Sign Language Users’ Education and Employment Levels: Keeping Pace with Changes in the General Australian Population?

Louisa Willoughby*

Monash University

Received July 2, 2010; revisions received November 29, 2010; accepted December 13, 2010

This article draws on data from the 2006 Australian census to explore the education and employment outcomes of sign languages users living in Victoria, Australia, and to compare them with outcomes reported in the general population. Census data have the advantage of sampling the entire population on the one night, avoiding problems of population comparability and sampling errors that may affect survey-based research. The analysis shows that sign language users are approaching parity with the general population on some measures of educational attainment, but there remains a gap in employment levels and particularly income. Sign language users aged 25–44 years show higher attainment than those in the 45–64 age group, suggesting that educational reforms in the last 30 years are having a positive impact on both education and employment levels. However, younger sign language users are still struggling to keep pace with improvements in certain employment outcomes that are seen in the general population.

As in much of the western world, the last 60 years have seen major changes in the educational and employment landscape of Australia. At the end of World War II, public secondary education in Australia was still very much in its infancy. The clear expectation was that all but a handful of students would leave school at 15 and enter the workforce directly, leading to a situation where only 13% of the Year 7 class of 1945 stayed at school to complete Year 10 in New South Wales in 1948 (Burke & Spaull, 2001). The 1950s and 1960s saw a steady increase in the proportion of students staying at school beyond the compulsory years and also significant expansion in the number of publically funded university places. However, Year 12 completion rates remained low by modern standards: as late as 1979, Australia’s apparent Year 12 retention was still only 34.7% (Burke & Spaull, 2001) and only 20% of Year 12 graduates went on to higher education (Long, Carpenter, & Hayden, 1999).

From the 1970s onward, the number of jobs available to early school leavers began to contract in response to the oil shock and the gradual decline of manufacturing in Australia, and those jobs that remain tend to be low-paid, unstable, and offer minimal opportunities for advancement (Punch, Hyde, & Power, 2004). Partly in response to this, Australian educational policy of the 1980s and early 1990s focussed on expanding upper secondary and tertiary education to quite dramatic effect. By 1994, Australia’s apparent Year 12 retention rate had risen to 74.6% (Burke & Spaull, 2001) and the proportion of Year 12 graduates going on to higher education had increased to 38% (Long et al., 1999). In the years since then, there have been mild increases in some measures of upper secondary and higher education participation, but in general terms participation rates seem to have plateaued (Aungles, Karmel, & Wu, 2000; Lamb, Dwyer, & Wyn, 2000; Universities Australia, 2008).

Deaf education in Australia has also seen significant change over the past 60 years, which has dramatically altered the educational opportunities available to deaf Australians.® Up until the 1950s, virtually all deaf students attended residential schools for the deaf...
located in the capital city of their state. These residential schools offered a strictly oralist education and concentrated on teaching basic literacy and numeracy skills and preparing students for working in low-skilled manual jobs, rather than offering pathways to upper secondary and tertiary education (Bonser & Burns, 1998). From the mid 1950s onwards, Australian deaf educators began to adopt mainstreaming enthusiastically and this, together with improvements in hearing aid technology and high rates of cochlear implantation, has led to a situation where it is estimated 83% of Australian deaf and hard-of-hearing students are now educated in mainstream settings (Johnston, 2004; Power & Hyde, 2002). The remaining students are mostly educated in specialist “units” or “facilities” within mainstream schools, with only a small number attending stand-alone specialist schools for the deaf (Punch & Hyde, 2010). As will be shown in this article, mainstreaming has by no means eradicated educational inequalities between deaf and hearing students, but does at least mean deaf students theoretically have access to the same subject choice and option to complete senior secondary education as their hearing peers.

An important change that has taken place in deaf education in Australia in the last 30 years is in the role and status of Auslan (Australian sign language). Although it must be stressed that the clear majority of children continue to be educated in an oral environment, limited Auslan options have begun to emerge. Australia’s first Auslan-English bilingual programs were established at schools for the deaf in the early 1990s and by 2000 at least one program was running in every state except Queensland (Komesaroff, 2001). State governments have also shown some willingness to fund Auslan-English educational interpreters for Deaf students attending mainstream settings or specialist deaf unit—although here it must be stressed that access is by no means guaranteed (see Komesaroff, 2008, for an overview of Australian legal disputes on this point). These small initiatives have added valuable alternative educational pathways for students who use Auslan as a primary method of communication and may help to boost school performance and retention rates in this group (Komesaroff, 2001).

