

6. MATERIAL RESOURCE AND SUPPORT NEEDS OF TEACHERS

The surveys presented teachers with a set of items relating to material resources, such as textbooks, computers and laboratory equipment, along with support personnel for technical support or to help cater for student diversity. Teachers were asked to rate each item on two scales: the importance of this resource for their current teaching situation, and the availability of this resource at their school. The two ratings for each item were combined to produce a single ‘need’ rating.

6.1 MATERIAL RESOURCE AND SUPPORT NEEDS OF PRIMARY TEACHERS

1. The overall findings summarised in Table 6.1 highlight the priority primary teachers give to adequate ICT resourcing and support. In particular, there appears to be a clear need for additional skilled personnel not only to maintain ICT equipment, but also to help primary teachers incorporate ICT into their teaching.
2. Table 6.1 indicates that the highest non-ICT need among primary teachers is for learning support assistants. In general, the needs of primary teachers appear to be for support personnel rather than material resources such as books, worksheets or AV equipment.
3. The evidence illustrated in Figure 6.1 indicates that primary teachers’ needs in many areas increase with the proportion of Indigenous students in their schools. For the most part, these needs relate to resources and support to cater for student diversity in their classrooms – not only for Indigeneity, but also for special needs and gifted and talented students. This is an important finding, as teachers’ ‘need’ ratings did not vary significantly with MSGLC category of school.

Table 6.1. Overall average ‘need’ scores, standard deviations and valid N for primary respondents’ for Material Resources and Support Personnel items (in descending order of mean ‘need’ score) [Scores can range from 1 to 20]

RESOURCE ITEMS	Mean	s.d.	Valid N
Suitably skilled personnel to assist in integrating ICT in your classroom	10.23	4.12	1506
Suitably skilled ICT support staff	10.07	4.04	1498
Appropriate numbers of computers for student use	9.39	4.01	1505
Suitable software for teaching & learning science & mathematics	9.17	3.65	1499
Suitable learning support assistant(s)	9.08	3.72	1500
Effective maintenance & repair of teaching equipment	8.99	3.42	1486
Computer hardware for your teaching & learning situation	8.95	3.76	1513
Adequate consumables for teaching science	8.72	3.34	1469
A fast, reliable internet connection	8.61	3.55	1517
Suitable equipment for teaching science	8.55	3.23	1493
Science & mathematics resources that address the needs of special needs students	8.51	3.58	1456
Suitable Indigenous Education Assistants	8.44	4.26	1387
Science & mathematics resources that address the needs of gifted & talented students	8.43	3.41	1459
Suitable computer resources for teachers use	8.33	3.34	1504
Access to a wide range of internet resources	8.17	3.22	1515
Adequate consumables for teaching mathematics	8.00	2.87	1442
Suitable library resources for teaching & learning science	7.93	2.79	1492
Science & mathematics resources that address the needs of Indigenous students	7.91	4.01	1389
Science & mathematics resources that address the needs of NESB students	7.86	4.04	1340
Suitable equipment for teaching mathematics	7.76	2.67	1486
Suitable library resources for teaching & learning mathematics	7.50	2.68	1476
Suitable AV equipment	7.39	3.03	1467
Worksheets for teaching science	6.04	2.81	1471
Worksheets for teaching mathematics	5.66	2.58	1461

