teaching Preparation component. Table 4.16 reveals that respondents completing their teacher education in Metropolitan Centres felt less well prepared for teaching in general than did their colleagues completing their teacher education in Provincial Cities, Regional Centres or Rural Centres. Figure 4.15 displays a profile plot of original preparation item means by Location During Initial Teacher Education. Again, the differentiating item in the General Teaching Preparation component was preparation for teaching in rural or regional schools. Respondents living in Provincial Cities, Regional Centres and Rural Centres all indicated a substantially higher level of preparedness compared to those who undertook their teacher education in Metropolitan Centres.

[30] Wilks' lambda = .860, $F(6, 3016) = 39.43$, $p < .001$, partial $\eta^2 = .07$

[31] Wilks' lambda = .979, $F(6, 2998) = 5.34$, $p < .001$, partial $\eta^2 = .01$

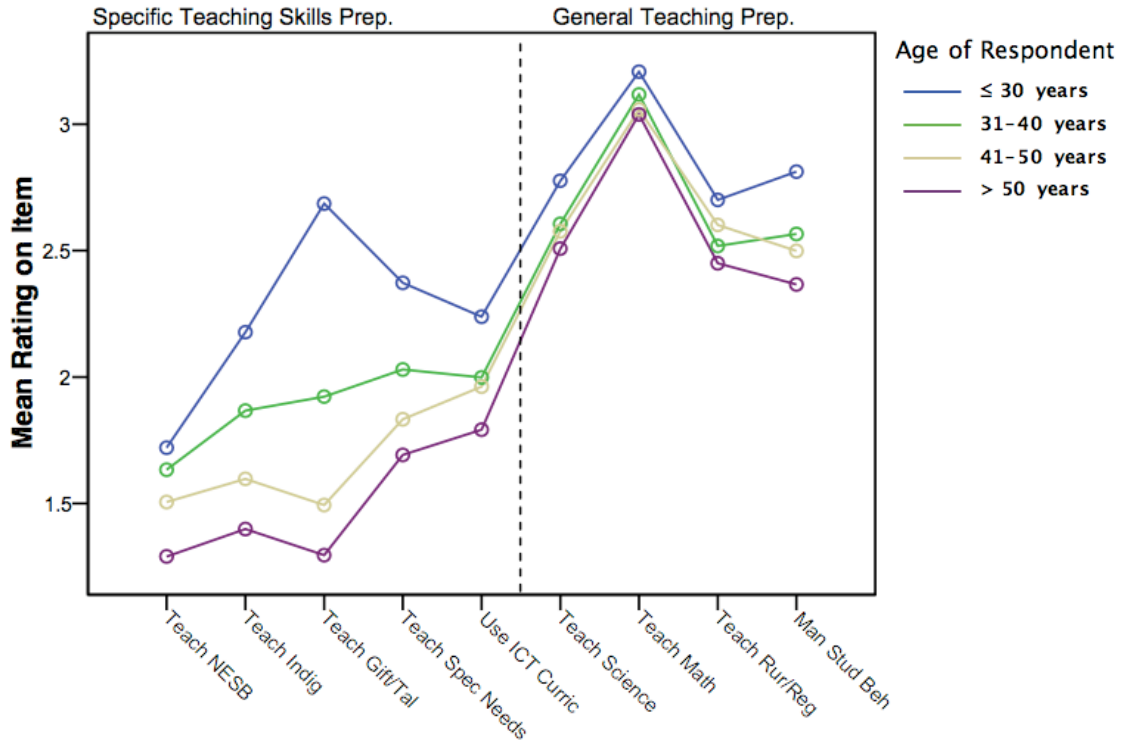

Figure 4.14 Profile plot of teacher preparation items, compared by Age of Respondent [ratings on 1 (Not Prepared) to 5 (Extremely Well Prepared) scale] (Table 4.15 for item names in full)

