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Innovation, Skill Needs and Training in a Rural Community

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ABSTRACT *Difficult challenges face the Gannawarra Shire in northern Victoria, including competing increasingly in global markets, environmental degradation and changing consumer preferences. Education, training and skill development are one way of addressing the challenges. A survey of 68 enterprises (distinguishing between growing, consolidating and declining enterprises) suggested, inter alia, that innovation is an essential element in Gannawarra's response to the challenges it faces and that enterprises requiring* more *training differ significantly from those requiring* different *types of education and training. The 'story' of Gannawarra's challenges and its efforts to address them provide insights which are likely to be useful elsewhere.*

Keywords: Innovation; skill needs; enterprises; education and training providers; regions.

Introduction

The Gannawarra Shire in northern Victoria is facing some difficult challenges. Education, training and skill development are one way of addressing them, for example by raising efficiency, increasing flexibility, facilitating change and supporting innovation. The challenges facing Gannawarra, and the contributions to addressing them which education and training can make, are not unique to this region, but typical of those confronting many other areas of non-metropolitan Australia. Thus, the 'story' behind these challenges and the efforts to address them provide insights which may be useful more generally.

The second section of the paper considers key aspects of the situation in Gannawarra Shire, based primarily on material available from Australian Bureau of Statistics publications, including the Censuses of 2001, 1996 and 1991, from Victorian Government sources and from the Shire. The third section reports on a survey of enterprises in Gannawarra, including their education and training needs and how they meet them. The discussion focuses on the distinctions between

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enterprises which were growing, in a consolidation phase or declining. Four implications are drawn in the final section of the paper.

The Region

Gannawarra is a local government shire with offices in the towns of Cohuna and Kerang in the northern region of Victoria, which extends along the plains of the Murray, Loddon and Campaspe rivers. The climate is dry and warm: the average maximum temperature is 22°C; and annual rainfall is 325–425 mm. Water from the region's rivers has enabled agriculture and horticulture to flourish, but the environmental price of irrigation is high and dry-land salinity is a significant problem in some areas. The region's traditional agricultural and manufacturing industries include dairying, poultry, wool, mining, viticulture, food processing, steel fabrication, rubber manufacturing and engineering. Mineral sands mining has recently commenced. Grape and olive production, with related value-adding activities, are being boosted in conjunction with neighbouring municipalities.[1]

On Census night in 2001, the Gannawarra population was 11,394; 50.2% were females, 90.3% were Australian-born, 17.8% were 65 years or older and there was a small Indigenous population (1.1%). Three other aspects are noteworthy. First, Ganawarra's population declined by 4.4% between 1996 and 2001 (by 8.6% since 1991). Secondly, the population is ageing: the median age was 34 years in 1991, 37 years in 1996 and 40 years in 2001. Thirdly, whereas the total number of men and women is approximately similar (5,666 and 5,712 respectively in 2001; or 1 to 1.01), there is a substantial imbalance in the 15–24 year age group (663 and 546 respectively; or 1 male to 0.82 females). In 1991 there were 443 more males who had never married than females and in 2001 there were 385.[2]

The Gannawarra labour force was 57.1% male and 42.8% female in 2001. Unemployment was relatively low (3.6% for men and 5.1% for women) and has declined significantly (from 9% in 1991 to 4.3% in 2001). The ratio of men to women in the labour force fell from 1.43 to 1 in 1991 to 1.33 to 1 in 2001. In both years more of the men were full-time and more of the women were part-time workers.

Table 1 provides information about the *occupation* of people in the Gannawarra labour force by gender in 2001 (for workers who indicated their occupation). Since occupations can be used as a proxy for the skills possessed by workers, changes in

Table 1. Occupation by gender, Gannawarra, 2001

Occupation	Males	% males	Females	% females	All	% all
Managers and Administrators	1,023	43.5	463	28.1	1,486	37.2
Professionals	183	7.7	291	17.6	474	11.8
Associate Professionals	207	8.8	193	11.7	400	10.0
Tradespersons and Related Workers	458	19.5	62	3.7	520	13.0
Intermediate Clerical, Sales and Service Workers	93	3.9	409	24.8	502	12.5
Labourers and Related Workers	384	16.3	228	13.3	612	15.3
Total	2,348	100.0	1,646	100.0	3,994	100.0

particular occupations help identify areas where there was a change in skills. Four aspects of Table 1 are noted:

- for all workers, by far the largest group is in the category Managers and Administrators. These occupations require substantial levels of skill. Also, these numbers are consistent with a situation where many people are operating their own business;
- the remaining workers are spread fairly evenly across other occupations, with the largest proportion in the low-skills group Labourers and Related Workers (15.3%) and the smallest proportion in the intermediate-skills group Associate Professionals (10%);
- there are distinct gender differences between male and female workers. For example, 79.3% of the men were in three occupations (Managers and Administrators; Tradespersons and Related Workers; and Labourers and Related Workers), whereas 95.5% of the women were in five occupations (Managers and Administrators; Intermediate Clerical, Sales and Service Workers; Professionals; Labourers and Related Workers; and Associate Professionals). Only two of these occupations were substantial for both men and women: Managers and Administrators (43.5% of males and 28.1% of females) and Labourers and Related Workers (16.3% of males and 13.3% of females). Conversely, there were substantial differences in relation to Tradespersons and Related Workers (19.5% of men compared to only 3.7% of women were in this occupation), Professionals (7.7% of men compared to 17.6% of women) and Intermediate Clerical, Sales and Service Workers (3.9% of men compared to 24.8% of women);
- between 1991 and 2001 there was growth in the numbers in three occupations (Associate Professionals, by 43%: from 280 to 400; Intermediate Clerical, Sales and Service Workers, by 45%: from 346 to 502; and Labourers and Related Workers, by 10%: from 555 to 612), declining numbers in one occupation (Tradespersons and Related Workers, by 13%: from 597 to 520) and little change in two occupations (Managers and Administrators; and Professionals). Thus, there was growth in two intermediate-skill level occupations and one low-skill level occupation, little change in two high-skill occupations and decline in one intermediate-skill level occupation. Of the three occupations where vocational education and training (VET) preparation tends to be particularly important (Associate Professionals; Intermediate Clerical, Sales and Service Workers; and Tradespersons and Related Workers) two showed high rates of growth, whereas the third was the occupation which showed the greatest decline in numbers in Gannawarra between 1991 and 2001.