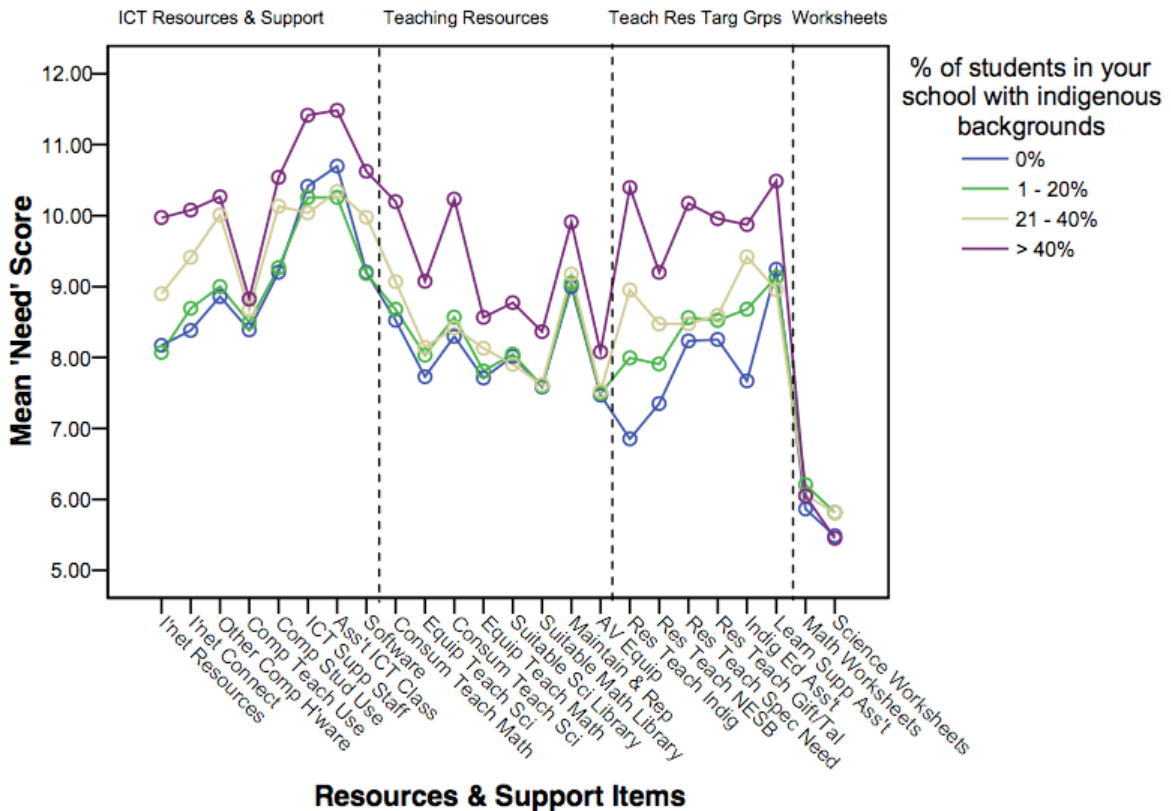


Figure 6.1. Profile plot of mean 'need' scores of primary respondents for the Material Resources and Support Personnel components⁸, compared by percentage of students from Indigenous backgrounds (Table 6.1 for item names in full)

6.2 MATERIAL RESOURCE AND SUPPORT NEEDS OF SECONDARY SCIENCE TEACHERS

1. The overall mean ratings shown in Table 6.2 indicate that science teachers generally see ICT infrastructure and support as the highest priority areas for resourcing.
2. On the basis of results illustrated in Figure 6.2, it appears that science teachers in non-metropolitan schools have a higher need for a range of resources and assistance than their metropolitan colleagues. This is particularly the case for ICT support and maintenance, learning support, and resources to cater for student diversity.
3. Figure 6.2 shows an interesting contrast in the ICT needs of Remote Area science teachers. While their expressed need for computers for student use was lower than that of teachers in other areas, their need for ICT support staff was considerably higher. The comments of Remote Area science teachers suggest that this may be because remote schools have adequate hardware, but lack access to technical support to properly maintain and utilise it.
4. Science teachers in schools with relatively high proportions of Indigenous students appear to have a substantially higher level of need for most resources and support. However, Figure 6.3 suggests this need is not always highest among teachers in schools with the highest proportions of Indigenous students. For many items, teachers in schools with 21-40% Indigenous students indicated a higher need than did those with >40% Indigenous students. One possible explanation is that schools with the highest populations of such students qualify for extra support and/or funding. Further research is needed to investigate this finding.

⁸ The principal components analysis of 'need' items produced four substantial components: ICT Resources, Teaching Resources for Targeted Groups, General Teaching Resources, and General Teaching Support.

