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INFLUENCE OF DEMOGRAPHIC VARIABLES ON SUSTAINABILITY IN REGIONAL AUSTRALIAN SMEs

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ABSTRACT

Small and medium-sized enterprises (SMEs) play a significant role in the economy of Regional Australia. They are significant regional development agents contributing to the increased productivity and the improved quality of local life. However, global warming and unethical social behaviours are increasingly being attributed to commercial activity. While, large businesses have accepted the need to adopt sustainability in their management process, SMEs have not paid enough attention to the sustainability issues in their management strategies. There are some demographic variables which are affecting the adoption on sustainable practices by SMEs. This paper investigates the effects of four demographic variables (business size, business category, owners/managers' experience and educational level) on the sustainability adoption by SMEs in a regional context. One way analysis of variance (ANOVA) was used to analyse the survey data from 233 SMEs in the regional city of Ballarat which is located in Western Victoria, Australia. Findings reveal that business size and owners/managers' education have a significant impact on the adoption of socially responsible practices. This paper contributes to the investigation of impacting variables on sustainable business development within SMEs, highlighting significant implications for both theory and practice in the context of a non-metropolitan urban setting.

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INTRODUCTION

The strength of the Australia's national economy and welfare is significantly dependent upon the productivity and the economic contribution of regional areas (Australian Government, 2014). Around two thirds of Australia's export earnings come from regional industries such as agriculture, tourism, retail, services and manufacturing (Australian Government, 2014). Thus, development strategies must be appropriate to the needs and resources of regional areas (Mardaneh, 2012). In addition, small and medium-sized enterprises (SMEs) are significant regional development agents contributing to the increased productivity and the improved quality of local life, so for SMEs to adopt sustainability and regional economic strategies at the same time, enables local communities to benefit from sustainable development, innovation and economic development in their regions (Goldsmith & Samson, 2006).

Global warming, through rising greenhouse gas emissions, is associated with negative consequences of economic development for the human population and the ecosystem (Weart, 2008). The majority of global pollution (up to 70%) is due to the SMEs' environmental impact (Hillary, 2000). So the role of SMEs in achieving sustainable development is very significant and owner/managers and employees of SMEs are no more exempt from environmental and social ethics than anyone else in society.

Although a large majority of businesses in all economies around the world are SMEs and their contribution to the economic sector is significant (Udayasankar, 2008), there are little and limited studies about the SMEs' orientation towards sustainability (Dangelico & Pujari, 2010; Martin-Tapia et al., 2010; Kuckertz & Wagner, 2010). In Regional Australian[1] context, there is a gap in the literature about the experiences of regional SMEs in dealing with sustainability. Also, there is no clear path for local communities and businesses to determine why, where, when, how and how much they should move forward to the sustainable development path in their overall business strategy (Goldsmith & Samson, 2006).

This paper investigates to find an answer for the question of whether there is a significant difference in sustainability adoption between owners/managers with different demographic characteristics in Regional Australian SMEs. For this purpose, positivist quantitative methodology was used to answer the research question. The following subsections present insight into the impact of each demographic variable on the adoption of social and environmental practices in the light of the research findings and the extant literature.

[1] Regional Australia is a term which refers to non-urban areas within Australia. It is more often defined in terms of its qualities like small economic scale, landscape diversity and disparate communities (Charters et al., 2011, p. 3).

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LITERATURE REVIEW

Commitment to sustainable development is one of the prominent characteristics of modern economies. Businesses must engage in sustainable practices to be survived in the modern economies. They need to implement business sustainability principles in their daily operation in order to reduce the costs, manage risks, develop products and services and improve cultural and structural business infrastructures (Azapagic, 2003). Since the largest portion of the total number of businesses, employment and gross domestic product around the world belong to SMEs (Ayyagari et al., 2007; Organisation for Economic Co-operation Development, 2009); they could act as an engine to facilitate the transformation of traditional economies to modern ones.

In Australia, investing in regional community and infrastructure will boost local economies, increase productivity and improve local quality of life (Australian Government, 2014). SMEs in regional areas of Australia contribute the innovation and job growth and stability in the Australian economy (Belz & Schmidt-Riediger, 2010). It is difficult to calculate the SMEs contribution to environmental degradation because there is no comprehensive pollution or resource statistics for SMEs (Organisation for Economic Co-operation Development, 2009). Based on rough estimations, it is known that SMEs contribute to over 70 percent of global pollution and 60 percent of carbon emissions (Walker et al., 2008; Martin-Tapia et al., 2010). In addition, the activity of SMEs in regional areas is highly sensitive to public scrutiny and community sanctioning (Brown & King, 1982; Smith & Oakley, 1994).