There is a mix of traditional and new *industries* in the Shire.[3] Agriculture remains the major source of employment (29.6%), followed by retail (16.0%), manufacturing (15.7%) and community services (10.0%). Within agriculture there are seven main activities, especially milk (about half), cereals and coarse grains (about a quarter of the total). Red meat, pigs and legumes are each significant. There is also activity in sheep and lambs, vegetables and grapes, but these agricultural activities are relatively much less significant. Dairying is the major agricultural activity in the Shire. Recent innovations have included the introduction of rotary dairies, improved herds, enhanced pastures and more skilled operators. Pork production is growing (Gannawarra produces about 30% of total Victorian

production) and technical improvements have been important for the industry's development and for acceptance by consumers. The industry is a significant employer itself and creates other employment opportunities in the wheat and grain farms of the Mallee region and also in feed milling and pellet manufacturing. The region hosts a longstanding citrus industry, especially oranges and grapefruits, which are sold for juicing at factories within the region and to fresh fruit markets in Australia and overseas (including New Zealand, USA, South East Asia, Thailand and Taiwan).

Much of Gannawarra's manufacturing industry is related to agriculture. For example, the production of grain pellets for animal feed is an important activity, as is the manufacture of agricultural, irrigation and specialised transport equipment. Food processing is also significant: for example, fruit packing and juice works employ 28 people, more than 400,000 cartons of fruit are handled by the packing sheds annually, and the juice works processes some 8–10,000 tonnes of fruit per year. Furniture manufacture is based on the extensive natural resources of redgum, which support sawmilling, commercial building and trade centres.

Tourism is another significant industry, based on the region's natural resources of lakes, rivers and a dry warm climate. The 350 bird species which have been identified include many rare international wading birds. The ibis is part of the Gannawarra Shire logo.

Comparing the 1991 and 2001 Census results reveals changes in *employment* by industry.[4] Employment had increased in five industry groups: Retail Trade (employment in 2001 was 682, an increase of 8.4% since 1991); Manufacturing Industries (477 in 2001, an increase of 20.5% since 1991); Health and Community Services (393 in 2001, an increase of 20.2% since 1991); Construction (258 in 2001, an increase of 19.4% since 1991); and Property and Business Services (198 in 2001, an increase of 66.4% since 1991).[5] On the other hand, employment declined in Education; 275 people were employed in 2001, a decline of 13% since 1991. Industries in which the public sector has traditionally played a major role, such as government administration, communication services, electricity and water supply, have tended to see reduced employment (reflecting privatisation, contracting out and government decisions to reduce the size of the public sector). In interpreting the broad results, however, the reader should bear in mind the severe drought conditions which had affected the region immediately prior to the study.

Innovation is part of the community's agenda to meet the challenges it faces.[6] Many factors are driving the innovation effort in Gannawarra Shire: four are emphasised. First, there is the need to ensure the economic wealth and social well-being of the community, especially in difficult periods, as when drought affects agricultural production and its effects flow on to other industries. Secondly, there is recognition of the rising levels of salinity, which have forced local enterprises to reconsider traditional practices and look for new ways of doing things—or move to different products, types of business or geographical regions. Thirdly, the region is under pressure to use irrigation water more efficiently, effectively and frugally. The availability of river water has enabled the development and success of many agricultural ventures. However, the resulting environmental damage, including salinisation and depleted river flows, has now been recognised. Fourthly, Gannawarra Shire and its businesses are acutely aware of increased competition, in both global and domestic markets. The Shire provides business development support to local enterprises and industry.[7] These initiatives include recognition that changes in skill requirements are involved in the innovation process. They incorporate planning to

deliver appropriate education and training, including through various providers, using a range of delivery arrangements, on and off the job, and at different locations.

For example, Gannawarra Shire, in conjunction with neighbouring municipalities has noted that

> There are a number of non-traditional agricultural ventures currently being explored and established in the region, including olives, tomatoes, winegrapes, nectarines, apples and walnuts … Training will be delivered on-the-job at a time to suit the farmer's needs where and when required. Training is conducted to meet the preferred learning environment, format and training outcomes of the business. Delivery options include online, on-the-job or in a dedicated training environment; or a mix-and-match of all delivery media. … [local] Councils will also work with training organisations to develop packages for potential employees to ensure the investor has skilled staff to work within all areas of his business from production through to marketing.[8]

In relation to *education* there are four primary schools and two secondary schools in the region, a TAFE institute and an adult education provider.[9] The CEET survey found that education and training are also provided by private training organisations, group training companies, equipment manufacturers and suppliers, professional and industry associations and individual enterprises. There is no university campus in Gannawarra: the nearest university is at Bendigo (which is 129 km by road from Kerang and 137 km from Cohuna: Bendigo is 149 km north of Melbourne).