The discussion so far has focussed on school education, but deaf students in Australia also saw their access to tertiary education improve significantly with the passage of the Disability Discrimination Act in 1992. The Act both prohibits discrimination on the basis of disability and requires tertiary institutions to make “reasonable accommodations” to support the needs of disabled students (the nature of these accommodations is clarified in the Disability Standards for Education of 2005—in practice they have encompassed such things as the provision of Auslan interpreters, note takers, tutoring, extra time in exams and technologies such as FM systems and hearing loops to aid their classroom participation [Clark, 2007a]). Prior to the passage of the Act, a number of tertiary education providers did provide support services for their deaf students. However, the nature of these support services was highly variable from institution to institution and institutions were under no obligation to accede to any support requests made by students with disabilities. Exactly how tertiary providers can best support their deaf students remains a point of debate both in Australia and overseas, and it is clear that not all obstacles that deaf students have been removed (cf. Hyde et al., 2009; Lang, 2002). However, the passage of the Act has created a legal guarantee that minimum standards will be met and helped to make access and equity issues central policy issues for the Australian higher education section (McLean, Heagney, & Gardner, 2003).

The educational developments outlined above raise a number of important questions about the degree to which deaf Australians are improving their educational and occupational position in absolute and relative terms. Historically, studies of deaf people’s educational attainment around the world have shown a wide gap between deaf people’s education levels and those seen in the general population (Barnartt, 2006; Bat-Chava et al., 1999; Richardson, 2001; Welsh & Macleod-Gallinger, 1992). To take two Australian examples, a survey of deaf students who left school in 1960 found that none of the 46 respondents had any postsecondary education (AAD 1973, cited in Winn, 2007), and the study of Bonser and Burns’ (1998) of around 850 deaf people living in New South Wales found only 7.6% held an associate diploma.
In absolute terms, it is clear that deaf people's educational outcomes are improving. In the United States, for example, Billies et al. (2003) note that the number of deaf and hard-of-hearing students in postsecondary education programs almost doubled in the 10 years to 2003 (cited in Richardson, Marshark, Sarchet, & Sapere et al., 2010), whereas Barnatt (2006) reports the proportion of deaf/hard-of-hearing men and women with at least some college education almost doubled between 1972 and 1990–1991. In relative terms, the data are more mixed. In a recent study of deaf people's educational attainment in Sweden, Rydberg, Gellerstedt, and Danermark (2009) found that the attainment gap with the reference population was smallest in the 25–34 age group and increased in each 10-year age band. However, the overall gap remains significant, and the deaf population continues to lag the reference population 5%–21% in the proportion of people having undertaken 3 years or more of postsecondary education. Drawing on older data from the United States, Barnatt (2006) noted that while the rate of college education increased in the U.S. deaf population between 1972 and 1990–91, the increase was not as large as that seen in the general population. Given these mixed findings from overseas, the present article will explore whether Australians sign languages users are keeping pace with educational and occupational outcomes in the general population by comparing outcomes from sign languages users aged 25–44 and 45–64 years with their age mates in the general population and with each other.

For the general population, there is a strong correlation between level of education, occupation, and earnings, and a number of U.S. studies (principally sampling graduates of college programs for the deaf) have found that education remains a significant predictor of occupation and earnings for deaf people too (Schroedel & Geyer, 2000; Welsh & Macleod-Gallinger, 1992; Welsh & Walter, 1987). Welsh and Macleod-Gallinger (1992) give a clear illustration of the effect college education has on employment, occupation, and relative earnings among their sample of 6,000 deaf students who had attended U.S. colleges. They found that those deaf students who left college without a degree were more likely to be unemployed (19%) than those who completed a sub-bachelor degree (15%) who were in turn much more likely to be unemployed than those with a bachelor degree or higher (3%). Similarly, although only 2% of those with no college education worked as managers and professionals and 34% were machine operators or laborers, 64% of those with a bachelor degree or higher had managerial/professional work and only 6% worked in laboring roles. Although Welsh and Macleod-Gallinger (1992, p. 197) found that there was always an income gap between the deaf students in their sample and similarly educated hearing peers, they found that it decreased markedly as the deaf students’ education level increased. Thus, deaf people who left college without a degree earned 32% less than the national average for people with only high school education, with the different declining to 21% for those with a sub-bachelor degree, 17% for a bachelor degree, and only 11% for those holding a masters’ degree.