According to Simpson et al. (2004), SMEs engagement with sustainability could bring various benefits including waste reduction, cost savings, customer satisfaction, more commitment of employees, improved products, improved public relations and competitive advantage. Sustainable SMEs are able to increase their market value and overtake their business rivals (Porter & Van Der Linde, 1995). Empirical tests show a significant correlation between SMEs effort to adopt sustainability and enhanced performance efficiency, increased profits and better business image (Naffziger & Montagno, 2003). Some scholars (Groundwork, 1998; Roberts et al., 2006) believe that SMEs engagement with sustainability is not an easy task as owners/managers usually suspect the financial and non-financial advantages obtained from the investments in the sustainability adoption.

Limited resources, limited operation and limited visibility compared to large businesses are common characteristics of small firms (Udayasankar, 2008). Perrini et al. (2007) find a correlation between size of the firm and its adoption of socially friendly practices. SMEs are usually invisible to government and environmental bodies and stakeholders as they have limited and small-scale business operations. Udayasankar (2008) believes that lack of resources in SMEs restrict their engagement with sustainability. Small businesses are unable to pay the costs of addressing the social and environmental requirements of their stakeholders and natural environment (Luken & Stares, 2005). However Sarbutts (2003) believes that SMEs in regional areas are able to take advantage of sustainability initiative due to their close relationships with their communities. Roxas and Chadee (2012) believe that government policies and programs for encouraging SMEs to adopt sustainability should concentrate not just on monetary assistance because the adoption of sustainable practices does not only rely on financial resources. SME owners/managers' commitment towards the environment and community is positively related to their educational and experience levels (Besser, 1999). Borga et al. (2009) believe that lack of expertise, information and training about business sustainability is a major barrier for the adoption of sustainability in SMEs.

Although political and economic drivers at the national and international levels are critical for setting the sustainability framework, the key role of regions and local communities should not be neglected in the transformation of the communities toward sustainability (Potts, 2010; Courvisanos, 2012). Yet, sustainability research has usually focussed on large companies due to their higher capacity to develop sustainability strategies (Potts, 2010). SMEs are often not researched because it is too expensive and time consuming to reach them (Rutherfoord et al., 2000). In other words, little information is available about how SMEs are oriented towards the business sustainability issues (Perrini et al., 2007; Lee & Klassen, 2008; Dangelico & Pujari, 2010; Kuckertz & Wagner, 2010; Martin-Tapia et al., 2010) particularly in developing economies (Luken & Stares, 2005). Past studies about the status of sustainability in SMEs are usually conceptual or theoretical (Van Marrewijk & Werre, 2003; Kuckertz & Wagner, 2010; Linnenluecke & Griffiths, 2010; Roxas & Chadee, 2012). The absence of enough studies on SMEs orientation towards sustainable development and the factors impacting SMEs' sustainability adoption might be due to the emergent nature of the sustainability and its relationship with large businesses and industries (Evans & Sawyer, 2010; Kuckertz & Wagner, 2010). This study aims to provide an insight into the significance differences existing in the adoption of social and environmental friendly practices between owners/managers of Regional Australian SMEs with different demographic characteristics.

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DATA AND METHODOLOGY

In this study survey data was collected by means of a questionnaire. The questionnaire was designed in three sections. The first section consisted of questions related to the selected situational characteristics of the respondents such as business category, business size in terms of number of employees, and level of experience, and educational qualification of the owners/managers. Moreover, there were 24 questions in the questionnaire on social and environmental practices (second and third sections) adopted by SMEs. They were constructed from insights gleaned from the literature in social and environmental practices of sustainable businesses; in particular, sustainability practices of small businesses (Lawrence et al., 2006; Yu & Bell, 2007; Gadenne et al., 2009; Lucas et al., 2009; Belz & Schmidt-Riediger, 2010; Brouwers, 2010; Evans & Sawyer, 2010; Collins et al., 2010; Revell et al., 2010; Chow & Chen, 2012; Roxas & Chadee, 2012; Schoenherr, 2012).

A header question was the hub of second and third sections of the questionnaire that read as follows: "Please identify how frequently you or your business has engaged in these social/environmental practices?" Below this header question, the items were presented as statements. Four point Likert scale was used so that a respondent could choose one of the four points for each item, without giving a mid-point response. The scale points were labelled in order to assist a respondent to perceive how frequently an item was adopted by the business owner/manager (Nayak, 2007). The labels were as follows: Often, Sometimes, Seldom, and Never.

The study area in this survey was the major regional city of Ballarat which is located in Western Victoria, Australia, with an estimated population of around 98,000 (City of Ballarat, 2013). Ballarat is the third largest city in the state of Victoria, and it is surrounded in its north, west and south by rural areas and small townships (City of Ballarat, 2013). The primary reason for selecting Ballarat as the study area is that it has a key strategic position at the centre of Regional Victoria's most important freight, tourist and commuter transport routes (City of Ballarat, 2013). As such, Ballarat is a good representative of a major regional city in Australia which has an economy with a large SME business population.