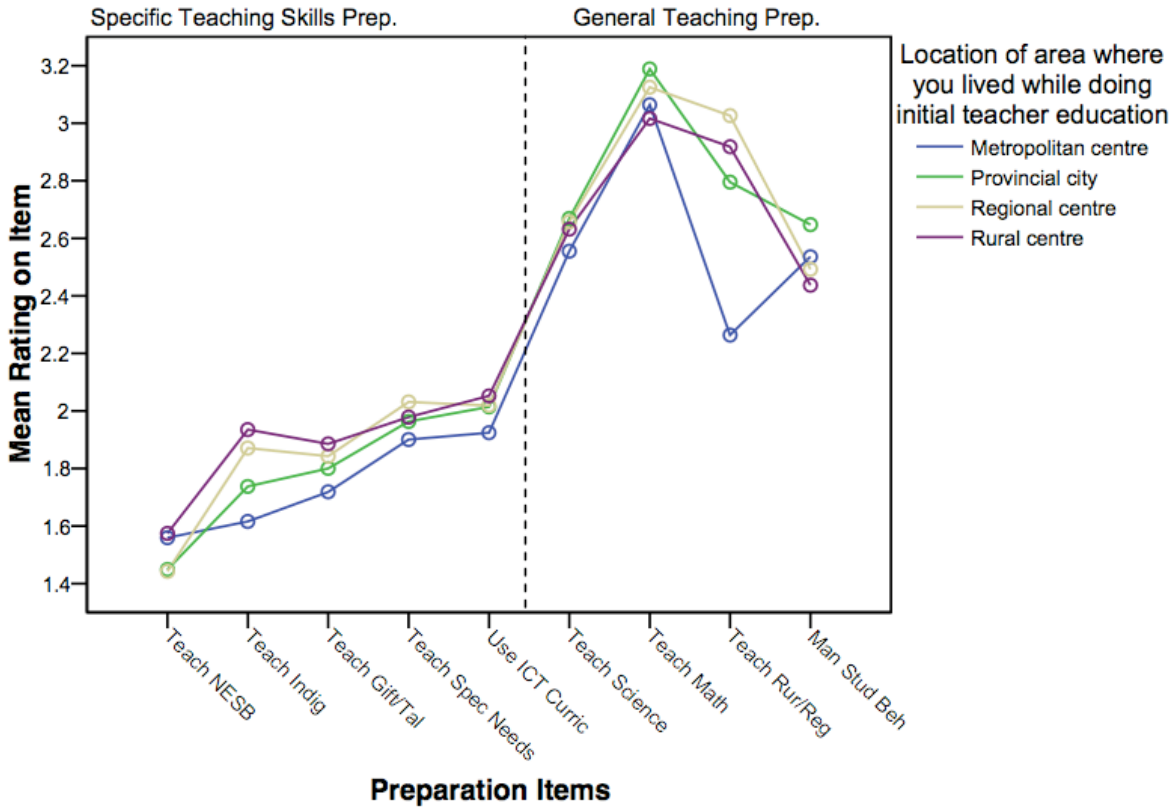

Figure 4.15 Profile plot of primary teacher preparation items, compared by Location During Initial Teacher Education (Table 4.15 for item names in full)

4.5.2 Secondary teacher preparation

It is useful first to examine the three secondary respondent samples as a combined sample (N = 1364) in terms of teacher preparation before looking at the analyses for each individual sample. Table 4.17 displays the overall mean ratings for how well teacher education prepared secondary respondents for handling different facets of teaching, including teaching within their specific subject area. The overall impression given in this table is that teacher education prepared secondary respondents best for teaching in their respective subject areas, teaching in rural and regional schools and for managing student behaviour. Secondary respondents indicated they were least well prepared for teaching NESB (preparation seemed particularly low here), Indigenous and special needs students and for using ICT across the curriculum. On average, teacher education only somewhat prepared secondary respondents for teaching gifted and talented students.

Table 4.17 Overall average ratings, standard deviations and valid N for the teacher education preparation items for secondary respondents (items are listed in descending order of mean rating) [Ratings on a 1 (Not at all prepared) to 5 (Extremely well prepared) scale]

How well do you think your teacher education prepared you for:	Mean	s.d.	Valid N
teaching [science/mathematics/ICT]?	**2.89**	1.12	1348
teaching in rural and regional schools?	**2.47**	1.09	1331
managing student behaviour?	**2.41**	1.01	1342
teaching gifted and talented students?	**2.10**	1.00	1342
using ICT across the curriculum?	**1.84**	1.07	1332
teaching special needs students?	**1.77**	.95	1338
teaching Indigenous students?	**1.59**	.84	1339
teaching NESB students?	**1.47**	.83	1344

Table 4.17, however, gives only a whole-of-combined secondary samples impression. A principal components analysis of the preparation items (Appendix 4.6) produced two substantive components for secondary respondents: Specific Teaching Skills Preparation and General Teaching Preparation. Scores on these two components were analysed using a series of MANCOVAs, comparing mean levels of preparation on the two components by Age of Respondent, Location During Initial Teacher Education and Survey Respondent Type. Table 4.18 shows the means and standard errors for the two preparation components for the categories of the three independent variables.

