

Assessing Need for Education Services for Regional Sustainability – The Case of Moura, Australia

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ABSTRACT

This paper assesses the need for education services in the mining communities through a case study of the Moura Township in central Queensland, Australia. The study involves a case study approach with a survey method to assess the current performance and the need for education services of the Moura residents. This study found about two thirds of the respondents were reasonably satisfied with the level of education services in Moura, while the remaining one third expressed some concerns with these services. A TAFE was identified as the most predominantly needed facility in Moura. Currently, there is a TAFE in Biloela, which is 66km away from Moura; however there is no public transport facility between Moura and Biloela. Moura residents are looking for TAFE facilities to be built in the town or upgrade the exiting TAFE in Biloela with the provision of adequate public transport facility.

1. INTRODUCTION

The Australian government has been promoting quality of education and training at every level as a means to develop the nation's social and economic capital. The Council of Australian Government (COAG) in 2008 agreed to set up national standard of primary and secondary education for each of the state and territories. Bradley *et al.* (2008) also suggested a national education standard for tertiary education sector. COAG (2008) called for education reform, especially to address the education needs of low socio-economic, rural and remote communities through a funding partnership between federal and state governments. Under this partnership funding, some rural and regional schools were targeted, especially for recruitment and retention of specialised teachers and professional non-teaching staff.

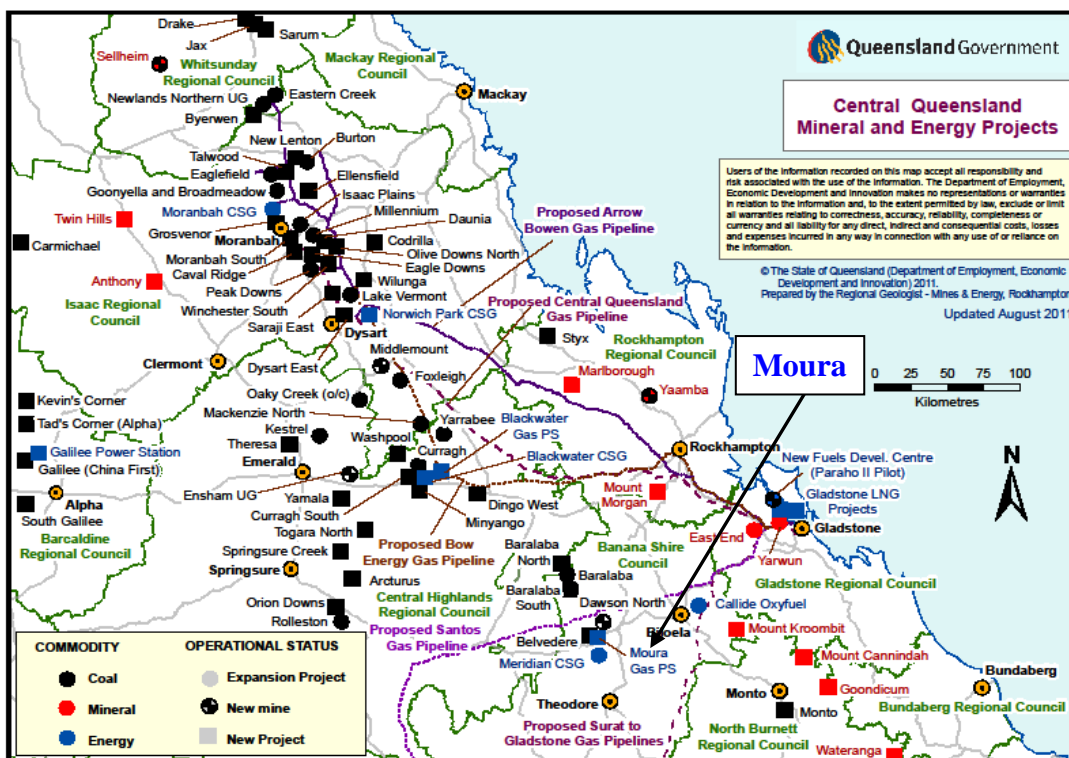
On the other hand, COAG (2008) also advocated developing or enhancing vocational or TAFE (Technical and Further Education) education for rural and regional communities. In fact, many studies supported vocation education as a vital vehicle for meeting the demand for training, developing the industry workforce and maintaining industry clusters and competitiveness in regional Australia (AGDE, 2014; Bullock, 2014; Seares, 2014; AWP, 2013; NSWDEC, 2013; DEECD, 2013). However, accessibility to and delivery of education services in regional and resource communities in Australia have been facing a number of distinctive challenges (Miles *et al.*, 2013). The focus of this paper is to assess the accessibility of, satisfaction with, and the needs for education services of regional and resource towns through a case study of the Moura Township in central Queensland, Australia. The paper is organised as follows. A background of the case study area is provided in Section 2, followed

by the analytical framework in Section 3. The study’s methodology is described in Section 4. The case study findings and analysis are detailed in Section 5 followed by stakeholders’ perceptions regarding service accessibility and future service provision in Section 6. The paper concludes in Section 7.