Although there is no Australian data explicitly matching education and employment outcome of deaf individuals, it seems likely that low levels of education attainment play a role in the high rates of unemployment and employment in relatively low-skilled occupations reported in several studies. Both Bonser and Burns (1998) and Winn (2006) found deaf people in their surveys had an unemployment rate three times higher than that seen in the general population. This unemployment is often protracted: for example, Winn found a mean length of unemployment was 2.87 years for men and 2.63 years for women and that some men were unemployed for as long as 11 years. Those deaf people who are in employment tend to cluster in relatively low-level positions. Within the Australian Deaf community, government bureaucracies and trades are frequently mentioned as the primary employers of deaf people (Department of Family and Community Services, 2004), whereas surveys by Hyde (1988 cited in Winn 2007), Bonser and Burns (1998), and Winn (2006) all recording trades and clerical work as the two largest employers of deaf Australians. Findings suggest that there has been little change in the occupational position of deaf Australians over the past 20 years, although no study has explicitly set out to measure this point. Given that concerns have been raised in both the United States and Australia that
deaf people would be disproportionately affected by contractions in the manufacturing sector (Punch et al., 2004; Watson & Boone, 1998), no change could potentially be seen as good news and evidence that deaf people are to some extent keeping up with occupational changes in the general population. However, the past 20 years have seen changes such as the passage of the Disability Discrimination Act and the widespread adoption of text-based electronic communication (e.g., e-mail, SMS) that should have worked to remove at least some of the barriers deaf people face in seeking employment and career advancement in Australia. If deaf Australians’ employment prospects truly are no better than they were 20 years ago, this would suggest that many government policies designed to improve deaf people’s education outcomes, remove communication barriers in the workplace, and improve employer attitudes toward hiring deaf staff have been ineffectual and need to be rethought.

In order to explore the issues outlined above, this article draws on data on educational attainment and employment outcomes from the 2006 Australian Census. It compares data across two age groups (25–44 and 45–64) and between sign language users and members of the general population. The data were commissioned from the Australian Bureau of Statistics by the Victorian Deaf Society as part of a wider research project examining educational and employment outcomes in the Victorian Deaf population (Willoughby, 2009). Because the census asked the same questions of the entire Australian population on the same night, it avoids many of the issues surrounding representative sampling or the comparability of questions/data coding that may have undermined the accuracy of previous survey-based studies of educational or occupational attainment. Three research questions will be explored in this article:

- How do educational and employment outcomes for sign language users compare to those seen in the general population?
- How do educational and employment outcomes vary between the two age groups of sign language users?
- Is there a relationship between a group’s level of educational attainment and their reported employment outcomes?

Methodology

As mentioned above, this article draws on data extracted from the 2006 Australian census. The census does not specifically ask about respondents’ hearing level; however, a subpopulation of sign languages users can be identified from answers to the question “Does the person speak a language other than English at home? (if so specify).” For this project, the signing population is defined as all people who called their language “Auslan” (Australian Sign Language), “sign language,” or any other terms (such as ASL) that allowed the language to be identified as a Deaf sign language.

Using a question on language use at home as a proxy for identifying members of a community is problematic whether the group concerned are Deaf or any other ethnolinguistic minority. Kipp, Clyne, and Pauwels (1995, p. 26) have noted that the “at home” specification leads to speaker numbers being undercounted for most ethnic languages, as large numbers of community members use English at home but their ethnic language in a variety of other settings (a problem exacerbated for Deaf people since the vast majority are born to hearing parents). For Deaf people too, the use of the verb *speak* may make them think that the question does not apply to a sign language (Ozolins & Bridge, 1999). This latter problem was however mitigated in 2006 by a public awareness campaign from Australian deafness organizations reminding members that they could list Auslan on the census.

The absence of a question about hearing disabilities means there is no way of knowing how many sign language users are deaf themselves and how many are hearing family members who use Auslan in the home environment. However, it should be noted that 2006 census figures on the size of the Australian signing population align reasonably closely with other estimates of the size of the Australian Deaf community (Access Economics, 2008; Johnston, 2004), so it likely that there is a large overlap between these two groups (for more on this point see Willoughby, 2009). This article will also evaluate the census data in the light of previous studies, which gives the opportunity to identify and examine any findings that do seem to differ substantially from what one might expect. It also gives
the reader a sense of how education and employment outcomes for sign language users in Victoria in 2006 compare with recent findings from other countries and historical data from the Australian context.

In this article, education and employment outcomes are examined through five indicators:

- Highest educational attainment
- Highest year of schooling
- Labor force status
- Occupation
- Individual weekly income.

Although the wider project examined data across four age groups (15–24, 25–44, 45–64, and 65+), this article concentrates on the two middle-age groups. The 15- to 24-year-old group was excluded from this study as many in this age group are yet to finish their education and establish themselves in careers, whereas the 65+ group was excluded as 65 is the normal retirement age in Australia. Table 1 provides an overview of the size of the Victorian population in each of the groups under discussion.