Table 6.2. Overall average 'need' scores, standard deviations and valid N for science respondents' ratings of the Material Resources and Support Personnel items (items listed in descending order of mean 'need' score) [Scores can range from 1 to 20]

SCIENCE RESOURCE AND SUPPORT PERSONNEL ITEMS	Mean	s.d.	Valid N
Appropriate numbers of computers for student use	10.11	3.83	552
Suitablely skilled personnel to assist in integrating ICT in your classroom	9.80	4.07	549
Suitable software for teaching & learning science	9.73	3.77	542
Suitable learning support assistant(s)	9.65	3.60	538
Other computer hardware for teaching & learning science	9.56	3.63	542
Suitablely skilled ICT support staff	8.99	3.76	542
Effective maintenance & repair of teaching equipment	8.88	3.60	544
Classroom resources suitable for teaching science to gifted & talented students	8.85	3.54	531
Classroom resources suitable for teaching science to special needs students	8.85	3.76	520
A fast, reliable internet connection	8.81	3.70	551
Suitable computer resources for teachers use	8.62	3.71	554
Suitable Indigenous Education Assistants	8.54	4.38	518
Access to a wide range of internet science resources	8.42	3.49	546
Well-equipped science laboratories	8.24	3.10	552
Classroom resources suitable for teaching science to Indigenous students	8.15	4.05	519
Classroom resources suitable for teaching science to NESB students	7.87	3.89	489
Suitable laboratory assistant(s)	7.74	3.70	545
Suitable library resources (e.g., magazines, books) for teaching & learning science	7.73	3.24	547
Sufficient laboratory consumables	7.70	2.87	548
Suitable AV equipment	7.33	2.91	546
Class sets of suitable texts	6.69	3.32	543
Worksheets for classroom teaching	6.01	2.90	544

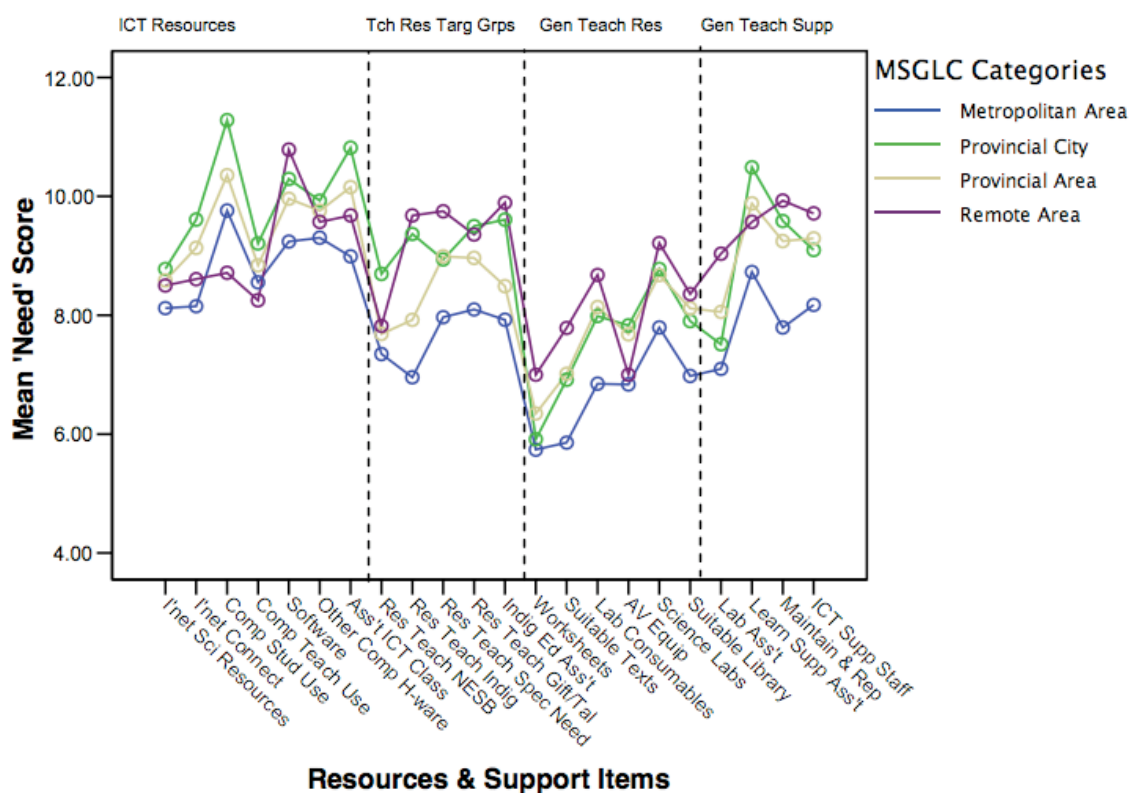


Figure 6.2. Profile plot of mean 'need' scores of science respondents for the Material Resources and Support Personnel components, compared by MSGLC categories (see Table 6.2 for item names in full)