2. BACKGROUND OF THE CASE STUDY AREA

The Moura Township was chosen as a case study from central Queensland region in the state of Queensland representing small to medium sized mining towns in Australia. About 100 coal mines, mineral and energy (gas) projects operating in the rural and regional areas of Queensland (Figure 1).

Figure 1: Location of the Case Study Area (Moura Township) and its Adjoining Mining Towns within the Central Queensland Region



Source: Queensland Government.

Moura is mostly a mining community with a resident population of 2,000 (ABS, 2012); however some residents working with the agricultural sector also live in the town. Coal has been mined near Moura since 1961 and this one of the longest-established coal mining projects in Queensland. It is also expected that coal will be mined in or around Moura for another 30 to 40 years. So Moura has an expected resource life for mine of about 100 years.

The median age of Moura residents is 33 with little change over time and average household size is 2.5, which is very similar to many other mining towns in Australia (ABS, 2012). Median personal income has increased by \$391 since 2006, which is higher than many other towns in the region (ABS, 2008; ABS, 2012). Moura has a proportion of working age residents (72.5%) compared to other regional and rural towns in Queensland. The township has a high proportion (about 50%) of non-resident population living in the mining work camps (OESR, 2012). Half of the families/households have children and most of the children

attend childcare or the schools (ABS, 2008). About 60 percent of the Moura's residents have been living there for more than 10 years (Akbar *et al*, 2011).

These socio-demographic characteristics of Moura are very similar to other small-sized mining or rural towns in Australia. The Moura community may last for centuries as it has the connection with rural communities and the businesses that are linked to agricultural services and therefore it deserves accessibility to the education services because this is directly related to the wellbeing and productivity of the community. This paper further explores an assessment of its current education services.

3. A FRAMEWORK FOR ASSESSING EDUCATION NEED

The Moura Township was chosen as a case study from central Queensland region in the state of Queensland representing small to medium sized mining towns in Australia. About 100 coal mines, mineral and energy (gas) projects operating in the rural and regional areas of Queensland (Figure 1). There are various levels of education services needed to support local productivity and the social systems of a community; however all communities do not need all levels of services and even sometimes it is not feasible to provide all levels of services to all communities. For example, a university may be need at a metropolitan city while a rural or resource town may need kindergartens, primary and high schools and training centres.

Sahin and Sural (2007) identified different levels of education, starting from pre-school to graduate level institutions. This system is typically composed of non-nested facilities since service is provided to different age groups at each level. A distinct feature in modelling is to consider the solution of location problems in a planning horizon perspective since demand is dependent on the age composition of the population.

Some studies identify location of service delivery based on population base, distance and travel time (Sahin and Sural, 2007; Harper *et al*, 2005), while some suggest socio-economic and regional dynamics in preparing service delivery models (DEECD, 2013; NSWDEC, 2013; ILO, 2011; Murry and Gerrard, 1998; Narula, 1984). However no study has examined people's satisfaction with the services provided nor have they explored the people's opinions when developing new services or upgrading the existing services; instead they are all based on quantitative location-allocation models. There is a need to explore the community's characteristics and perception towards education service delivery, as well as the stakeholder's perceptions toward the need of such services. Thus, this study suggests a framework to assess the need for education services based on community perceptions regarding service need and examining stakeholder opinions.

4. METHODOLOGY

This study entails a case study approach with a mixed methodology of quantitative and qualitative methods for data analysis. A case study approach mostly makes a contribution in developing a systematic framework to examine a problem, and is well suited to the need assessment (Finn *et al*, 2000). In view of this, education services in Moura have been selected as the case study for this research to assess performance of the current health services and to understand community's need for upgrading existing services or for developing new services. The study did not focus on the quality of any particular education service or identify or detail factors affecting the supply of those services. Nor did the study estimate any cost that the suggested education service would require.

Two sources of primary data were collected. First, interviews with stakeholders were conducted. Second, a household survey was undertaken of Moura residents. This study

interviewed eight stakeholder participants, selected from education, health, local government and the mining sector. The sample size for the surveys was based on the current household size (2.5 people) and total number of households to achieve a 95% confidence level, which was estimated as requiring between 46 and 85 households. A total of 91 household responses were received, of which 83 were valid (the remaining responses were not returned complete). Data analysis was performed by categorising, tabulating and visualising evidence to address the objectives of this study.