Educational qualifications in Gannawarra are low, but increasing.[10] Between 1991 and 2001, the number of people holding a bachelor's degree increased from 282 (3.0% of the population) to 435 (4.9%). The number of people with an advanced diploma, diploma or certificate also grew, but more slowly, from 1,537 in 1991 to 1,662 in 2001. More women than men held a bachelor's degree in both 1991 (164, compared with 118) and 2001 (289, compared with 146). Conversely, more men than women held an advanced diploma, diploma or certificate in 1991 (1,000 compared with 537) and 2001 (1,125 compared with 537). Few people in the community hold a postgraduate degree, graduate diploma or graduate certificate, although the numbers grew a little between 1991 and 2001. In 2001 103 people (1.2% of the population) held this type of qualification, compared with 83 people (0.9%) in 1991. Females with these qualifications continued to outnumber males (66 compared to 37 in 2001). Although the number of people without a qualification was large in 2001 (6,686 people or 75% of the population), it has declined since 1991, when it was 80% (7,521 people) and 1996 (78%, or 7,136 people). The number of females with qualifications exceeded the number of males in both 1991 (3,551 males and 3,970 females) and 2001 (3,089 males and 3,597 females). Of those enrolled in apprenticeships and traineeships, about one-third were apprentices and two-thirds trainees. Apprentices tended to be more heavily concentrated in the traditional trades and to include relatively fewer women than trainees.[11] Many fewer people were engaged in university education than in VET courses. Also, many more young women than men pursue a university education and many more young men pursue an apprenticeship. Since there is no university located in Gannawarra this explains the much higher movement out of the Shire of women aged 15–24 years than of young men. Some return, but many may not.

In relation to information technology skills the 2001 Census asked people to indicate whether, in the previous week, they had used a personal computer at home or had used the Internet at home, at work or elsewhere. (Unfortunately, these questions were not asked in earlier Censuses, so comparisons cannot be made over time.) Some 34.6% of the population used a personal computer at home, with a significantly higher level of use among younger people; 24.8% of the population said they used the Internet. More than half of them used it at home only (and not at work or elsewhere). There is particular scope to increase these IT skills—for work, study and leisure—among older members of the community.

What are the *challenges to change* facing the Gannawarra community (especially in relation to education and training)? The challenges are not unique to Gannawarra, of course, but are typical of those confronting many other regional areas. Thus, the 'story' behind these challenges, and the efforts that are being made to address them at local and State levels, and through partnerships between providers, enterprises and communities, provide pointers that may be useful beyond Gannawarra.

- Gannawarra faces challenges arising from the spread of global markets for products and services. Local business and industry face the need to re-establish and consolidate economic success in changed circumstances. Efficiency is vital to remaining competitive and assuring future economic success. Attention is also necessary to changes in consumer requirements. In Gannawarra this means responding to demand for new and different products and services, for products of higher and more consistent quality, for 'clean, green' products and sustainable production methods.
- Gannawarra is seeking better ways to cope with, and respond to, environmental degradation. Much of Gannawarra's past economic success has been built on exploitation of the region's natural resources of sunshine, water and arable land. However, land and water are now adversely affected by rising salinisation. They can no longer serve the community to the same extent. There is a need to change some long-accepted practices, to halt and reverse existing problems and to identify new ventures for the future.
- How can Gannawarra address the widespread social and economic difficulties that occur when periods of agricultural prosperity are followed by downturns caused by drought or other natural disasters? Agriculture is the main industry in Gannawarra and many other industries in the region are dependent on its continued prosperity for their own economic success. Finding ways to create a more even pattern over time would help to soften the impact on social and economic well-being.
- Many young people leave the region to pursue education or work opportunities elsewhere—often in Melbourne or larger regional centres. Some of these young people return, but many others do not. Consequently, the region has a high proportion of older residents—17.8% are over 65 years, compared with 12.8% of the total population of Victoria in 2001. Gannawarra's workforce comprises large numbers of older workers, which means that as new ventures, equipment and practices are introduced there tend to be high levels of demand for re-training of existing workers. There is also a de-stabilising gender imbalance in the region as more young women than young men leave to study; and many never return. Young women tend to pursue university opportunities—and there is no university campus in Gannawarra—while young men are more likely to take up work and study opportunities (including in VET) closer to home.

Survey of Enterprises

CEET distributed a survey questionnaire[12] to the individuals and enterprises on the Shire's Business Register. The Shire administered the initial survey and the follow-up to some 700 individuals and enterprises. Responses were posted to CEET in a reply paid envelope. Sixty-eight enterprises responded, although not all respondents answered every question. The true response rate may be rather higher, as some respondents commented that they had received more than one questionnaire (up to four in one case). The responses provide information about the enterprises, their business environment, their learning and training needs, and their relationship with various education and training providers. The links between business growth or decline, innovation, perceived skill needs, and education and training provision are the focus here.[13]

Most of the respondent enterprises were in the private sector (52 of 64), with eight in the public sector and three not-for-profit enterprises. There were concentrations in three industries (agriculture, retail and manufacturing, with 25, 18 and 11 enterprises respectively) and to a lesser extent in construction (nine) and health and community services (five). Twelve enterprises operated in more than one industry. Some 84% of the enterprises had been operating for 10 years or more (and 48% for more than 20 years), while only five had been established within the last five years. These long-established enterprises felt a strong commitment to their local community, including through the provision of training and employment opportunities, which was motivated by more than enterprise business needs alone.

Of the 67 enterprises only 15 (22%) had 10 or more workers, while 28% had one or two workers and another 29% had three or four workers. The predominance of small enterprises is likely to have implications for skill formation, education and training:

- a number of studies have suggested that the pressures of daily activity that dominate the thinking and practice of very small businesses struggling to survive are likely to give learning and training a low priority;[14]
- workers in these enterprises are likely to need multiple skills in order to be able to deal effectively with the many different aspects of the business;
- it can be difficult for workers in small enterprises to take time out for training, or to attend off-the-job training, because there will be no-one to take their place;
- the enterprises may be geographically dispersed throughout the region, so that it is difficult for training providers to reach them all, or to bring workers together into a group.