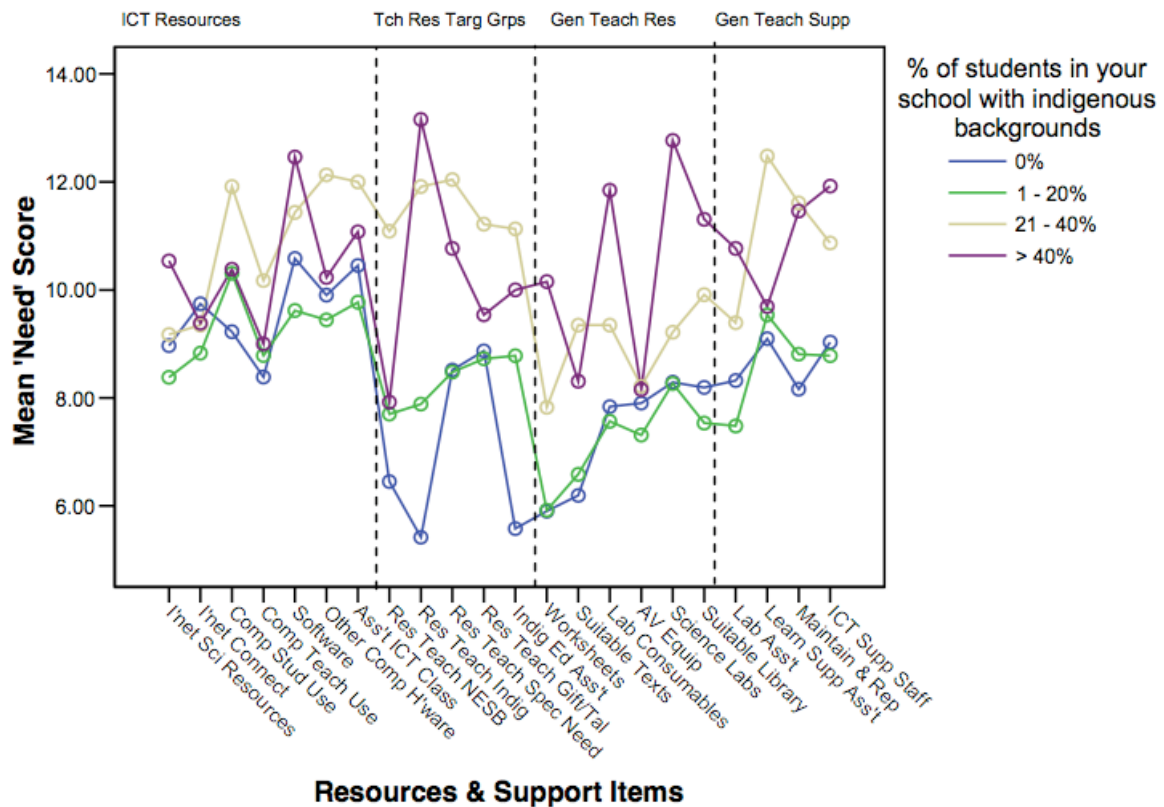


Figure 6.3. Profile plot of mean 'need' scores of science respondents for the Material Resources and Support Personnel components, compared by percentage of students from Indigenous backgrounds (see Table 6.2 for item names in full)

6.3 MATERIAL RESOURCE AND SUPPORT NEEDS OF SECONDARY ICT TEACHERS

1. The mean ratings shown in Table 6.3 suggest strongly that ICT teachers in general are most in need of support personnel to help them manage ICT resources and assist teachers and other staff to use these resources effectively. This finding supports the priorities given to greater ICT support by other teacher groups.
2. ICT teachers also expressed a high need for learning support assistants.
3. The geographic variation shown in Figure 6.4 suggests that ICT teachers in non-metropolitan schools have a higher need for a range of resources and support, particularly for addressing student diversity and managing ICT resources. ICT teachers in Remote Area schools have a considerably higher need for basic teaching resources, such as worksheets, texts and library books.
4. ICT respondents were asked about the time allocated and required for supportive non-teaching tasks. Figure 6.5 indicates that they spent considerably more time managing and maintaining ICT resources, and assisting other staff to use ICT than they were allocated. This increasing demand on their time appears to be the greatest area of concern for many ICT teachers.