The two age groups chosen for this study in many ways represent distinct generations with very different experiences of education. Those in the 45–64 age group would have completed their secondary education in the early 1960s–1980s, during an era when the majority of students left school at the end of Year 10 for apprenticeships or to enter the workforce directly. The younger age group, by contrast, would have completed their secondary education in the early 1980s–2000s at a time when high school retention rates and enrolments in tertiary education were booming. Younger members of this age group would have also completed their education after the passage of the Disability Discrimination Act in 1992, further increasing their access to postcompulsory education.

### Education

Education level is measured in two distinct ways on the census: highest qualification and highest year of schooling. For this project, data on highest educational attainment were collapsed into four categories: bachelor degree or higher (equivalent to 3+ years of university study), certificate and diploma level (encompassing tertiary vocational courses of two years or less), school education only, and no attainment (i.e., did not attend school). Table 2 presents figures for each group.

These figures paint a positive picture of educational attainment, with sign language users as likely as members of the general population to hold certificate or diploma-level qualifications and approaching the general population in rates of holding a bachelor degree or higher. Sign language users in the 45–64 age

<table>
<thead>
<tr>
<th>Age group</th>
<th>Sign language users</th>
<th>General population</th>
<th>Signers per 10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>25–44 years</td>
<td>736</td>
<td>1,419,228</td>
<td>5.2</td>
</tr>
<tr>
<td>45–64 years</td>
<td>434</td>
<td>1,214,001</td>
<td>3.6</td>
</tr>
<tr>
<td>Total all ages</td>
<td>2,118</td>
<td>4,932,422</td>
<td>4.3</td>
</tr>
</tbody>
</table>

**Table 1** Signing and general population by age group, Victoria

<table>
<thead>
<tr>
<th>Highest qualification</th>
<th>25–44 years</th>
<th>45–64 years</th>
<th>Percentage point change between 25–44 and 45–64 age groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor degree or higher</td>
<td>21</td>
<td>17</td>
<td>-4 -8</td>
</tr>
<tr>
<td>Certificate or diploma</td>
<td>26</td>
<td>23</td>
<td>-3 -2</td>
</tr>
<tr>
<td>School education only</td>
<td>39</td>
<td>40</td>
<td>+1 +8</td>
</tr>
<tr>
<td>No educational attainment</td>
<td>3</td>
<td>3</td>
<td>0 0</td>
</tr>
<tr>
<td>Not stated</td>
<td>11</td>
<td>18</td>
<td>+7 +2</td>
</tr>
</tbody>
</table>

*Note. Percentages may not equal 100 due to rounding.*

Downloaded from http://jdsde.oxfordjournals.org/ by guest on June 6, 2013
group have had particular success in approaching education parity: in 2006, 40% held a tertiary qualification, as against 41% in the general population. The gap for the 25–44 age group is slightly larger (47% as against 51%) but should still be viewed as a strong achievement given the low rates of tertiary education reported in previous studies of the Australian Deaf community (Bonser & Burns, 1998; Department of Family and Community Services, 2004). Given that Australian tertiary institutions have only been mandated to provide support services to deaf and other students with special needs since the mid-1990s, it seems highly plausible that many of the sign language users recorded above would have completed their tertiary education later in life rather than straight out of school. This is supported by Clark’s (2007b) analysis of data on students completing vocational education courses in Victoria in 2003, which found that 59% of hearing impaired students were in the 30– to 59-age bracket. The apparent enthusiasm for further education within the Victorian Deaf community helps account for the strong gains in educational attainment the community has seen in recent years.

Looking specifically at the proportion of people holding bachelor degrees or higher shows some of the inherent complexity in age-graded measures of educational attainment and the need for caution in interpreting them. In the younger age group, the proportion of sign language users holding a university qualification rises to 21% from 17% in the older population, but this does not keep pace with change in the general population, where the rate increases to 26% from 18%. On the face of it, this suggests that young sign language users are not keeping pace with educational advances in the general population and that Australia will face the same difficulties equalizing higher education outcomes for deaf people as have been reported in the United States and Swedish literature (Barnartt, 2006; Rydberg, Gellerstedt, & Danermark 2009). However, the main reason results for the younger generation of sign language users look unimpressive is because the older generation have been so successful in catching up to the general population in their rate of higher education in recent years. This is a very different situation to that seen in all previously cited studies, where the educational gap worsened the further back in time one goes or the older the sample populations are. Thus, rather than worrying that the younger age group of sign language users have not quite caught up to the general population in rate of university graduation, we should be pleased (and perhaps even pleasantly surprised) that the older generation have managed to all but erase a long-standing education gap. The evidence also suggests that sign language users in Victoria are more likely to return to tertiary study than members of the general population, so there is hope that over the course of their lifetime the proportion of sign language users in the younger age group holding tertiary qualifications will grow closer to that seen among their age mates in the general population.