Due to the lack of statistical information and contact details on SMEs in the Ballarat region, all the SMEs registered on the "Manta" website[2] were identified and the questionnaire was sent out to them. The questionnaire was mailed out to all the accessible 1127 SMEs registered in Ballarat on this website. Because all SMEs in the database with a valid and current contact address were contacted, there is no sampling bias from the database itself. In other words, the census method on the Manta website was used for data collection and sampling methods were not applied in this study. The reason for applying the census method rather than sampling is that the response rate in past business studies was found to be low (Gadenne et al., 2009; Belz & Schmidt-Riediger, 2010; Revell et al., 2010). Thus, it was decided to include all the SMEs in Ballarat listed on the Manta to ensure that as large a number of responses as possible were collected. Ethics approval for the study was given by the University of Ballarat (former name of Federation University Australia) Human Research Ethics Committee (Project No. B13-146).

Before embarking on the main data collection, three academic staffs from the Research Services office and two PhD graduates in the Federation University were asked to read and answer the questionnaire. Pre-test respondents checked the design, structure and clarity of the questionnaire to ensure that there were no ambiguous, unclear and misleading questions. A few minor changes were made in the questionnaire after the feedback from the pre-test. Based on the pre-test respondents' comments, the questionnaire was revised and prepared for a pilot study.

The pilot study was conducted before the main study in order to address any deficiencies in the questionnaire's design before time and resources are expended on large scale study (Meyers et al., 2013). The pilot survey was able to test the validity and reliability of the scales in the questionnaire (Sekaran, 2003). A telephone call was made to 60 SMEs which were randomly selected from the Manta website and asked about their willingness to participate in the pilot survey. A total of 53 agreed to participate so copies of the questionnaire were post mailed out to them. Participants were asked to complete the questionnaire and return it within a week. A total of 48 completed questionnaires were returned, indicating a response rate of 90.57%. Cronbach's α (alpha) for reliability of internal consistency (Pedhazur & Schmelkin, 1991; Tabachnick & Fidell, 2007) for social practices was found to be 0.883 and for environmental practices was 0.835. Nunnally (1978) recommends a minimum Cronbach's α of value 0.7. Caplan et al. (1984) state the value must be at least 0.5. Based on these two recommendations, it was concluded that reliability of two sections of the questionnaire was more than adequate.

The main data collection method in this study was a mail survey. For this purpose, the questionnaires were sent out to all 1127 businesses listed in the Manta website. Within two weeks, 158 questionnaires were returned to sender due to wrong address or addresses for which businesses had left. A total of only 102

[2] Manta is the world's largest online community for promoting and connecting small businesses, with more than one million registered users and 87 million company profiles (About Manta Website, 2014).

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questionnaires were completed and returned by mail showing a disappointing response rate of 10.53%. In order to increase the response rate, it was decided to embark on sending a reminder letter to the businesses that had not participated. After sending a reminder letter, a further 48 questionnaires were returned to sender due to wrong address or addresses for which businesses had left. An extra 163 questionnaires were completed and returned by mail, now showing a response rate of 28.77%. According to Hart (1987), response rate in business surveys vary from 17% to 60%, with an average of 36%. Therefore, the response rate for this survey was found to be within the acceptable range of response rates. After creating a clean data file, the nature of the variables were explored and descriptive statistical techniques and one way analysis of variance (ANOVA) were conducted to address the research question. All the analysis was done with SPSS software Version 20.

FINDINGS

Demographics

Although answering all questions in the questionnaire was completely voluntary, the majority of respondents answered all the questions. Missing responses were limited to the question regarding the gender. Total number of respondents was 265, of which 16 businesses were franchisees of a larger national/international firms and 12 businesses were branches of a larger national/international firms. After eliminating these 28 businesses, further analysis was conducted on the remaining 237 respondent businesses.

Based on the Australian Bureau of Statistics (ABS) definition, Australian small business is an actively trading business with 0-19 employees. Medium-sized businesses are actively trading firms with 20-199 employees. A large business is an actively trading firm with 200 or more employees (Australian Bureau of Statistics, 2011). The SME definition by ABS is the one adopted in this paper. Table 1 provides the distribution of the three class intervals of number of employees in respondents' business organisation. As this table shows the majority of respondents' businesses in Ballarat (81.4%) were small businesses. Only four businesses were large and had more than 200 employees. Since this study is exclusively about SMEs, all businesses with more than 200 employees were eliminated from the database and further analysis was conducted on the remaining 233 SME respondent businesses.