Table 6.3. Overall average 'need' scores, standard deviations and valid N for ICT respondents' ratings of the Material Resources and Support Personnel items (items are listed in descending order of mean 'need' score) [Scores can range from 1 to 20]

ICT RESOURCES AND SUPPORT ITEMS	Mean	s.d.	Valid N
Suitably skilled personnel to assist in integrating ICT in your classroom	10.14	4.00	223
Skilled ICT resource management personnel	9.71	4.16	217
Suitable learning support assistant(s)	9.65	3.77	220
Up-to-date ICT resources for teacher use	9.43	3.49	224
Effective maintenance & repair of teaching equipment	9.32	3.16	223
ICT resources that address the needs of gifted/talented students	9.18	3.95	211
Appropriate number of computers for student use	9.08	3.390	225
Suitable Indigenous Education assistant(s)	8.90	4.30	210
ICT resources that address the needs of special needs students	8.87	3.89	213
Well-equipped learning spaces for teaching ICT	8.78	3.31	223
ICT resources that address the needs of NESB students	8.59	3.90	198
Suitable AV equipment	8.55	3.34	224
Other computer hardware for teaching & learning ICT	8.48	3.13	224
Suitable software for teaching & learning ICT	8.44	3.03	224
Fast, reliable internet connection	8.23	3.65	224
ICT resources that address the needs of Indigenous students	8.08	3.91	209
Class sets of suitable texts	7.60	3.62	216
Suitable library resources for teaching & learning ICT	7.58	3.26	217
Worksheets for classroom teaching	7.03	3.01	214