However, while micro and small enterprises predominate, most workers in the sample were employed in the larger enterprises. Of 759 workers employed in the respondent enterprises, 56% were in the five largest enterprises and a further 20% were in enterprises with 10–20 workers. Only a quarter were employed in enterprises with nine workers or less. Thus, some enterprise sites are likely to offer a critical mass of workers for training purposes.

Relatedly, the survey found that most enterprises employed a mixture of permanent, full-time, part-time and casual staff. They employed a mixture of occupational categories, of men and women, and of employees with different educational qualifications. For example, more than half of the enterprises employed workers in two occupational categories: Managers and Administrators; and

Clerical/Office Staff. About a third of the enterprises employed Tradespersons and a quarter employed Professionals, Salespersons and Personal Service Workers, and Labourers and Related Workers. The proportions of enterprises employing Operators/Production Personnel/Drivers, Technicians and Para-professionals were comparatively small. Surprisingly, three enterprises comprised only Managers and Administrators, four comprised only Tradespersons and another two consisted only of Labourers and Related Workers. They tend to be small businesses that focus on a very limited range of activities.

But most enterprises employed a diverse mixture of workers. The survey responses suggest that medium to high level skills are important to most of the enterprises, there is a moderate level of need for workers with lower level skills, and there is a surprisingly small number of enterprises who responded that they required technicians and para-professionals. There is a continuing demand for education and training, although the demand for VET skills is mixed. It appears that workers with the skills to undertake clerical and office jobs are particularly sought after.

Of the 67 enterprises 61 were owner operated, including the two largest enterprises, each of which had over 150 staff; and owner operated enterprises have been found to face particular training issues.[15] Relatedly, union membership was low: in 61 of the 68 respondent enterprises there were no union members and in only three firms were half or more of the workers unionised (60%, 50% and 50% respectively). Previous studies have found that unions tend to support skill development for their members.[16]

Education and training providers in the region need to take account of this diversity. In practice, they need to provide:

- a broad range of education and training opportunities for the local community (which can be difficult to do on an economic basis when numbers are small in specific locations); and
- specialist education and training for the specific needs of local enterprises.

Despite the difficult conditions in Gannawarra at the time of the CEET survey (second quarter of 2003), with a long period of drought being followed by a severe dust storm, only 22% of the respondent enterprises stated they were in a period of decline, compared to those in a period of growth (25%) or consolidation (46%). This pattern varied by industry, with few retail enterprises in growth and many in decline, while in agriculture there were as many enterprises in growth as in decline. Nevertheless, there were significant implications for education and training. For example, the total number of apprentices and trainees in the respondent enterprises had fallen sharply, from 152 five years ago to 104 three years later and to only 79 at the time of the CEET survey. This is a decline of 48% over five years. Interestingly, it was suggested that increasing levels of education and training among school leavers (for example, in computing) had led to a stronger focus on shorter, in-house training activities in some enterprises, related to specific enterprise needs, than on longer courses of more general training. Outsourcing, for example of workshops and maintenance, had also reduced work previously undertaken by apprentices.

Interestingly, whether an enterprise was in growth, consolidation or decline was not related to the age of the business. Older enterprises were not necessarily declining and the youngest enterprises were not necessarily those which were

growing (although no enterprise less than five years old was in decline). Indeed, three of the 17 enterprises which were in a growth period had been in operation for at least 90 years; and only one of the 15 enterprises in decline had been in operation for more than 40 years! Whether a firm is in growth, consolidation or decline is likely to influence its requirements for education and training.

Some 84% of the enterprises stated that competition in the relevant market was strong or medium in intensity. Strong competition may be a contributing factor to the difficulties of firms in decline, since a rather larger proportion of them indicate that competition for them is strong (53%) than for those in growth (47%) or consolidation (39%). On the other hand, enterprises which said they were in decline were also more likely than enterprises in the other two categories to indicate that competition was weak. This suggests that, for firms in decline, but operating in markets where competition is weak, factors other than competition are responsible for their difficulties. There could be many such factors, including weak demand for their products, inefficiency and structural deficiencies, or inadequate inputs (including skills). Of the nine enterprises indicating that competition is weak, three were in dairy farming, two in the retail industry and a further two in health and community services (others were in education and operating in multiple industries). Interestingly, in each case there were at least as many enterprises in the same industry that regarded competition as medium or strong in intensity. This suggests that competition varies in different parts of the same industry or region; and that views of competition reflect individual enterprises and circumstances.

Another possible reason is that firms can operate in different markets. Forty enterprises operated in local markets (only), 10 in state markets (only), seven in both local and state markets, and three enterprises in export markets (all in agriculture). A higher proportion of enterprises in decline operated only in local markets (73%) compared to the enterprises in consolidation (67%) or growth (53%). Of course, the relationship could flow in either direction: those enterprises that are more competitive might expand more readily into wider markets; and those which operate in wider markets have to be more competitive to succeed. In either case, however, there are likely to be implications for the skills, and thus the education and training, required.

Another interesting result is that 38% of the growing enterprises stated that a major customer drives their work culture and practices, compared to 6% of those in consolidation and 20% of those in decline. Close links with customers appear to be conducive to enterprise success, with implications for work practices, skills and training.

The CEET survey asked respondents if their enterprise used high technology, was subject to technical change or was an innovator. It also asked them if they had undergone organisational change within the previous three years. The results were striking. First, enterprises in decline were under-represented among innovators (19%) or re-organised firms (17%), compared with their representation among all enterprises (24%). Conversely, enterprises in growth were over-represented among innovators (29%) and re-organised firms (39%), compared with their representation among all enterprises (27%). The results suggest that fewer firms in decline innovate or re-organise, although lack of innovation and re-organisation may be a symptom rather than a cause or only one of several factors contributing to the decline of the enterprise. Secondly, the results identifying enterprises that have innovated or re-organised by industry support the conclusion that innovation and

organisational change depend on the characteristics of the particular enterprise, rather than on the industry in which it is operating. Within the same industry, some enterprises are innovators and others are not, while some had introduced organisational change, and others had not. Innovation and reorganisation are likely to require changes in work practices, skills and training.