Variation with age of respondent

The multivariate test for Age of Respondent differences across the two components was significant[32]. Follow-up tests revealed that the main reasons for this significant multivariate difference were a significant univariate difference on the Specific Teaching Skills Preparation component and a suggestive different on the General Teaching Preparation component. Table 4.18 reveals that the youngest two cohorts of respondents tended to feel substantially better prepared in the areas of specific teaching skills and, to a lesser extent, general teaching preparation than did their older colleagues. Figure 4.16 displays a profile plot of original preparation item means (ordered by component and labelled across the top of the graph) by Age of Respondent category. Clearly, the youngest cohort of respondents felt substantially better prepared to use ICT across the curriculum (their mean approached the value for the

[32] Wilks' lambda = .881, $F(6, 2594) = 28.15$, $p < .001$, partial $\eta^2 = .06$

anchor point of 'moderately prepared' on the Likert-type scale), especially relative to the oldest two cohorts. Furthermore, the youngest cohort appeared better prepared to teach Indigenous and special needs students, although, in an absolute sense, this was only a feeling of 'somewhat prepared'. The youngest cohort also tended to feel more prepared (mean approached the level of 'moderately prepared') to teach in a rural or regional school than their older colleagues.

Table 4.18 Breakdown of the two secondary teacher preparation components, by Age of Respondent, Location During Initial Teacher Education and Survey Respondent Type [ratings on 1 (Not Prepared) to 5 (Extremely Well Prepared) scale] [a]

			Preparation Component		
			Specific teaching skills preparation	General teaching preparation	Valid N
Age of Respondent	≤ 30 years	Mean	**2.18**	**2.74**	
		s.e.(Mean)	.05	.06	204
	31 - 40 years	Mean	**1.91**	**2.67**	
		s.e.(Mean)	.04	.05	285
	41 - 50 years	Mean	**1.66**	**2.50**	
		s.e.(Mean)	.03	.04	396
	> 50 years	Mean	**1.52**	**2.55**	
		s.e.(Mean)	.03	.04	420
Location During Initial Teacher Education	Metropolitan Centre	Mean	1.73	**2.53**	
		s.e.(Mean)	.02	.03	935
	Provincial City	Mean	1.83	**2.77**	
		s.e.(Mean)	.06	.07	140
	Regional Centre	Mean	1.83	**2.86**	
		s.e.(Mean)	.07	.08	104
	Rural Centre	Mean	1.77	**2.62**	
		s.e.(Mean)	.06	.07	125
Survey Respondent Type	Secondary Science	Mean	1.75	**2.67**	
		s.e.(Mean)	.03	.04	561
	Secondary Mathematics	Mean	1.71	**2.61**	
		s.e.(Mean)	.03	.04	523
	Secondary ICT	Mean	1.87	**2.36**	
		s.e.(Mean)	.05	.06	225

[a] Shading denotes components where significant or suggestive mean differences exist between the groups being compared. Gold shading indicates significant differences ($p < .001$) on a component; light blue shading indicates suggestive differences ($p < .01$) on a component.

Variation with location during initial teacher education

The multivariate test for Location During Initial Teacher Education differences across the two components was significant[33]. Follow-up tests revealed that the primary reason for this significant multivariate difference was a significant univariate difference on the General Teaching Preparation component. Table 4.18 shows that respondents who lived in Provincial Cities or Regional Centres, and to a lesser extent Rural Centres, while doing their initial teacher education tended to feel substantially better prepared in the area of general teaching preparation than did their colleagues who lived in a Metropolitan Centre.

Figure 4.17 displays a profile plot of original preparation item means (ordered by component – labelled across the top of the graph) by Location category. Clearly, the key differentiating item in the General Teaching Preparation component was preparation to teach in a rural or regional school: respondents who lived in Provincial Cities or Regional Centres felt at least moderately prepared for such teaching; colleagues who lived in Rural Centres felt slightly less well prepared, but still substantially more prepared than colleagues who lived in a Metropolitan Centre.