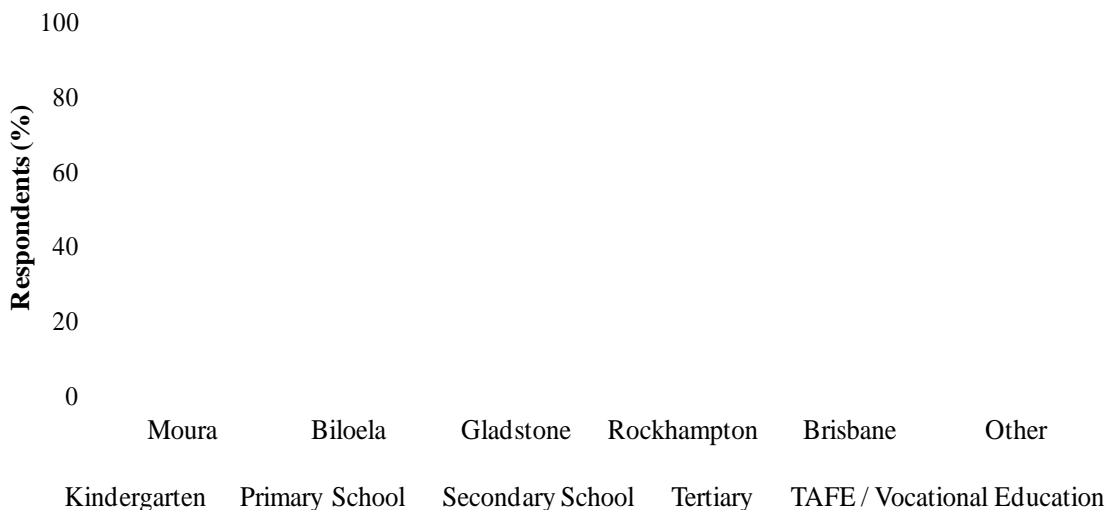
5. CASE STUDY FINDINGS AND ANALYSIS

5.1 Current Education Services in Moura

Moura has various educational services, including Kindergarten, Moura State High School, Moura State Primary School and a special Education Program (BSC, 2011). Moura Childcare Centre provides limited hours of childcare for children aged 8 weeks to 5 years. The centre can cater for up to 21 children. Moura State Primary School was established in 1940 and caters for pre-school, and prep to year seven students. Currently there are approximately 250 students enrolled (10% of whom attend the pre-school). Moura State High School was established in 1976 and caters for years eight through to 12, with 175 students currently enrolled (BSC, 2011). Besides the local primary school, students also come from three feeder schools: Banana State School, Bauhinia State School and Theodore State School. Moura State High School provides individual student counselling, a Chaplain for two days a week, as well as a youth health nurse to assist students with diet, mental health and sexual issues. Visiting specialists assist with school based apprenticeships and traineeships, indigenous issues and education.

A questionnaire survey was conducted to explore the satisfaction with the existing education services in Moura where to improve the quality of those services.

Figure 2: Location Preferences for Education Services for Moura Residents



5.2 Main Locations for Education Services

Moura and Rockhampton were named by residents as the main location they would source education services (Figure 2 above). Most households prefer to send their children to the local Moura kindergarten, primary school and high school. The second most popular location for

schooling was Rockhampton, which is a regional city, is about 180km north-east of Moura. Rockhampton was also the preferred location for higher education as the most preferred location for tertiary, TAFE and vocational education. Other locations considered for education were Biloela, Gladstone and Brisbane.

5.3 Distance and Travel Time to Access Educational Services

To access educational services, the majority of respondents travelled not more than 15 minutes for kindergarten, primary and secondary schools, with about 70% of these travelling just five minutes or less and about 75% are travelling less than 5km (Figures 3 and 4). To access higher education, such as TAFE/vocational education, most respondents indicated travel times of more than an hour (Figure 3). This is reflected in the distance travelled for this service, with most respondents travelling over 100 km (Figure 4).