Table 2 shows changes in employment by occupation over the three years prior to CEET's survey, distinguishing between enterprises which were growing, in a period of consolidation or declining. These Gannawarra results suggest that skills development, and the related education and training, need to be both broad *and* specialised.

- The declines are spread fairly evenly across all the occupational groups (although they are slightly higher among Sales/Service occupations and Managers). As might be expected, few enterprises in decline report increases in employment and many more report decreases. The increases in employment are also spread across the different occupations, but more unevenly. Employment opportunities have increased particularly for Professionals, but also for Clerical/Office occupations and, to a lesser extent, for Managers.
- Not surprisingly, firms in a period of growth are substantially under-represented among those reporting declines in employment and over-represented among those reporting increases. These enterprises report increases particularly for two high-skill occupations—Professionals and Managers—perhaps to steer them while they are innovating, re-organising, entering new markets or introducing new products.
- Firms which are consolidating are slightly over-represented among those reporting decreases, but more substantially under-represented among those reporting increases in employment. This pattern suggests they are taking strategic decisions about employment focused on strengthening their operations. They appear to see a particular need for professional staff, but little need for additional managers. These enterprises also increased their Clerical/Office staff (four enterprises increased employment in this occupation and none reported a decrease).

Table 2. Enterprises reporting increased or decreased employment in the past three years (by occupational group and by growth, consolidation or declining phase)

	Decreases in employment				**Increases in employment**			
	Growth	**Consolidation**	**Decline**	**All**	**Growth**	**Consolidation**	**Decline**	**All**
Labourers		1		1	2	2		4
Operators		1		1	2			2
Sales/Service	1		2	3	2	1		3
Clerical/Office	1		1	2	3	4		7
Trades		1	1	2	2		1	3
Technical		1		1	1	1	1	3
Professionals		2		2	4	4	1	9
Managers	1	2		3	4	1		5
All	3	8	4	15	20	13	3	36
	(20%)	(53%)	(27%)	(100%)	(56%)	(36%)	(8%)	(100%)

Subtracting the number of enterprises reporting decreases in employment within an occupational group from the number reporting an increase (i.e. the net increase) shows that the three occupations having the strongest (net) growth across all firms are associated with different skill levels. Labourers tend to require lower level skills, Clerical/Office workers low to medium level skills and Professionals high level skills. Interestingly, although in 13 enterprises all staff had a trade qualification, and 56% of the respondent enterprises included tradespeople in their workforce, there were only three enterprises in which there had been an increase in employment in this occupational group over the previous three years (and two other enterprises where their employment had declined). On the other hand, eight enterprises had increased their employment of workers with university qualifications and five enterprises had increased their employment of staff with non-trade TAFE qualifications (in each case only one enterprise reported a decrease in employment over the past three years).[17]

In addition, enterprises were providing school students with part-time work (18 students in 11 enterprises, compared to 18 in eight enterprises five years previously) or work experience opportunities (30 students in 14 enterprises at the time of the survey, compared to 32 in 14 enterprises five years before). These part-time work and work experience opportunities facilitated more effective interaction between enterprise needs and the provision of education and training. They also enhance the longer term flexibility of the local labour market. Discussions in the Shire emphasised that, in a number of cases, enterprises were providing part-time work and work experience opportunities as a community contribution as well as, and sometimes much more than, merely a direct response to the enterprise's immediate needs.

Most of the respondent enterprises saw generic skills and attributes as important. More than two thirds highlighted four generic skills as important in their working environment: communicating ideas and information; co-operative attitudes; planning and organising; and using mathematical techniques/problem solving. More than half of the respondent enterprises also regarded another two generic skills (working with others and in teams; and initiative) as important. In contrast, only 26 enterprises (41% of the total respondents) gave importance to the specific skill of 'using technology'.

Table 3 shows that there are some differences in these respects between the enterprises which were in growth, consolidation or decline. In general, the proportion of firms regarding a particular skill or attribute as important is largest among those enterprises which are in growth, slightly smaller for those in consolidation and smallest for those in decline. This suggests that skill needs are usually greatest while an enterprise is growing, are slightly lower while it is consolidating and lower still when it is in decline. However, the proportion of enterprises regarding skills in 'using technology' as important was similar for all three groups (and the responses were also similar for 'co-operative attitudes'). The responses highlighted variations between individual enterprises. For example, while 38 enterprises rated 'working with others and in teams' as very important, five placed no importance on it at all!

Some 68% of the enterprises had required training in skills for new technologies. Among growing firms the proportion was substantially higher (89%). It was 58% among the consolidating enterprises and 64% among the declining firms. Also, there were noticeable differences between industries. In one industry no training for skills in new technologies had been undertaken (accommodation and cafes),

Table 3. Enterprises indicating generic skills or attributes as important or very important (for growing, consolidating and declining enterprises)

Phase	Communicating ideas and info	Planning and organising	Using maths techniques/ solving problems	Using technology	Working with others and in teams	Initiative	Co-operative attitudes	All
Growth	13	13	13	7	13	11	11	17
	(76%)	(76%)	(76%)	(41%)	(76%)	(65%)	(65%)	(100%)
Consolidation	23	21	21	13	18	16	23	31
	(74%)	(68%)	(68%)	(42%)	(58%)	(52%)	(74%)	(100%)
Decline	10	8	8	6	6	7	10	15
	(67%)	(53%)	(53%)	(40%)	(40%)	(47%)	(67%)	(100%)
All	46	42	42	26	37	34	44	63

while in two other industries the number of enterprises which had undertaken such training was less than the number of enterprises which had not done so (dairy farming, by two enterprises to three; and in retail, by three enterprises to seven).