[33] Wilks' lambda = .983, $F(6, 2592) = 3.80$, $p = .001$, partial $\eta^2 = .01$

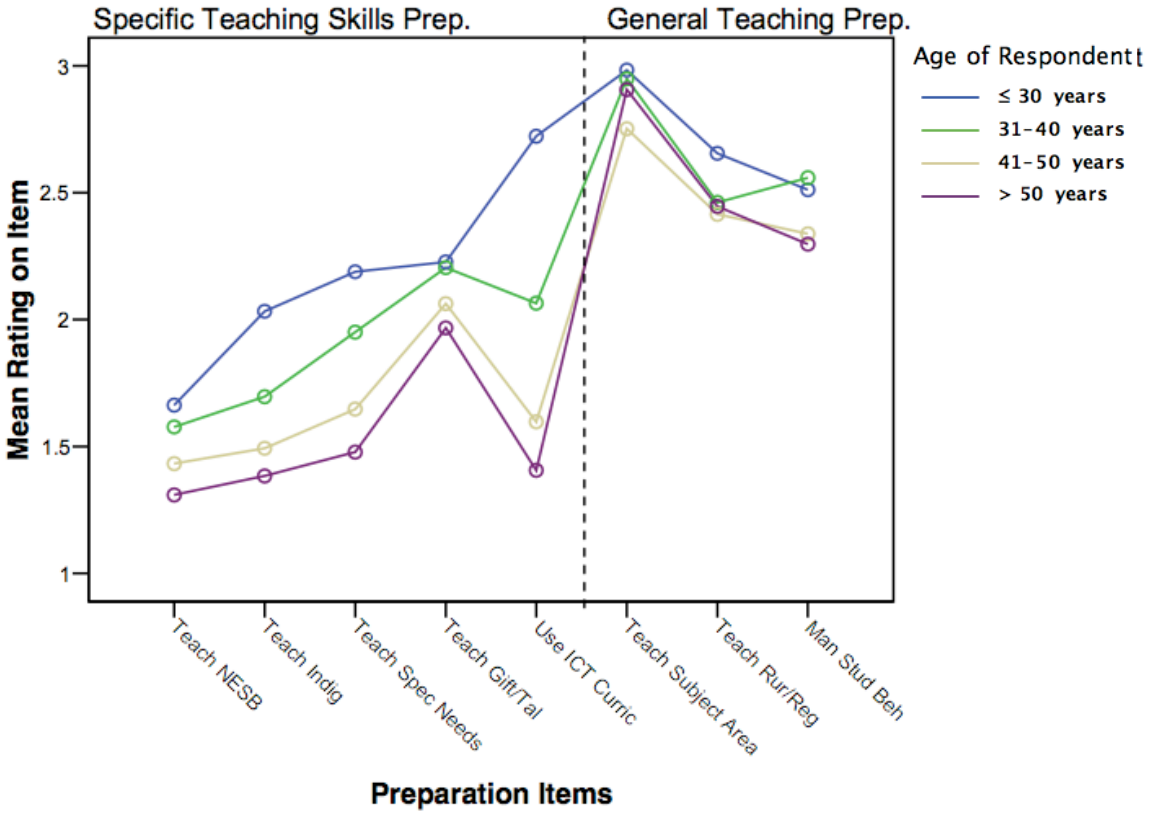

Figure 4.16 Profile plot of secondary teacher preparation items, compared by Age of Respondent [ratings on 1 (Not Prepared) to 5 (Extremely Well Prepared) scale] (Table 4.17 for item names in full)