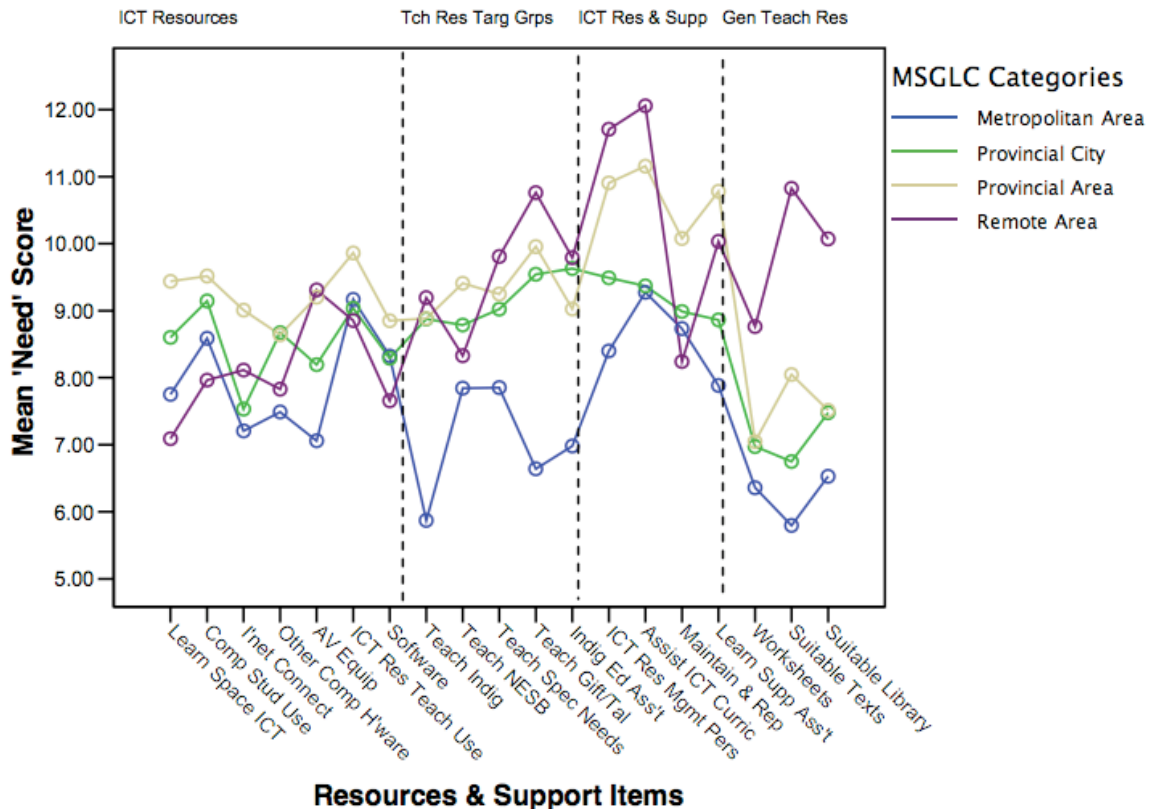


Figure 6.4. Profile plot of mean 'need' scores of ICT respondents for the Material Resources and Support Personnel components, compared by MSGLC categories (see Table 6.3 for item names in full)

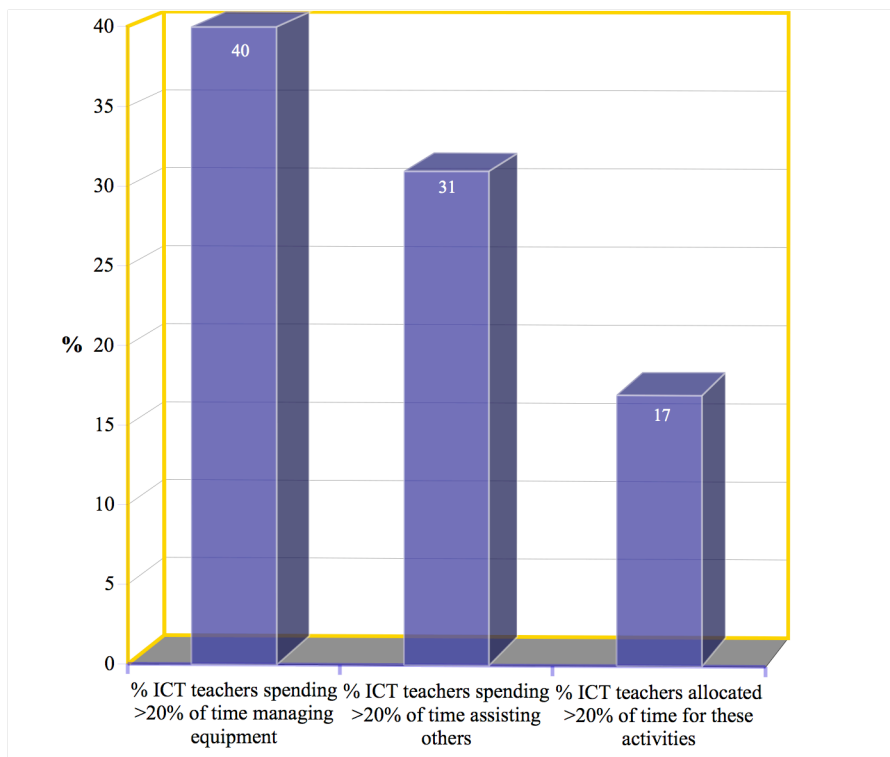


Figure 6.5. Percentages of ICT respondents reporting that >20% of their time is spent managing equipment and assisting others

6.4 MATERIAL RESOURCE AND SUPPORT NEEDS OF SECONDARY MATHEMATICS TEACHERS

1. The mean ratings shown in Table 6.4 indicate that mathematics respondents overall considered ICT equipment and technical support to be their greatest area of resourcing need. Like primary and science teachers, mathematics teachers felt that sufficient computers for student use should be a priority area.
2. Mathematics teachers also see a substantial need for learning support assistants. Table 6.4 shows a substantial need for resources to cater for the diversity of student abilities in mathematics.
3. In general, schools with moderate to high proportions of Indigenous students appear to be in greater need of most resources. However, Figure 6.6 indicates that the variation in needs across schools with different proportions of Indigenous students illustrates that the greatest needs are not always with schools with the highest Indigenous populations. For many material and personnel resources, teachers in schools with between 21% and 40% Indigenous students expressed a higher need than did those with higher populations.