One issue in using the data presented above to measure educational attainment is that there are large differences within each category in the level of education people have achieved. Thus, school education only covers everything from someone who left school as soon as legally possible to someone who completed Year 12 with strong results. Similarly, the certificate or diploma category covers everything from the 3-month Certificate I in General Education, designed principally as a remedial program for early school leavers, up to 2-year-long technical qualifications. This raises the question of whether sign language users really are keeping pace with the general population in educational outcomes or whether the census figures mask an underlying inequality.

A partial answer to this question may come from data presented in Clark (2007b) on the qualifications studied by hearing impaired students aged 15–30 years old enrolled in Victorian vocational education from 2003 to 2005. It shows that hearing-impaired students were enrolled in low-level Certificate I and II courses at much higher rates than members of the general student body. The difference was particularly marked at the Certificate I level, which was chosen by 14% of hearing-impaired students, but only 5% of the general student population. Conversely, hearing-impaired students were underrepresented in higher level certificate and diploma courses, with the clearest difference seen at the Certificate III level (studied by 32% of hearing impaired students and 38% of the general population). A t-test of Clark’s raw data shows these differences in
distribution to be highly significant ($p < .001$). Thus, although census data suggest that sign language users might be attaining parity with the general population in attending vocational tertiary courses, Clark provides strong evidence that the qualifications they are studying and attaining are at a lower level than those commonly studied in the general population.

Because of the potential for certificate and diploma-level figures to mask poor educational outcomes for deaf students, it is important to also look at census figures on level of secondary education. Table 3 presents data from all four groups on highest year of schooling:

<table>
<thead>
<tr>
<th>Highest year of schooling</th>
<th>25–44 years</th>
<th>45–64 years</th>
<th>Percentage point change between 25–44 and 45–64 age groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Signing (%)</td>
<td>General (%)</td>
<td>Signing (%)</td>
</tr>
<tr>
<td>Year 12 or equivalent</td>
<td>45</td>
<td>57</td>
<td>22</td>
</tr>
<tr>
<td>Year 11 or equivalent</td>
<td>17</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Year 10 or equivalent</td>
<td>16</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td>Year 9 or equivalent</td>
<td>5</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Year 8 or below</td>
<td>6</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>Did not go to school</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Not stated</td>
<td>7</td>
<td>7</td>
<td>13</td>
</tr>
</tbody>
</table>

Table 3. Highest year of schooling by age and signing status, Victoria

Note. Percentages may not equal 100 due to rounding.

Despite these strides toward equality, neither signing group has attained parity in educational outcomes with their age mates in the general population. Sign language users in the 25–44 age group still lag 12 percentage points behind the general population in Year 12 completion rates (45% as against 57%), suggesting a greater gap in educational attainment than was apparent in the data on highest educational attainment. This conclusion is indirectly supported by Clark’s (2007b) finding that only 37% of deaf students enrolled in Victorian vocational education from 2003 to 2005 had completed Year 12 before they undertook their vocational course (figures for the general population not stated) and suggest that for many deaf Victorians vocational courses act as a replacement for, rather than an addition to, senior secondary education. In the United Kingdom, Richardson (2001) also noted that students who declared a hearing loss were over-represented among university students who gained admission to their course through pathways not requiring GCE Advanced Level (equivalent to Australian Year 12), and anecdotal evidence certainly suggests this pathway is utilized by a number of people within the Victorian Deaf community.
deaf and hearing Australians and add weight to earlier claims that the high rates of tertiary education among sign languages users might mask the low level (and hence usefulness) of many of these qualifications. Such findings also have important consequences for employability as Clark (2007b) notes that although deaf students who entered the vocational education system having already completed high school were likely to undertake vocational courses in areas such as Community Services, Health and Business, the most popular area of study for deaf early school leavers was General Education. Thus, at the end of their studies, these early school leavers were not prepared to enter a particular career and are less like to benefit from the increases in employability and remuneration associated with gaining tertiary qualifications.

Employment

In this article, a number of related measures from the census are used to quantify employment outcomes for sign language users and members of the general population. The most basic of these are unemployment rates and rates of labor force participation. Labor force participation is a measure of the proportion of the total population who are either in employment or looking for work, while unemployment measures the proportion of people within the labour force who are not employed but are actively looking for work. Table 4 provides an overview of these rates for both the signing and general population.