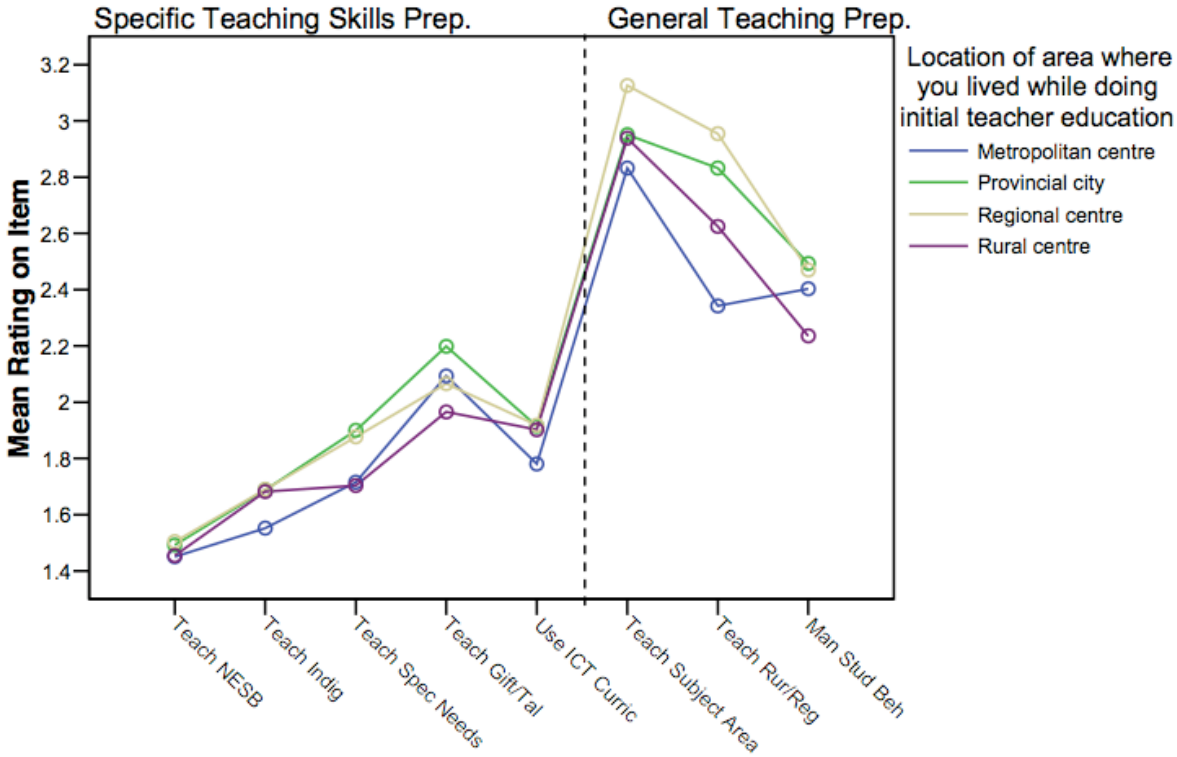

Figure 4.17 Profile plot of secondary teacher preparation items, compared by Location During Initial Teacher Education [ratings on 1 (Not Prepared) to 5 (Extremely Well Prepared) scale] (Table 4.17 for item names in full)

Variation with survey respondent type

The multivariate test for Survey Respondent Type differences across the two components was also significant[34]. Follow-up tests revealed that the primary reason for this significant multivariate difference was a significant univariate difference on the General Teaching Preparation component. Table 4.18 shows that secondary science and mathematics respondents felt substantially better prepared in the area of general teaching preparation than did their secondary ICT colleagues. Figure 4.18 displays a profile plot of original preparation item means (ordered by component and labelled across the top of the graph) by Survey Respondent Type. The most obvious (and perhaps sobering) trend here was that secondary science and mathematics respondents felt quite substantially better prepared to teach in their subject area than did secondary ICT respondents. Interestingly, secondary ICT respondents felt better prepared for managing student behaviour compared to their science and mathematics colleagues.