Figure 3: Respondents Travel Time to Access Educational Services

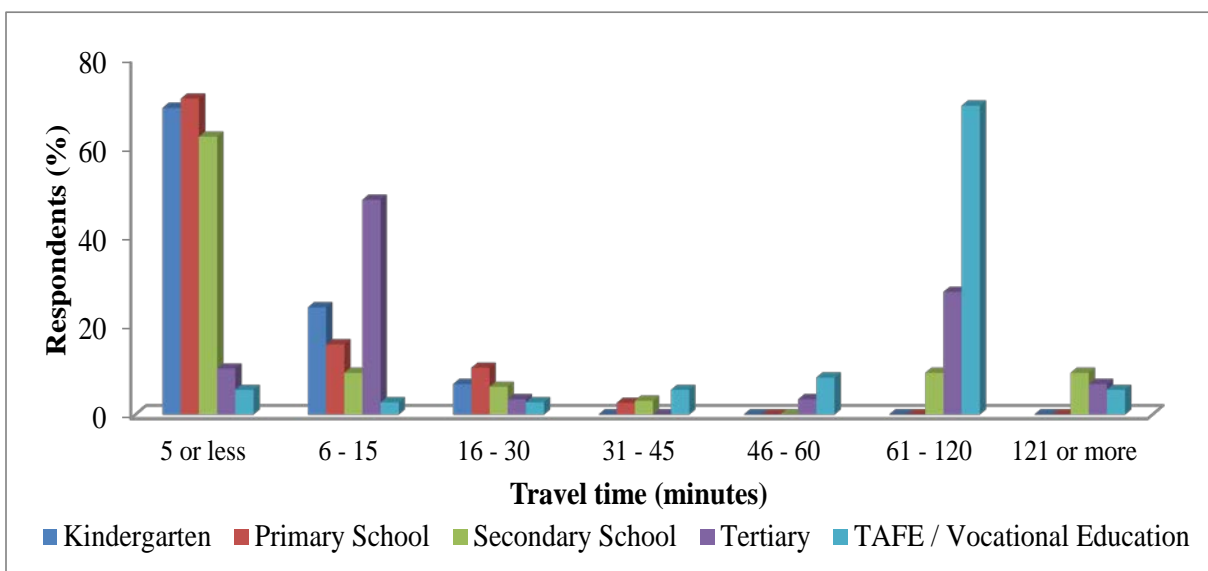
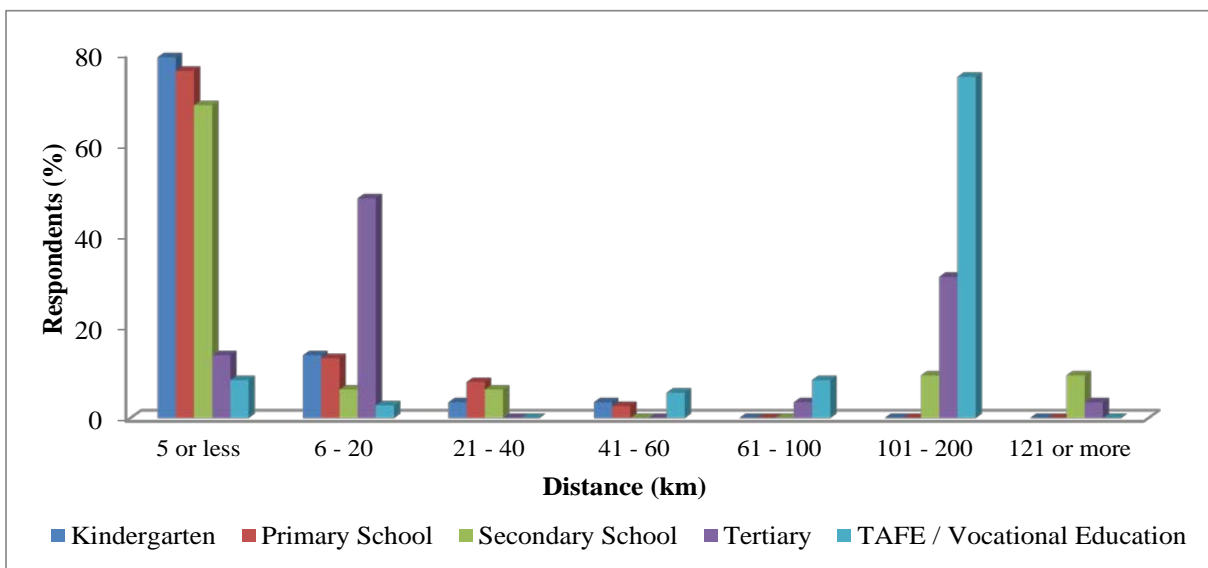


Figure 4: Distance Respondents Travel to Access Educational Services



5.4 Reasonable Distance and Travel Time for Accessing Education Services

When respondents were asked what they felt was a reasonable distance or travel time to access educational services, more than 75% of the respondents advised that it should not be more than 15 minute walk or drive to go to kindergarten and primary schools, equating to less than 5km to these services. Respondents preferred secondary schools to be within 20km but were satisfied with travelling for slightly longer times to access high schools. There was a general trend for respondents to prefer the lower educational levels closer to their homes and to be more accepting of higher educational services being further away and having greater travel times to access these. Despite this, very few considered travelling more than 200 km or 120 minutes to be reasonable (Figure 5 and Figure 6).