Enterprises were asked whether they had required *more* education and training and whether they had required *different* education and training over the past three years. Also there were considerable differences in both these respects between enterprises which were growing rather than in a consolidation phase or in decline.

Of the 62 respondent enterprises, 44 (71%) had required *more* education and training over the past three years (see Table 4). The perceived need for more training was particularly strong among the growing enterprises (83% or 15 of the 18 enterprises), suggesting that, as a firm grows, its need for training increases (perhaps associated with the tendency to innovate and reorganise). Some 66% of the consolidating firms had required more training. As an enterprise consolidates, it still requires training, and may need additional training, but these needs are not as strong as for growing firms. Interestingly, a similar proportion of declining firms (64%) indicated a need for additional training. Declining firms may seek additional education and training to assist them improve their situation and move into consolidation or growth. There was only one industry in which the number of enterprises requiring additional training was less than those that had not (dairy farming), while in the retail industry the numbers were similar.

Compared to those enterprises which required *more* education and training over the past three years (71%), a smaller percentage, but still a majority of enterprises (55%), stated that they had required *different* training (see Table 5). Among these enterprises the growing firms were particularly over-represented (75% of such enterprises) and those in consolidation were substantially under-represented (45%). Thus, the training needs of growing firms are much more likely to change than those of consolidating or declining enterprises. This may reflect the greater innovation and organisational change in growing firms.

The survey results (see Table 6) show that many fewer enterprises rely on the established education and training systems 'a great deal' or 'quite a lot' for standard occupational skills training (25 enterprises or 38% of the total number of respondents) than 'not very much' or 'not at all' (40 enterprises or 62% of all the respondents). Levels of reliance are much lower among enterprises in decline (four of 15; or 27%) than among those in growth (56%) or consolidation (34%). The growing firms, which might be expected to have more difficult requests for the established education and training providers to meet, are much more likely to have their needs satisfactorily met than other firms which are in decline or consolidating. This suggests that a good relationship between users and providers depends on the actions of both parties, not providers alone, which is consistent with earlier studies.[18]

Table 4. Enterprises indicating they have required more training over the past three years, by growing, consolidating or declining enterprises

Phase	No	Yes	All
Growth	3	15	18
Consolidation	10	19	29
Decline	5	9	14
Other		1	1
All	18	44	62

Table 5. Enterprises requiring different types of training over the past three years, by growing, consolidating or declining enterprises

Phase	No	Yes	All
Growth	4	12	16
Consolidation	16	13	29
Decline	6	7	13
All	26	32	58

The survey results indicate that some industries rely on the established system more than others. For instance, in health and community services four out of six enterprises rely on the system 'quite a lot' or a 'great deal' and in manufacturing three out of four. However, only two of six do so in construction, four of 13 in retail and five of 12 in multi-industries. There were four industries in which no enterprises rely on the system 'a great deal' or 'quite a lot': accommodation and cafes; dairy; communications; and personal services. There were also variations within a specific industry. For instance, within agriculture no enterprise engaged in dairying indicated that it relied on the established education and training system 'quite a lot' or 'a great deal', whereas in grains as many enterprises rely on it 'quite a lot' as 'not very much'.

If the enterprises were not looking to the established system then where are they seeking to meet their education and training needs? Also, does the low level of reliance reflect poor experiences with the established system or that it does not provide the types of training required?

First, most of the firms that had needed *more* training in the past three years indicated that the education and training system had been able to provide it (and that they had been reasonably satisfied). Only six of 45 enterprises responding to this question indicated dissatisfaction (13%). Of the growing enterprises 13 of 15 (87%) were either 'very well' or 'reasonably well' satisfied. Overall, however, only 10 of the 45 enterprises (i.e. 22%) were 'very well' satisfied, so there appears to be room for improvement. Firms in consolidation were disproportionately represented among those expressing dissatisfaction (67%), suggesting that they have particular needs that are not well met. Interestingly, 70% of the declining firms said they were 'very well' or 'reasonably well' satisfied with the responses from the established education and training system.

Secondly, providing *different* types of education and training can be more challenging for providers. There were also fewer responses from enterprises to this

Table 6. Enterprise reliance on established education and training systems (by growing, consolidating and declining enterprises)

Phase	Quite a lot	A great deal	Not very much	Not at all	All
Growth	8	2	5	3	18
Consolidation	10		11	8	29
Decline	2	2	10	1	15
Other	1			2	3
All	21	4	26	14	65

question (34 compared to 65). Most firms needing different training over the past three years (28 of 34 or 82%) indicated that the education system had been able to provide it and that they were 'acceptably', 'reasonably well', or 'very well satisfied'. Only a minority indicated dissatisfaction, but a higher proportion of respondent firms than for the previous question (17% for 'different' training compared with 13% for 'more' training). There appears to be more room for improvement in meeting enterprise needs.

Again, there were significant differences between enterprises. The levels of satisfaction were particularly high among the growing firms, with 10 out of 12 respondents (83%) indicating that their needs had been 'reasonably well' or 'very well' met. The levels of satisfaction were particularly low among firms in consolidation, with seven out of 13 (54%) indicating only an 'acceptable' or 'bad/poor' response. Perhaps surprisingly, two-thirds of the enterprises in decline were 'very well' or 'reasonably well' satisfied with the response from the established education and training providers, a substantially higher proportion than among the consolidating firms.