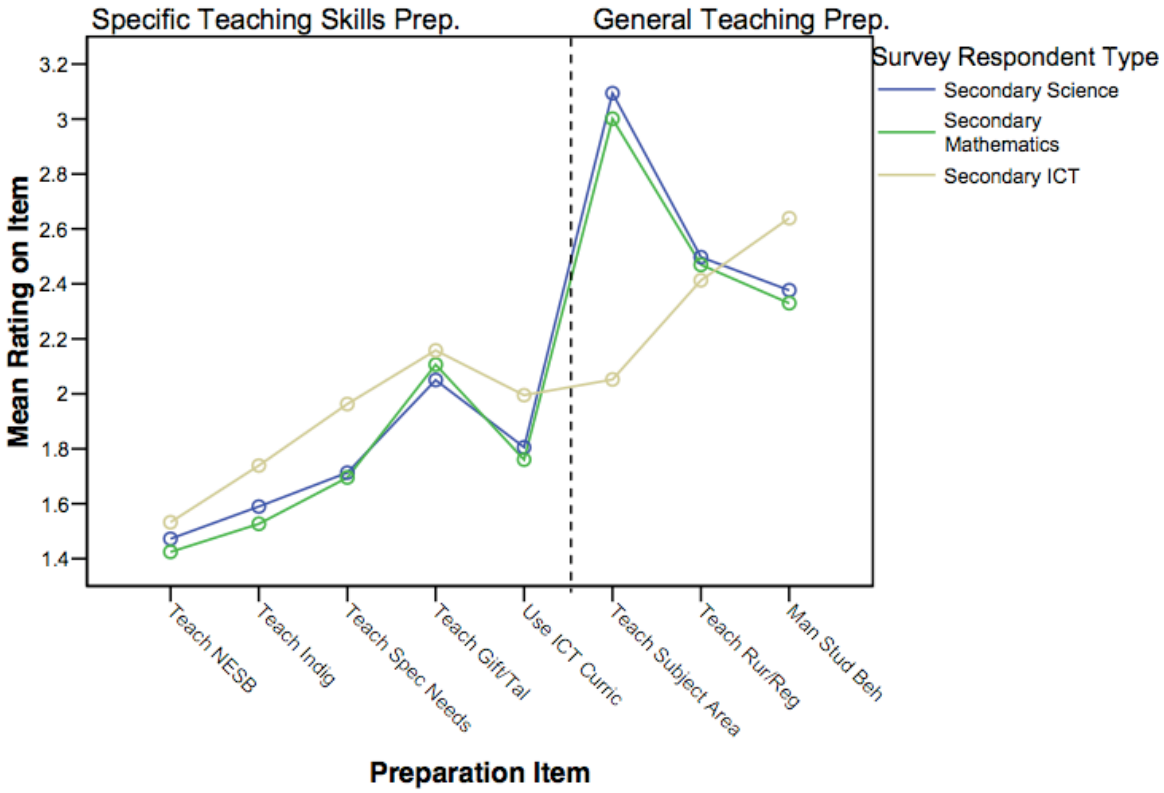

Figure 4.18 Profile plot of secondary teacher preparation items, compared by Survey Respondent Type (science, ICT and mathematics) [ratings on 1 (Not Prepared) to 5 (Extremely Well Prepared) scale] (Table 4.17 for item names in full)

[34] Wilks' lambda = .953, $F(4, 2604) = 15.87$, $p < .001$, partial $\eta^2 = .02$

4.5.3 Summary of findings and implications

Primary teacher preparation

1. The findings suggest that primary teachers in general feel they were well prepared by their teacher education for teaching mathematics, though considerably less so for teaching science. This was the case for teachers of all ages, indicating that there has been little variation over time in the emphasis given to teaching mathematics and science at the primary level.
2. Most primary teachers also seem to feel that they were reasonably well prepared for teaching in rural and regional schools, and for managing student behaviour. While there was little variation with age in the former, the youngest teachers tended to feel they were better prepared for dealing with student behaviour than were their older colleagues. This may be due to changes in the way teacher education institutions approach the issue of student management, or to younger teachers having less experience of a range of student behaviours.
3. The evidence suggests that primary teachers were considerably less well prepared for teaching Indigenous and NESB students, and for using ICT across the curriculum. It is reasonable to argue that the significant variation with age across a range of specific teaching skills is indicative of the changes in emphasis in teacher preparation over time, particularly with regard to using ICT, and catering for student diversity in the classroom. Acknowledgement by older teachers that their initial teacher education did not prepare them well for aspects of their current teaching environments underscores the importance of providing ongoing professional development.
4. In relation to specific skill preparation, the findings indicate that primary teachers who lived in provincial cities or regional centres during their initial teacher education felt better prepared in some respects by this experience than did those who were located in metropolitan centres. This was particularly the case for preparation for teaching in rural and regional schools.