As explored in the Introduction, high unemployment rates have been a perennial issue for deaf people around the globe. Given that previous Australian and overseas studies have reported and unemployment rate of 2-4 times the national average for deaf people (Bonser & Burns, 1998; Rydberg, Gellerstedt, & Danermark, 2010; Welsh & Macleod-Gallinger, 1992; Winn, 2007), the rates recorded in Table 4 are positive indeed. At a time of historically low unemployment, sign language users in the 45–64 age group recorded a slightly lower unemployment rate than members of the general population (3% as against 4%). Sign language users in the 25- to 44-age bracket still report a higher unemployment rate than comparable members of the general population, but at 9% it is still less than twice the rate seen in the general population (5%).

Before reading too much into these seemingly low unemployment rates, it is important to reflect on the limitations within this data. Like highest educational attainment, data on the proportion of people who are unemployed or employed is a crude measure. In line with the International Labor Organization definition, the employed category counts all people who report working for at least 1 hour in the week before the census, regardless of whether that work was full-time, part-time, or casual. It is likely that the data in Table 4 masks ongoing differences between the signing and general populations in the proportion of people in secure, full-time jobs.

Another potential issue in using unemployment rates as a measure of occupational attainment is that the definition of unemployed does not count people who have abandoned the search for work after protracted periods of unemployment. Naturally, there will be such people in both the signing and general population. However, it seems arguable that this phenomenon may have a greater effect in the signing population. This could explain why the unemployment rate in the older signing population is around one third of the rate for the younger group, whereas in the general population, the unemployment rate for 45- to 64-year-olds is only marginally lower than that for the younger age group (4% vs. 5%).

### Table 4 Labour force indicators by age and signing status, Victoria

<table>
<thead>
<tr>
<th>Labour force indicator</th>
<th>25–44 years</th>
<th>45–64 years</th>
<th>Percentage point change between 25–44 and 45–64 age groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployed</td>
<td>Sign (%)</td>
<td>General (%)</td>
<td>Signing (%)</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Labor force participation</td>
<td>69</td>
<td>78</td>
<td>62</td>
</tr>
</tbody>
</table>
Figures on labor force participation might also be interpreted as evidence that sign language users face difficulties entering the job market compared to members of the general population. Across both age groups, sign language users lag behind the general population, and (like unemployment) the difference is starker in the 25–44 age group. However, labor force participation is a problematic statistic to interpret because people leave or never enter the labor force for all sorts of reasons not connected to an inability to find appropriate work—such as due to illness, family responsibilities, or returning to study. For the signing population, it seems plausible that labor force participation might be suppressed by an above-average incidence of severe disabilities/health conditions that prevent sufferers from working. No Australian data are available on this point. However, in Sweden, Rydberg, Gellerstedt, and Danermark (2010) found deaf people were almost three times as likely as members of the general population to be disability pensioners (23% as against 8%). If similar rates of incapacitation occur in the Australian signing population, they would more than account for the lower rate of labor force participation compared with the general population.

Labor force participation is a highly complex statistic to interpret, and at this stage, further qualitative research is required to understand what factors are driving lower participation rates in the signing population.

For people who are in work, the type of occupation they hold is an important indicator of career attainment. Census data on occupations are coded at varying levels of detail—the data in Table 5 show the distribution of sign language users and members of the general population across the eight Level 1 occupational categories.

Differences in occupations between sign language users and the general population are partly a function of the different communicative demands of various jobs (e.g., relatively few Deaf people work in face-to-face sales because of the importance of oral English skills in these roles) but also reflect differences in education levels and, potentially, discrimination. The high proportion of laborers is a finding shared with numerous studies of deaf people’s occupations (Schroedel & Geyer, 2000; Welsh & Macleod-Gallinger, 1992) and can be linked both to the low educational requirements of the job and its physical nature (which allows deaf people to learn much about how to do the job by watching others and lessens the need to communicate verbally with workmates in order to get the job done). Conversely, the high educational and communicative skills required of managers can serves as a barrier for sign language users—albeit one that often lies more in employer inflexibility and/or discrimination than in the signing applicants being unqualified for these positions (Welsh & Walter, 1987; see Clark, 2007a; Punch, Hyde, & Power, 2007; for an overview of job market/workplace experiences of Deaf and hard-of-hearing Australians). It is presumed that the high proportion of sign language users working as community or personal service workers is largely made up of people working for deafness organizations—where their skills as sign language speakers are recognized and in demand and there is a more “Deaf friendly” workplace culture.