Of the 30 enterprises which had required training for skills in new technology over the previous three years, nine indicated dissatisfaction (i.e. 30%). The level of dissatisfaction was even higher among the growing enterprises (44%), which is a worrying finding. It is also a contrast to earlier findings, where the growing enterprises tended to be more satisfied with the responses from the established education and training system than the declining or consolidating enterprises.

Finally, there were four other results of interest from the survey. First, where staff undertook 'a great deal' of training they were more likely to do so in-house (26 enterprises) than externally (nine enterprises). Conversely, where staff did 'very little' training (14 enterprises) they were more likely to do it outside the enterprise. No enterprise in the accommodation and cafes industry indicated that it used either type of training. External training was clearly preferred in only two industries (construction and retail), while in-house training was preferred in only one industry (education). In most industries both forms of training were used fairly equally.

Secondly, enterprises indicated that there were three main types of internal training:

- training for cross-industry skills, even if contextualised to a specific industry. This category included occupational health and safety, workcover, customer relations, industrial relations, marketing, quality assurance, book-keeping, computer technology and upgrading;
- training for skills specific to a particular industry (or an industry sub-section), including training in dairy operations and management, animal husbandry, agricultural science, retail sales, engineering, specialised accounting and taxation law;
- training for a particular enterprise, including training in specific office procedures, computer hardware support, product knowledge, 'laser grading, tractor care and maintenance'. On occasions the training covered quite diverse areas in the same enterprise, such as marketing, occupational health and safety, and quality assurance activities; computer technology and journalism; or book-keeping and farming.

Thus, there was a range of skill development needs, and education and training contributions to it, ranging from formal to informal, from on-the-job to off-the-job,

from general to specific industry training (and even training specific to individual enterprises or parts of them).

Thirdly, enterprises used a wide range of sources to meet their education and training needs. A public training provider (such as a TAFE institute) was the most common source, being used by more than half of the responding enterprises. Professional or industry associations were the next most important source, being used by over 40% of the responding enterprises. About a third of the enterprises used equipment manufacturers or suppliers or their own internal training resources; and slightly fewer enterprises used an adult or community education provider or a private training provider. Smaller numbers still used a group training company (12) or university (seven). About 57% of the enterprise responses (*N*=171) related to formal education and training providers (i.e. other than schools), while the remaining 43% related to various other providers, particularly professional or industry providers (16%), equipment manufacturers or suppliers (13%) or the internal training resources of the enterprise itself (13%).

Enterprises were reasonably satisfied with the response they had received from the sources they had used: 110 (66%) responses were 'satisfactory', 51 (31%) were 'reasonable' and only five (3%) were 'unsatisfactory' (see Table 7). There was no particular pattern to dissatisfaction, with 'unsatisfactory' ratings spread across four

Table 7. Level of satisfaction with training, by growing, consolidating or declining enterprises (number of firms)

Training provider	Growing firms	Consolidating	Declining	Total
(A) TAFE				
Unsatisfactory		2		2
Reasonable	2	4	4	10
Satisfactory	10	8	4	22
(B) Private provider				
Reasonable	1	2	1	4
Satisfactory	6	8		14
(C) Group Training				
Reasonable	1	1		2
Satisfactory	4			4
(D) ACE provider				
Reasonable	1	2	1	4
Satisfactory	4	2	1	7
(E) University				
Reasonable		1		1
Satisfactory	2	2	1	5
(F) Professional Association				
Unsatisfactory		1		1
Reasonable	5	4	1	10
Satisfactory	5	6	5	16
G) Equipment manufacturers or suppliers				
Unsatisfactory	1			1
Reasonable	5	5	1	11
Satisfactory	3	6	1	10
(H) Internal training				
Unsatisfactory	1			1
Reasonable	1	2		3
Satisfactory	7	9	2	18

different training providers, and including firms in growth, consolidation or decline. The number of unsatisfactory ratings was greatest for TAFE (two), but more enterprises were using TAFE than any other provider; one unsatisfactory rating was also recorded for 'professional or industry associations', 'equipment manufacturers or suppliers' and, perhaps surprisingly, 'internal training'.

Finally, enterprises were asked to give examples where they had found the response from education and training providers to be particularly good (or poor). The willingness of training providers to be flexible, to negotiate, to provide relevant information promptly and to adapt to meet particular needs was important for many enterprises. A few firms mentioned programme quality as an important consideration for them. Others commented on the training being 'value for money'. However, some respondents noted their inability to find and access appropriate training within the region; several enterprises indicated they had specific training needs that were not addressed satisfactorily; and some critical comments concerned the quality of the training provided and the degree to which appropriate follow-up had taken place. In a rural area with a small population and at a substantial distance from larger centres of population, not all expressed needs can be met locally on an economical basis. Nevertheless, it is important for the regional community and its enterprises that needs—for both broad coverage and specialised requirements—are met as far as possible; and closer partnerships between providers and users can help in achieving this objective.

Four Implications

First, innovation is an essential element in Gannawarra's response to the challenges set by factors such as the increasingly global markets in which local production has to compete, environmental degradation and changing consumer preferences. The Gannawarra community is drawing on its local resources of ideas, creativity and entrepreneurialism to meet these challenges. Established enterprises are having to adjust and new ventures are being set up, including the harvesting of salt, tourism and the introduction of agricultural products that are suited to the climate—and that are also in high demand among consumers. Local businesses and industries in the region are adopting new practices, systems, processes or equipment that result from experience, including research and development, both inside and outside the region. Education and training are important for the timely and effective operation of these mechanisms, whether through stimulating indigenous learning or facilitating the transfer of ideas and practices from elsewhere. A broad range of knowledge, skills and competencies are required, both formal and informal, at various levels of education and training, as well as particular specialised capacities.