Secondary teacher preparation

1. The findings indicate that secondary science and mathematics teachers feel their teacher education prepared them relatively well for teaching their subjects. This was generally the case for teachers of all ages. However, it is also apparent that most ICT teachers feel their initial teacher education did not prepare them well for teaching their subjects. This is understandable given the relative novelty of ICT as a school subject and the dynamic nature of ICT in general.
2. Secondary teachers appear to have been reasonably well prepared for teaching in rural and regional schools, and for managing student behaviour. There is strong evidence that younger teachers feel better prepared by their pre-service education for incorporating ICT and catering for student diversity than do their older colleagues. As with primary teachers, this is probably indicative of changes in the educational landscape over time, and demonstrates the need for ongoing professional development.
3. The findings indicate that secondary science, ICT and mathematics teachers who lived in provincial cities or regional centres during their initial teacher education feel better prepared in some respects by this experience than do those who were located in metropolitan centres. This was particularly the case for preparation for teaching in rural and regional schools.

4.6 TEACHING QUALIFICATIONS

All teachers were asked to describe their levels of qualification and their breadth of teaching experience, both at their current school and in their careers more generally. Responses were analysed using cross-tabulations with a range of variables, including Sex, MSGLC Category of School, Age of Respondent, and School System, to identify any significant variation in teaching qualifications. Overall, more than 85% of all respondents held either a Bachelor's degree (plus an undergraduate or postgraduate diploma) or some type of postgraduate teaching qualification, with females dominating the percentages in each case. Respondents having qualifications at a level less than a B.Ed. were most frequently older than 41 years of age.

4.6.1 Primary teacher qualifications

As shown in Table 4.19, the vast majority of primary respondents (over 78%) held either Bachelor's degree (plus an undergraduate or postgraduate diploma) or some type of postgraduate teaching qualification, with males dominating the percentages in each case. However, there were no significant differences with sex or age of respondent. There were also no significant differences in the qualifications of respondents from different MSGLC categories.

Table 4.19 Level of teaching qualifications of primary teachers and secondary science, ICT and mathematics teachers [a]

	Primary teachers	Science teachers	ICT teachers	Mathematics teachers
<B.Ed	21%	4%	13%	6%
B.Ed	45%	13%	30%	22%
Bach + UG or PG Dip.	19%	58%	32%	52%
PG degree + other	15%	24%	26%	21%
	100%	**100%**	**100%**	**100%**

[a] For an explanation of qualification categories, see Table 3.8.

4.6.2 Secondary teacher qualifications

As shown in Table 4.19, about 96% of secondary science respondents, 87% of ICT respondents and 94% or mathematics respondents held a Bachelors degree or higher qualification. There were no significant variations with Sex or Age of Respondents. There were also no significant differences in the formal qualifications of secondary respondents across the MSGLC categories.

Requirements to teach subjects for which teacher is not formally qualified

Science, ICT and mathematics teachers were asked to indicate whether they were required to teach subjects for which they were not formally qualified. Table 4.20 shows responses to this question, broken down by MSGLC category. These variables were significantly associated[35]. This was primarily due to significantly fewer respondents than expected from Metropolitan Areas and significantly more respondents than expected from Provincial Areas and Remote Areas coming from schools where teachers were required to teach a subject area for which they were not qualified. Conversely, significantly more respondents than expected from

[35] $\chi^2(3) = 75.37$; $p < .001$; Cramer's V = .24

Metropolitan Areas and significantly fewer respondents than expected from Provincial Areas and Remote Areas came from schools where teachers were not required to teach a subject area for which they were not qualified. Figure 4.19 illustrates the contrast in this requirement across geographic regions. On average, respondents in Provincial Areas indicated they are about twice as likely, and those in Remote Areas more than three times as likely as those in Metropolitan Areas to be required to teach a subject for which they are not qualified.

Table 4.20 Secondary respondents indicating that they are required to teach a subject for which they are not formally qualified, compared by MSGLC categories [a]

		MSGLC categories				
		Metropolitan	Provincial City	Provincial Area	Remote Area	Overall
Science teachers	Count	26	32	96	24	178
	% within Row item	14.6%	18.0%	53.9%	13.5%	100.0%
	% within MSGLC	17.8%	27.4%	36.8%	53.3%	31.3%
ICT teachers	Count	12	12	46	13	83
	% within Row item	14.5%	14.5%	55.4%	15.7%	100.0%
	% within MSGLC	21.4%	26.7%	43.0%	65.0%	36.4%
Mathematics teachers	Count	17	24	75	16	132
	% within Row item	12.9%	18.2%	56.8%	12.1%	100.0%
	% within MSGLC	12.2%	18.9%	31.5%	50.0%	24.6%

[a] Shaded cells indicate categories making a significant ($p < .001$) contribution to the overall association between a pair of variables. Pink means *more than an expected number were observed*; green means *fewer than an expected number were observed*. 'Expected' refers to what would be expected if the pair of variables were not associated.