Table 5  Occupation by age and signing status, Victoria

<table>
<thead>
<tr>
<th>Occupation</th>
<th>25–44 years</th>
<th>45–64 years</th>
<th>Percentage point change between 25–44 and 45–64 age groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Signing (%)</td>
<td>General (%)</td>
<td>Signing (%)</td>
</tr>
<tr>
<td>Managers</td>
<td>6</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Professionals</td>
<td>27</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>Technicians and trades workers</td>
<td>15</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Community and personal service workers</td>
<td>13</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Clerical and administrative workers</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Sales workers</td>
<td>4</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Machinery operators and drivers</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Laborers</td>
<td>12</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>Not stated</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Note. Percentages may not equal 100 due to rounding.
Unlike other measures discussed so far in this report, there is little difference between the two general population age groups in their distribution across the eight occupational categories. In the 45–64 age group, there is a slight increase in the number of managers at the expense of professionals (presumably the result of promotions) and laborers at the expense of technicians (perhaps reflecting the higher proportion of 45- to 64-year-olds with school education only), but as the final column of Table 5 shows, this difference is never more than three percentage points. For sign language users, however, the two age groups have more distinct occupational profiles. The most dramatic changes are an eight percentage point increase in the proportion of professional in the 25–44 age group and a concomitant eight percentage point decrease in the proportion of laborers. The proportion of technicians and community workers in the younger age group also increases. Similar to the data on highest year of schooling, there is a pattern of sign language users in the older age group being overrepresented in low-status blue-collar occupations, but the younger generation making great strides toward correcting this historical inequality (while not quite reaching parity with the general population). It seems logical to conclude from this data that the increase in education levels between the two age groups of sign language users discussed in the previous section is translating to increased career choice and greater success gaining white-collar positions for the younger age group.

The data explored in this section so far have cast little light on the issue of underemployment in the signing population, despite it being a frequently mentioned problem in the Deaf community (Punch et al., 2004; Schroedel & Geyer, 2000). Underemployment can be variously defined as working in a part-time or casual position when one would prefer full-time work or working in jobs for which one is overqualified (or a combination of both). However, the upshot is that the skills and talents of the underemployed individual are not put to best use. Australia is currently in the midst of a severe skills shortage, so any indication of underemployment among sign language users is particularly wasteful and concerning. Despite this, data on individual weekly income indirectly support the idea that many sign language users were underemployed at the time of the 2006 census.

Data on pre-tax income are collapsed into four categories for the purpose of analysis below: less than $400 a week, $400–$799 a week, $800 or more a week, and not stated. To help contextualize these figures, at the time of the census, the minimum full-time wage in Australia was $484.40 a week, whereas a single person on unemployment benefits or the disability pension received $273 a week, excluding supplements and allowances.

Table 6 makes it clear that sign language users continue to lag behind the general population on income. They fall at least 11 percentage points behind the general population in terms of the number of people earning $800 a week or more in each age group, while being at least 11 percentage points ahead in the number earning less than $400. Younger sign language users also appear to see a smaller economic benefit from their increased education relative to the 45–64 age group: while in the general population the proportion of people earning less than $400 a week is seven percentage points lower in the 25–44 age group than among those aged 45–64, there is no age difference among sign language on this measure.

Several factors are likely to be at work in suppressing the income of deaf workers. As was noted above, underemployment is a very real issue within the Deaf community and means that workers frequently work part-time or take jobs beneath their current skill level because they have had no success gaining employment in their chosen field (cf. Clark, 2007a; but note Punch et al., 2007 report 80% of their Deaf and hard-of-hearing respondents claimed their first job after university was directly related to their field of study). Lower than average wages may also be indicative of deaf workers clustering in more junior positions and having difficulty moving up the career ladder (cf. Welsh & Walter, 1987). Finally, it is likely that some deaf people are simply paid less than their hearing peers in comparable roles (a point raise by Welsh & Macleod-Gallinger, 1992), though of course proving underpayment would be difficult in most workplaces.

In the general population, it is the 25–44 age group that has the highest proportion of people earning $800 a week or more (37%) as against 32% in the
45–64 age group). Only a small proportion of sign language users earn $800 a week or more in either age group, but unlike the general population, sign language users in the 45–64 age group have a very slight edge on those aged 25–44 years in terms of proportion of people in this top income bracket (22% as against 20%). Though the difference is less than two percentage points, the fact that the two groups are broadly comparable in terms of income in the face of education disparity and counter-trends in the general population is surprising and thus worthy of further investigation.