Figure 5: Travelling Time that Respondents Consider Reasonable when Accessing Various Educational Services

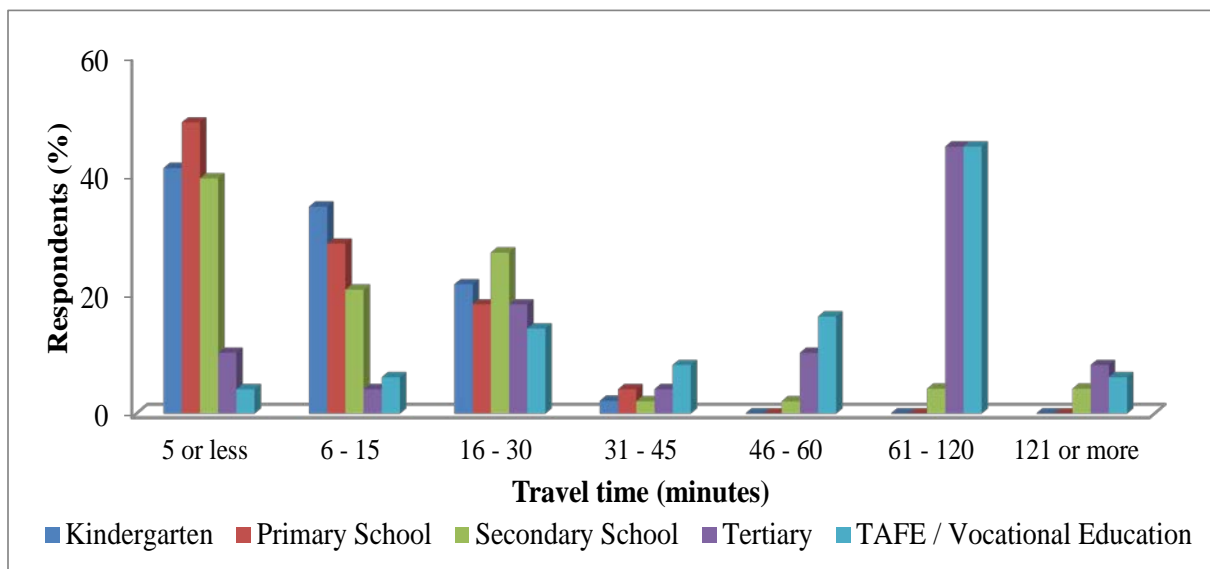
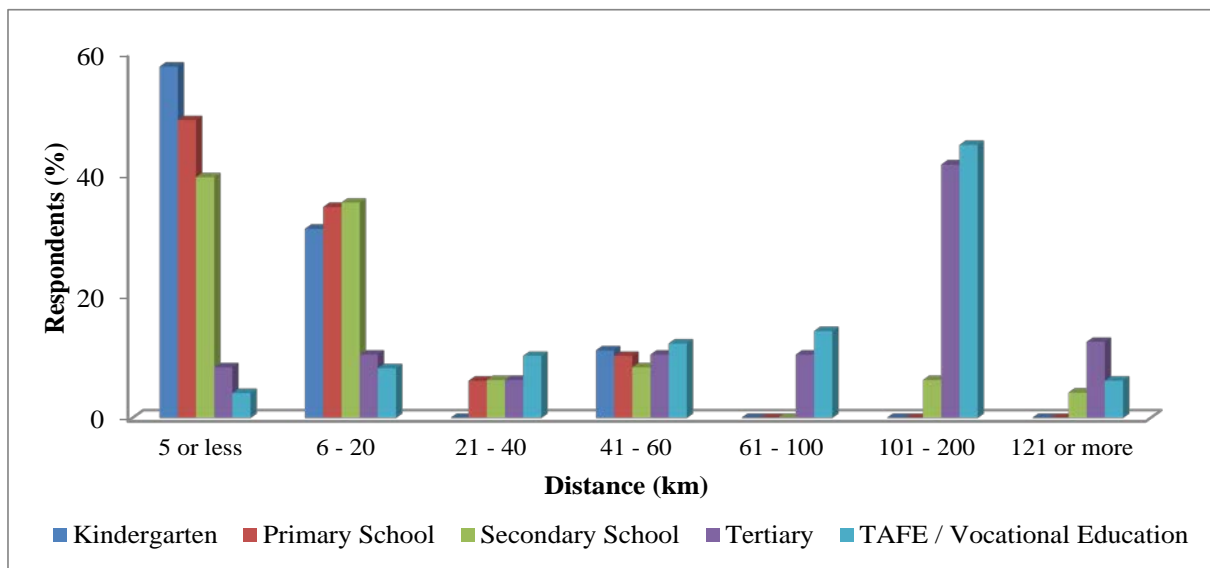