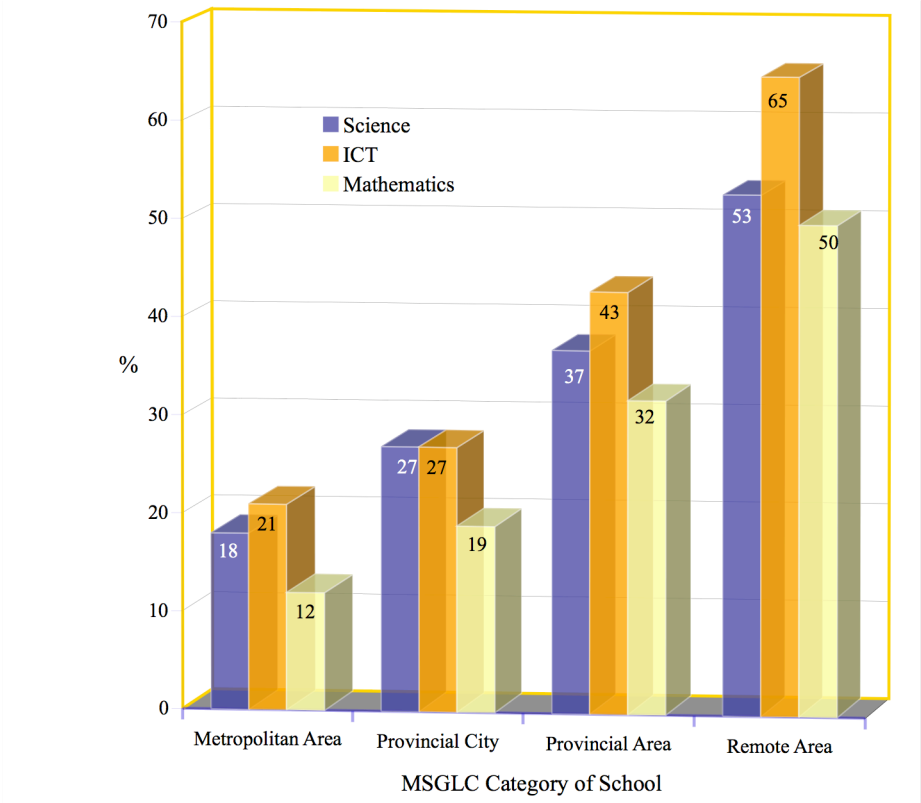

Figure 4.19 Percentages of science, ICT and mathematics respondents indicating they are required to teach subjects for which they are not formally qualified

4.6.3 Summary of findings and implications

1. Overall, more than 85% of respondents held either a Bachelor's degree (plus an undergraduate or postgraduate diploma) or some type of postgraduate teaching qualification.
2. The qualifications of primary and secondary science, ICT and mathematics respondents did not vary significantly with age, sex or geographic location.
3. There was strong evidence that many science, ICT and mathematics teachers are being required to teach subjects for which they are not qualified. Furthermore, the findings suggest that teachers in Provincial Areas are about twice as likely, and those in Remote Areas more than three times as likely as those in Metropolitan Areas to be required to teach a subject for which they are not qualified.
4. The findings also suggest that ICT teachers are more likely to be required to take classes in another subject area than are science teachers. Mathematics teachers are least likely to be asked to take such classes.

The results reported in this chapter are discussed in more detail in Chapter Nine, where they are linked to recommendations. In brief, however, it is apparent that the key findings provide a rural perspective on the overall 'drying up' of human resources in science, ICT and mathematics education across Australia. The most marginal areas, in this case the more remote schools, clearly feel the effects of this teacher shortage first and most dramatically, and the predicted acceleration in teacher retirements over the next five years will only exacerbate the problem. It is hoped that the findings in this chapter regarding motivations for teaching in rural and regional schools will provide some guidance to education authorities grappling with this problem.