Finally, it is worth noting that the disproportionately high number of sign language users earning less than $400 a week may suggest relatively high rates of welfare dependency in this group. Indirect support from this hypothesis also comes from a more detailed breakdown of data from 2001 census (cited in Department of Family and Community Services, 2004) which found that the most common income bracket for sign language users was $200–299 a week—precisely the income bracket of most Australian government pensions and unemployment benefits at that point in time. This is also consistent with the inflated levels of unemployment and depressed labor force participation figures shown in Table 4. Australian government policy in recent years has been squarely focussed on reducing welfare dependency through the dual measures of tougher eligibility requirements for a range of pensions and increased support services to help people reenter the workforce. This article does not have the data to comment on the degree to which welfare dependency has decreased. However, the findings from this analysis suggest that it is still inflated compared with the general population. As Rydberg, Gellerstedt, and Danermark (2010) note, there are no easy solutions to deaf people’s difficulties finding employment, and government will need to commit to sustained investment in support services if these difficulties are to be ameliorated.

Discussion and Conclusion

Analysis of the 2006 census has shown the complex age grading that exists in the educational and occupational outcomes of Victorian sign language users. This article has sought to demonstrate the value of taking an age-graded approach when attempting to measure deaf people’s educational and occupational attainment, both because it gives a more accurate picture of how the deaf population compares to their peers in the general population and because it allows the researcher to measure differences between the generations and assess whether the younger deaf population are improving their educational and occupational position at a faster or slower rate than that seen in the general population. In this case, the data show that rates of senior secondary education in the signing population increased across the generations more than in the general population, as does the proportion of people becoming professionals and abandoning laboring as an occupation. However, on unemployment and income measures younger sign language users appear to be struggling to keep pace with improvements seen in the general population.

The data presented in this article paint a picture of increasing access to educational and employment opportunities for sign language users in Australia. Although Australia has made great strides in the past 20 years increasing access for deaf people, the next challenge is to implement policies to support greater equality in outcomes. This report has showed that sign language users in Australia are increasingly embracing tertiary education, but doubts remain as to whether they are completing courses at the same level as members of the general population. As Richardson explores...
too, many deaf students do not leave higher education with the same level of knowledge as their hearing peers:

... DHH [Deaf and hard of hearing] college students generally come into and leave the mainstream classroom with less content knowledge than their hearing peers; ... gain scores (postlecture test minus pretest) indicate that DHH students learn less in that setting than their hearing peers; ... instruction via sign language generally does not lead to better performance than the same information communicated via text, and, when there are differences, it is text that shows an advantage. (Richardson et al., 2010, p. 358)

Removing educational barriers will be a complex process and debate continues as to the best way to support deaf students achieve in the higher education setting (Hyde et al., 2009; Richardson et al., 2010). This article cannot offer a silver bullet for improving educational outcomes, but what it does show is that improvements in the education levels of sign language users are already leading to modest improvements in employment outcomes. If sign language users’ education levels continue to increase, one would expect the income and unemployment inequalities noted in the data to lessen. Higher levels of education not only broaden the jobs deaf Australians are qualified for but may also aid communication with hearing colleagues and thus minimize employer anxiety about hiring a deaf staff member. Evidence in support of this contention can be seen in findings from Power, Power, and Horstmanshof’s (2007) survey of deaf Australians’ use of text-based electronic communication methods, which show that university and college graduates made significantly higher use of most types of electronic communication than those with lower education level. For all Australians, there is a clear link between average education level and occupational attainment. Deaf Australians are no different and the evidence presented in this article demonstrates the value in employment terms (to say nothing of the social and emotional gains) of countries investing more heavily in support services, teacher training, and research to maximize deaf students’ learning throughout their school and tertiary education.

Notes

1. This article follows the convention of using “Deaf” with a capital D to refer specifically to people who are sign language users and identify as culturally Deaf. “Small d deaf” in contrast is used as an audiological term covering all people with a significant hearing loss.
2. Queensland now has several Auslan-using programs such as that at Toowong State School: http://www.toowongss.eq.edu.au/bilingualprogram.htm (accessed December 11, 2010).
3. That is a two-year college degree loosely equivalent to an Australian TAFE diploma
4. Bonser and Burn’s own calculations give an unemployment rate 1.5 the national average, but this is because they erroneously include persons not in the labor force in their calculations
5. For an overview of trends in Australian secondary education, see Burke and Spaull (2001).
6. Studies differ in the scope of who they include as “deaf” although the majority concentrate on people who use a sign language as their preferred mode of communication.
7. The most relevant for sign language users being the Auslan for Employment program (now subsumed into the Employment Assistance Fund), which provides funding of up to $6,000 a year for Auslan interpreting in the workplace.

Funding

Victorian Deaf Society.

Conflict of Interest

No conflicts of interest were reported.

Acknowledgements

The author gratefully acknowledges the support of the Victorian Deaf Society, which funded the research project on which this article is based.

References


Department of Family and Community Services (2004). *Supply and demand for Auslan interpreters across Australia*. Canberra, Australia: Department of Family and Community Services.