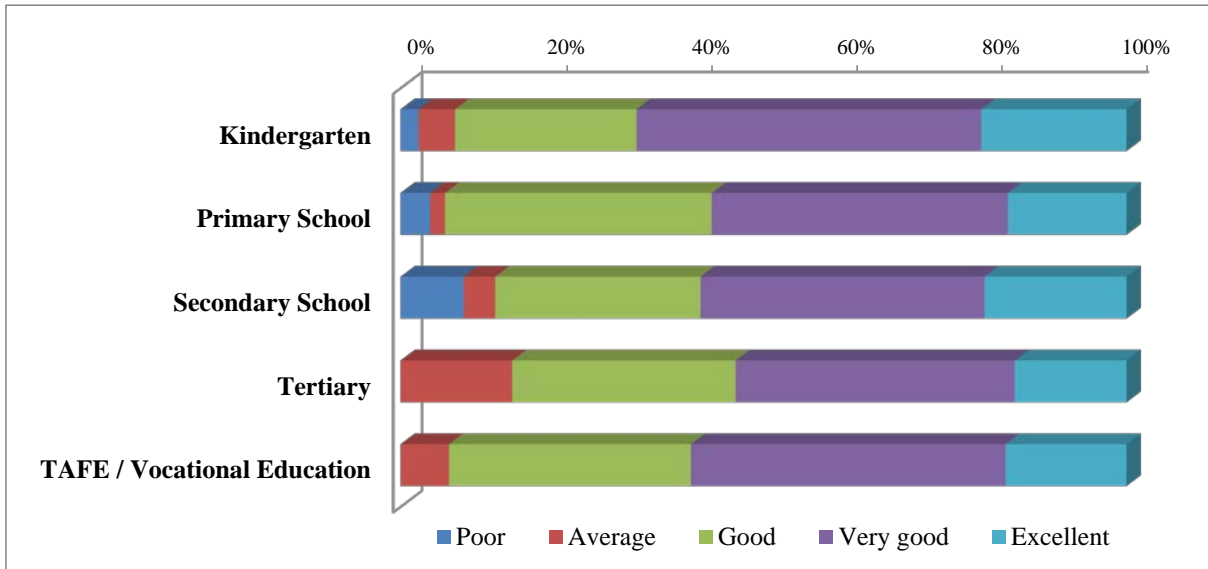
Figure 6: Distances that Respondents Consider Reasonable when Accessing Various Educational Services



5.5 Satisfaction with Current Education Services

Respondents' satisfaction with educational services was generally high, with around 50% satisfied with all levels of educational services. Secondary schooling had the highest level of dissatisfaction with 8% of respondents rating it as 'poor' (Figure 7). Respondents overall satisfaction with educational services is quite good. Integrating this finding with the importance of the education services (above), the need to improve some of the education services such as school and TAFE is highlighted.

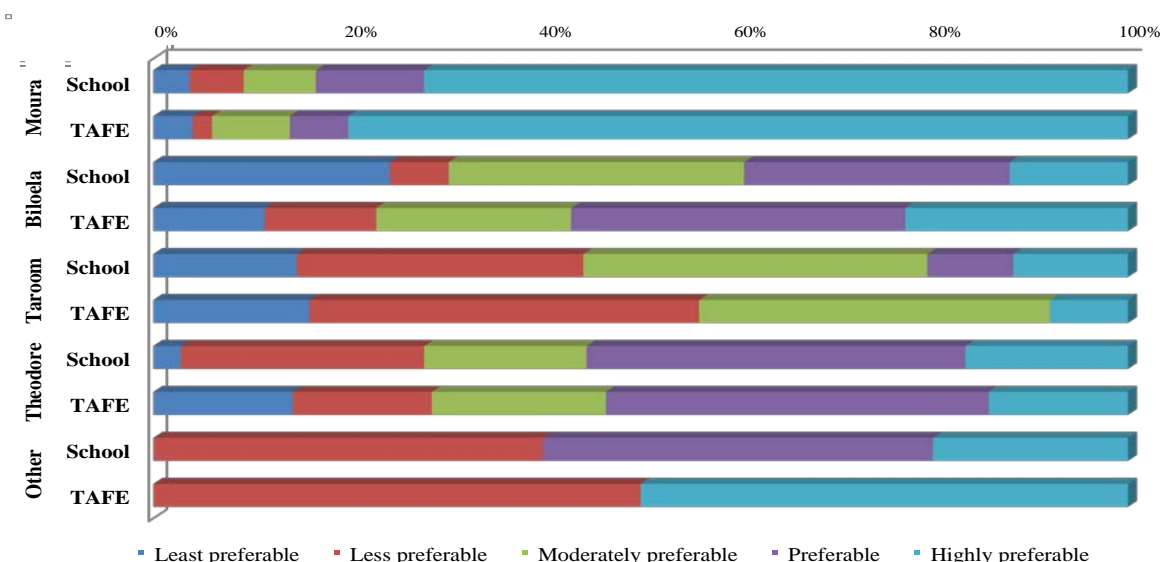
Figure 7: Respondents' Satisfaction with the Current Educational Services