Table 6.4. Overall average ‘need’ scores, standard deviations and valid N for mathematics respondents’ ratings of the Material Resources and Support Personnel items (items are listed in descending order of mean ‘need’ score) [Scores can range from 1 to 20]

MATHEMATICS RESOURCE AND SUPPORT ITEMS	Mean	s.d.	Valid N
Suitably skilled personnel to assist in integrating ICT in your classroom	9.72	4.34	517
Appropriate number of computers for student use	9.44	3.69	520
Suitable learning support assistant(s)	9.24	3.61	523
Other computer hardware for teaching & learning mathematics	9.06	3.76	512
Suitable software for teaching & learning mathematics	8.91	3.69	520
Suitably skilled ICT support staff	8.87	3.75	518
Mathematical resources that address the needs of gifted/talented students	8.59	3.48	511
Suitable computer resources for teacher use	8.58	3.63	523
Mathematical resources that address the needs of special needs students	8.57	3.72	514
Suitable Indigenous Education assistant(s)	8.21	4.05	501
Effective maintenance & repair of teaching equipment	8.07	3.21	515
Sufficient mathematics equipment & materials	8.02	3.03	525
Fast, reliable internet connection	7.98	3.68	523
Mathematical resources that address the needs of Indigenous students	7.91	4.24	488
Concrete materials for mathematics teaching	7.85	3.11	524
Mathematical resources that address the needs of NESB students	7.80	4.05	462
Access range of internet mathematics resources	7.78	3.45	517
Student access to scientific calculators	7.55	3.30	520
Student access to graphics calculators for in class	6.84	3.41	519
Class sets of suitable texts	6.50	3.22	518
Suitable library resources for teaching & learning mathematics	6.46	2.97	515
Suitable AV equipment	6.39	3.24	520
Worksheets for classroom teaching	6.14	2.77	526