Secondly, there are significant differences between the responses from the enterprises which required *more* training from those which required *different* types of education and training. The enterprises that had required *more* training during the previous three years generally indicated that the education and training system had been able to provide it. They were reasonably satisfied overall, although there was room for improvement. However, there was a lower level of overall satisfaction (and even more room for improvement) among the firms which said they required *different* types of education and training. Supplying different education and training tends to be more challenging for providers than supplying more of what they have already developed and supplied. In particular, firms which are growing—and which are likely to provide increased employment opportunities in future—said

that they needed more and different education and training (including more technologically sophisticated skills training). It is of concern that the growing enterprises, as well as many of the consolidating enterprises, were over-represented among those expressing dissatisfaction with what was being supplied by the established education and training providers. The present project contributed to a wider recognition of this situation, an increased desire to address it and the taking of practical steps to do so on a joint partnership basis between enterprises which need education and training, providers who can supply it and the community which can both encourage it and benefit from it.

Thirdly, there were particular problems in linking innovation, skill needs and training in Gannawarra. Two aspects are highlighted, which are likely to arise in other regional areas, too. First, the high proportion of older workers meant that when innovations are introduced and skill upgrading or reskilling is required it is existing workers rather than new entrants who have to be considered. Providing opportunities for the retraining of existing workers requires rather different approaches than when providing training for new entrants to the workforce, e.g. closer co-operation with employers by education and training providers, attention to the differing motivations for participation, consideration of skill acquisition at work rather than in educational institutions, and awareness of the participants' other responsibilities and roles. Secondly, the higher propensity of young women than of young men to leave Gannawarra to pursue education opportunities elsewhere, for example at university level, destabilised the gender balance of the local community. This affected the availability of particular skills, enterprise employment patterns, and broader aspects of the local community, including family structures and sustainability.

Finally, education and training provision in regional areas can be brought into closer alignment with the skill needs of local enterprises and their communities (including their need for continuing innovation to meet new challenges). In particular, the Local Learning and Employment Networks (LLENs) are playing a significant role in assisting the Gannawarra community to respond positively to the challenges they are facing. The LLENs help to bring together education and training providers, industry and business interests, and community organisations to discuss local education and training needs; and to respond to them in flexible ways which are appropriate to local circumstances.[19] LLENs are a policy initiative of the Victorian Government, but provide a model that could be considered for use elsewhere.

Notes and References

1. See www.doi.vic.gov.au.
2. See www.abs.gov.au.
3. See www.gannawarra.vic.gov.au.
4. See www.abs.gov.au; also, note that there have been changes in industry classifications by the ABS which make precise comparisons between the 1991, 1996 and 2001 Census results difficult.
5. Property and Business Services was the only one of these five industry groups in which employment declined between 1996 and 2001.
6. The Australian Bureau of Statistics has conducted Innovation surveys in 1993–94, 1996–97 (manufacturing and mining only) and 2003. However, the latest survey does not include agriculture, government administration and defence, education or health and community services; it excluded businesses with less than five employees; and it did not collect

information concerning the education and training needs of enterprises or how they meet them. Australian Bureau of Statistics, *Innovation in Australian Business*, Catalogue 8158.0, Canberra, February 2005.

7. For a more detailed discussion see Chris Selby Smith and Fran Ferrier, *Regional Development, Innovation, Skill Needs and Training: A Pilot Study in the Shire of Gannawarra, Victoria*, Working Paper No. 55, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne, 2004.
8. www.newmediterranean.com.au.
9. www.gannawarra.vic.gov.au.
10. Other information about the provision of education and training, and about participation in it, are collected by Local Learning and Employment Networks (LLENs) (www.llen.vic.gov.au). Gannawarra does not have its own LLEN, but sections of the Shire are included within the Murray Mallee LLEN and the Campaspe Cohuna LLEN respectively. The LLEN data support the conclusion from the Australian Bureau of Statistics data that substantially lower proportions of the population in this region hold qualifications than is the case for Victoria as a whole.
11. For more detailed information see Selby Smith and Ferrier, *op. cit.*
12. Full copy at Attachment 2 of F. Ferrier and C. Selby Smith, *Regional Development, Skill Needs and Education and Training Provision, Report to the Australian National Training Authority on Project 2003–5*, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne, September 2003.
13. For further discussion see *Ibid.*
14. G. Hawke, *Patterns of 'Non-standard' Employment: The Differing Responses of Industry Sectors*, Working Paper No. 02–05, Research Centre on Vocational Education and Training, University of Technology, Sydney, 2002.
15. Western Australian Department of Training and Employment, *Future Vocational Education and Training Needs of the Great Southern Region,* 2000 (http://www.training.wa.gov.au/subsites/stsweb/regions/greatsouthern/reports/GtSRegReport.pdf).
16. C. Selby Smith, F. Ferrier, G. Burke, K. Schofield, M. Long and C. Shah, *Lifelong Learning and the World of Work: CEET's Surveys for the ACCI, ACTU and ANTA*, Monash University–ACER Centre for the Economics of Education and Training, Monash University, Melbourne, 2002.
17. Eleven enterprises employed staff with qualifications other than those from TAFE or a university. These were generally industry or enterprise-specific qualifications. They included specialist courses on chemicals for the dairy industry (20% of the staff in one enterprise), IT courses (45% of the staff in another enterprise) and nursing qualifications (50% of those employed in one enterprise).
18. For example, see C. Selby Smith, G. Hawke, R. McDonald and J. Selby Smith, *The Impact of Research on VET Decision-Making*, National Centre for Vocational Education Research, Adelaide, 1998; and C. Selby Smith (ed.), *The Impact of R&D on VET Decision-Making: A Range of Case Studies*, NCVER, Adelaide, 1999.
19. For a more detailed discussion of LLEN's see Appendix I in Ferrier and Selby Smith, *op. cit.*