5.6 Preferred Location to Build or Upgrade Existing Educational Facilities

Respondents were asked their preferred location to build an educational or training facility. Two thirds of the respondents would like a new TAFE and school in Moura, or in nearby towns (Figure 8).

Figure 8: Respondents' Preferred Location to Upgrade or Construct New Educational Facilities



Specifically 8% of respondents want a TAFE in Moura. Theodore was the second most preferred location for a TAFE development, followed by Tarron. Biloela was least preferable location for a TAFE. The majority of respondent comments focused on the establishment of a CQ TAFE branch to offer some mining, agriculture and hospitality related courses. While, some respondent suggestions included a branch of CQUniversity in Moura or Banana to offer some advance courses in hospitality management, mining and agricultural services.

6. STAKEHOLDER PERCEPTIONS AND SUGGESTIONS

Stakeholder interviews were conducted at the beginning of the research to understand the overall health and education situation in the case study town of Moura and surrounding region. Findings from this section have also been used to support the findings from the household questionnaire survey and vice versa. This would validate findings regarding the type and location of required education services for Moura residents.

Kindergarten: The Moura Community Kindergarten Inc. is the only kindergarten and child care facility. The kindergarten has two groups of 22 students; the child care operates four days per week and is fully booked with a long waiting list. The performance of the kindergarten and child care was rated highly. The opinions regarding improvements were variable, with some (10%) believing the facilities were good, while others (50-60%) suggest the building requires upgrading. Most stakeholders identified that staff retention was a problem.

Primary and secondary education: Moura has one primary school, with approximately 200 students, and one secondary school with approximately 170 students. There is also a school in Theodore (integrated with the Moura School) which teaches to grade 10. The performance of the primary school was rated highly. Some stakeholders commented on the school's ability to handle the highly transient student populations (due to the turnover of mining families). The secondary school was rated lower than the primary school. The suggested improvements for both schools were variable, with some stakeholders claiming the facilities were good, but more than half suggesting the buildings needed upgrading. The secondary school in particular requires a covered outdoor area. Stakeholders felt that both schools needed more extra-curricular activities. Limited teachers and low student numbers mean only a limited variety of subjects can be taught. This is somewhat abated by the use of virtual and distance education.

Vocational and specialised education: There are no vocational education facilities in Moura. The closest vocational facility is a TAFE in Biloela. There is a special education unit based in Biloela which travels out to the three schools on a needs basis. The performance of the unit is rated highly and no improvements were suggested.

Constraints: Several constraints were identified by stakeholders. The transient mining population leads to a transient student population. This makes it difficult to predict enrolment numbers for a long period of time and therefore the schools ability to have adequate funding for upcoming terms. Due to the high proportion of high income earners (particularly among mining families), residents can afford to send their children to private schools in nearby Rockhampton. So, if families are not happy with Moura schools they prefer to send students to boarding schools, resulting in a loss of enrolment funding for local Moura schools. This vicious cycle is further fuelled by the many farming families of the region, who for generations, have traditionally attended boarding schools.

There is a high teacher turnover, due to teachers leaving Moura (small town syndrome). At the secondary school, for example, of the 17 current teachers, seven of these are recent additions. Attracting good teachers and specialist teachers is an issue. Some stakeholders also stated that there is no accommodation for teachers, which confounds this problem.

Additional facilities: All stakeholders agreed that there were adequate primary and secondary school facilities, but there may be a need for more childcare. The most needed facility was identified as TAFE. The closest TAFE is in Biloela; although not too great a distance (66 km), most potential students are too young to hold a driver's licence or have limited financial support for vehicle costs. This makes travel the main issue for attending a TAFE facility. Some stakeholders suggested building TAFE facilities in Moura, while others found the current Biloela facility adequate with the proviso that public transport is upgraded. Stakeholders offered several suggestions for improving TAFE education: one suggesting educators could travel from other regional centres, such as Rockhampton, to teach specialist courses; another suggested a central educational hub (in Biloela) with public transport to and from other centres; and a third suggestion was to provide night courses for local workers with mobile lab/workshop facilities.