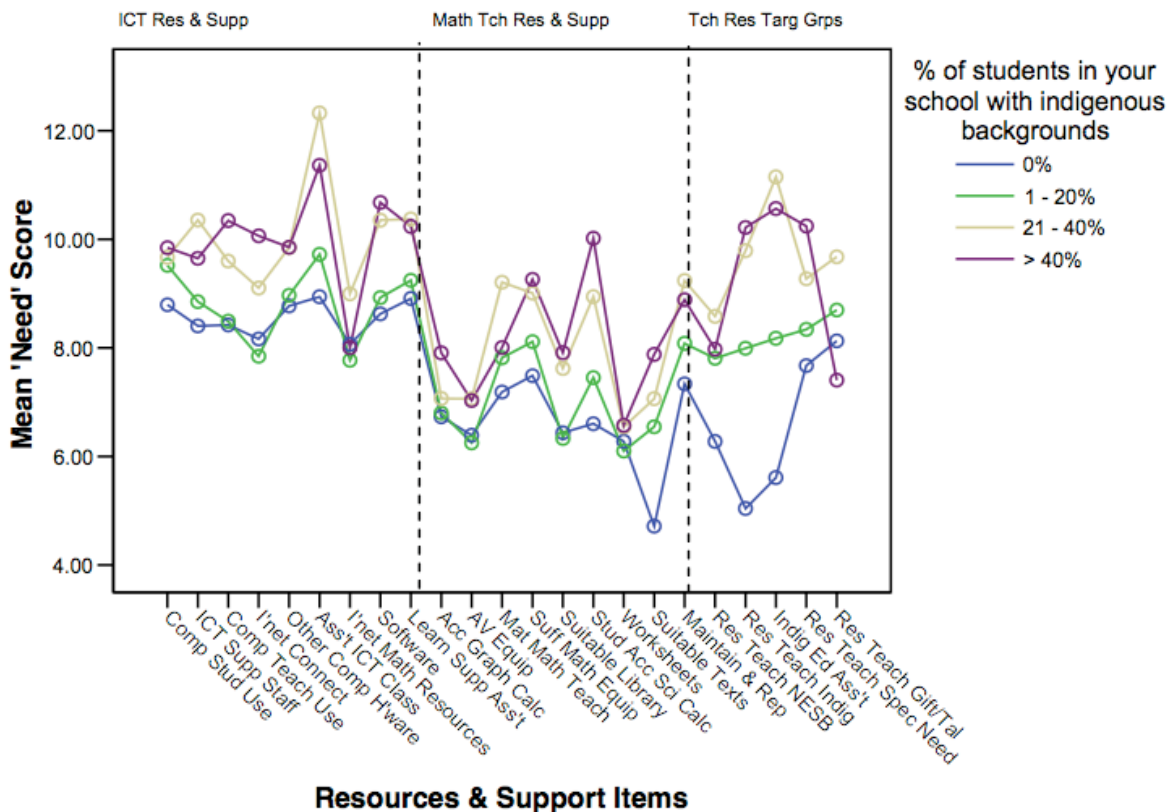


Figure 6.6. Profile plot of mean ‘need’ scores of mathematics teachers for the Material Resources and Support Personnel components⁹, compared by percentage of students from Indigenous backgrounds (see Table 6.4 for item names in full)

⁹ A principal components analysis of the ‘need’ items showed three substantive components: Alternative and Extension Activities for Targeted Groups, External Competitions and Activities for Students, and Time Allocated to Teach Syllabus Requirements.

6.5 DISCUSSION

Teachers' responses to the questions about material resource and support needs revealed many commonalities and several interesting differences. The most obvious commonality was the high priority teachers placed on ICT resources and assistance. It is significant that the first or second priority of every teacher group was for more ICT support personnel to help integrate ICT into their teaching. The need for additional assistance in maintaining and managing ICT resources also appears to be very high. These findings were consistent with the high demand on ICT teachers to fill these roles additional to their teaching loads.

The results indicate that a third priority of primary, science and mathematics teachers is for sufficient computers for student use. It was noted that all teacher groups indicated a substantially higher need for computers for their students than for themselves. This suggests that most schools are catering reasonably well for their staff in terms of hardware and software for lesson preparation and administration, but are challenged by the evolution of computers into an increasingly mainstream learning medium.

The high need for learning support personnel was also apparent among all teacher groups. In addition, the relatively high priority teachers gave to resources for special needs, gifted and talented, and in some schools, Indigenous students, indicates that teachers require more support in catering for the diversity of needs among their students.

Conventional resources such as textbooks, worksheets and science equipment (for secondary science teachers) generally rated lower than most other nominated items. However, this should not necessarily be construed as indicating that teachers no longer see these resources as important. Need scores were generated from teachers' ratings of both the importance and availability of resources for their teaching situation. A lower rating may therefore indicate that a resource is relatively important, but readily available.

The findings indicate that science and ICT teachers in non-metropolitan areas have a greater unmet need for resources and support personnel in comparison to their metropolitan peers. The geographical trend is most apparent among science teachers, with those in non-metropolitan schools reporting a greater unmet need for a broad range of resources. Considering the importance of equipment and practical work in science, it is reasonable to argue that students in Metropolitan schools have an advantage over those in Provincial and Remote schools.

The geographical trend in resourcing for ICT teachers is less extensive, but indicative of inequities in the area of resources and support to cater for student diversity and general teaching resources. Hardware and connectivity needs in general appear to vary little with geographic location but the necessary support to manage these resources varies considerably, with the needs of Provincial and Remote schools for this support often unmet.

There is strong evidence that teachers in schools with relatively high proportions of Indigenous students feel less well resourced than those in other schools. Primary school teachers in schools where Indigenous students make up more than 40% of the student population appear in greatest need. While relatively well resourced in terms of worksheets, computers and audio visual equipment, teachers in these schools have a greater need for resources to address student diversity, equipment to help them teach science and mathematics, and support personnel to help them get the most out of the ICT equipment they have. Science and mathematics teachers in schools with relatively high Indigenous populations also appear in need of better support and resourcing. The higher needs for resources to cater for special needs and gifted and talented students is perhaps indicative of the range of student abilities in these schools.