7 CONCLUSIONS

Moura is a typical mining town with a mix of rural activities. The town currently has some educational services that despite some shortcomings prove reasonable prospects for the future. Most stakeholders interviewed rated the performance of the existing primary schools as 'high' while they rated the secondary school lower. Stakeholders identified both levels of schooling needs more extracurricular activities and some capital works (for example a covered outdoor area). They generally agreed that the primary and secondary school facilities were adequate. This was also the opinion of the town's residents, with about two thirds of the respondents being satisfied with the current education services. Stakeholders and residents both commented on the need for more childcare. The most highly sort after facility is a TAFE. There is currently a TAFE in Biloela; however there are no public transport facility between Moura and Biloela. Many stakeholders and survey respondents suggested building TAFE facilities in Moura. It is clear that the options for facilitating this is to build a TAFE facility, as a branch of CQ TAFE, in Moura or upgrade the existing TAFE facility in Biloela by providing adequate public transport facilities. The high proportion of young workers in the mines and hospitality industries in and around Moura would benefit from further study in these areas to improve their career paths. As in Australia, state government is funding the education services, therefore Queensland Government may consider the findings of this study in their future plan for education service delivery in the resources and regional communities.

ACKNOWLEDGEMENT

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REFERENCES

- ABS (2008) *Community Profile under 2006 Census Data*. Canberra: Australian Bureau of Statistics.
- ABS (2012) *Community Profile under 2011 Census Data*. Canberra: Australian Bureau of Statistics.
- AGDE (2014) *Skill Shortages List Queensland 2013-14*. Canberra: Australian Government Department of Employment.
- Akbar, D., J. Rolfe, S. Makiela, T. Bhattarai, J. Mann and G. Tucker (2011) *Regional Sustainability: Developing Service Optimization Model for the Mining Towns in Queensland – A Case Study of Moura*. Centre of Environmental Management, CQUniversity, Rockhampton.

- Australian Workforce and Productivity Agency (2013) *Future Focus: 2013 National Workforce Development Strategy*. Canberra: Australian Government, accessed at www.coag.gov.au/coag_meeting_outcomes/2009-02-05/index.cfm.
- Bradley, D., P. Noonan, H. Nugent and B. Scales (2008) *Review of Australian Higher Education: Final Report*. Canberra: Department of Education, Employment and Workplace Relations, accessed at www.deewr.gov.au/he_review_finalreport.
- BSC (2011) *Moura 2011/2021 Community Plan DRAFT*, Biloela: Banana Shire Council and Economic Development Services – Central Queensland.
- Bullock, P. (2014) “Submission to Inquiry into Technical and Further Education in Australia.” Canberra: Australian Workforce and Productivity Agency, Australian Government.
- Council of Australian Governments (2008) “Meeting, Communique, Canberra, 29th November 2008.” Accessed at www.coag.gov.au/coag_meeting_outcomes/2008-11-29/docs/communique_20081129.pdf.
- DEECD (2013) *Next Steps for Refocusing Vocational Training in Victoria – Supporting a Modern Workforce*. Melbourne: Department of Education and early Childhood Development, Government of Victoria.
- Finn, M., M. Elliott-White and M. Walton (2000) *Tourism and Leisure Research Methods*. Essex: Longman.
- Harper, P. R., A. K. Shahani, J. E. Gallagher and C. Bowie (2005) Planning health services with explicit geographical considerations: A stochastic location-allocation approach. *Omega*, 33, pp. 141-152.
- ILO (2011) *A Skilled Workforce for Strong, Sustainable and Balanced Growth, A G20 Training Strategy*. Geneva: International Labour Office.
- Miles, R., L. Greer, D. Akbar, M. Dawson, T. Lyons, K. Purnell and S. Tabert (2009) *Attracting and Retaining Specialist Teachers and Non-teaching Professionals in Queensland Secondary Schools*. Brisbane: Queensland Department of Education and Training.
- Murray, A. T. and R. A. Gerrard (1998) Capacitated service and regional constraints in location-allocation modelling. *Liorz Science*, 5(2), pp. 103-118.
- Narula, S. C. (1984) Hierarchical location-allocation problems: A classification scheme. *European Journal of Operational Research*, 15, pp. 93-99.
- NSWDEC (2013) *Regional Differentiation and Workforce Planning in NSW*. A report prepared for the NSW Board of Vocational Education & Training. Sydney: NSW Department of Education & Communities, Government of New South Wales.
- OESR (2012) *Queensland Regional Profiles Banana Shire Council Based on Local Government Area (Reform)*. Brisbane: Office of Economic and Statistical Research, Government of Queensland.
- Sahin, G. and H. Sural (2007) A review of hierarchical facility location models. *Computers and Operations Research*, 34, pp. 2310-2331.