TABLE 1. DISTRIBUTION OF THE NUMBER OF EMPLOYEES

Number of Employees	Frequency	Percent
0-19 (Small Businesses)	193	81.4
20-199 (Medium Businesses)	40	16.9
More than 200 (Large Businesses)	4	1.7
Total	237	100

The type of business represented by the respondents was classified under 17 categories. Figure 1 shows the distribution of business categories of respondents' firms, in which "Retail Trade" (45 businesses) and "Arts and Recreation Services" (3 businesses) were the most and least common business categories, respectively.

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FIGURE 1. DISTRIBUTION OF THE BUSINESS CATEGORY OF THE RESPONDENTS

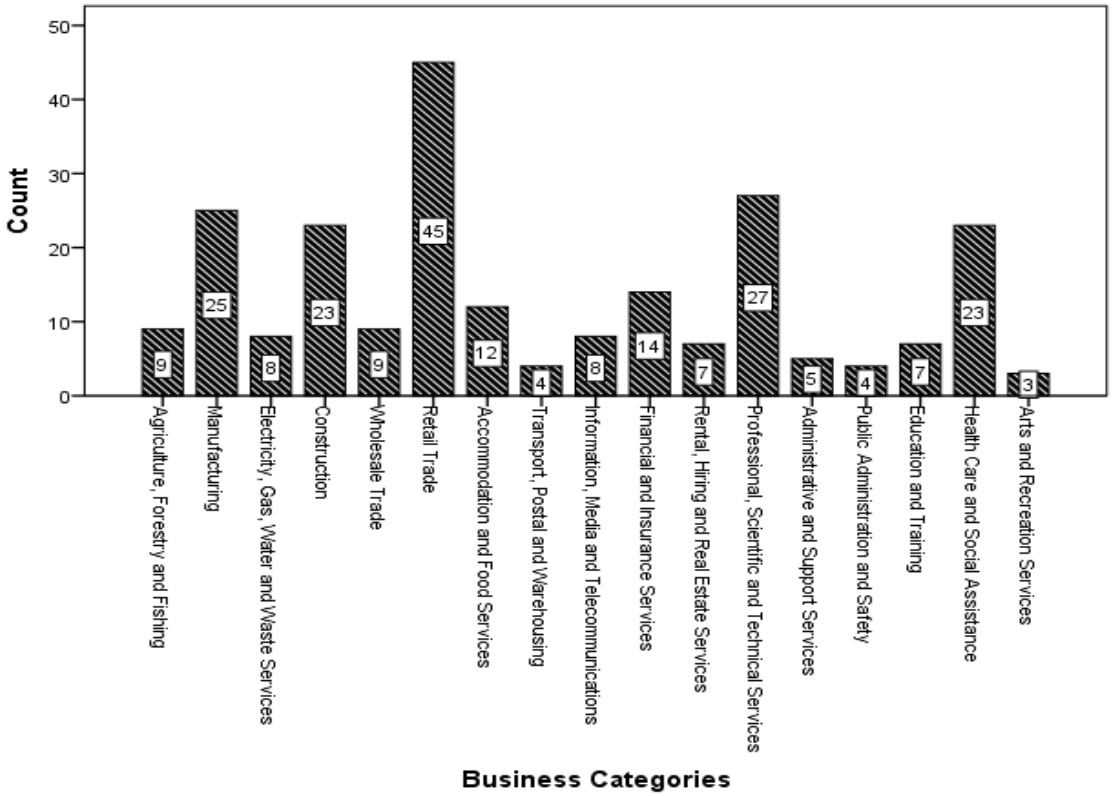

Table 2 shows the distribution of level of experience of the respondents. It is clear from the table that 46.4% of respondents had more than 19 years of experience in their businesses. 9.9% of the respondents had one to five years of experience.

TABLE 2. DISTRIBUTION OF LEVEL OF EXPERIENCE OF RESPONDENTS

Experience Level	Frequency	Percent
1-5 years	23	9.9
6-19 years	102	43.8
More than 19 years	108	46.4
Total	233	100

As Table 3 shows, the highest educational qualification of 33.9% of the respondents was elementary (no formal education, primary and high school). 48.9% of respondents had an undergraduate qualification (bachelor degree and TAFE), and 17.2% of the respondents had postgraduate qualifications (master degree and PhD). These statistics indicate a good level of academic education of business owners and managers in the studied area.

TABLE 3. DISTRIBUTION OF EDUCATIONAL LEVEL OF RESPONDENTS

Educational Level	Frequency	Percent
Elementary Education	79	33.9
Undergraduate Education	114	48.9
Postgraduate Education	40	17.2
Total	233	100

One Way Analysis of Variance (ANOVA)

All respondent SMEs in the data file used in the study were arranged into four sets comprising groups; first set determined by business size, the second set by business category, the third set by experience level of the owners/managers, and the last set by educational level of the owners/managers. In the one-way ANOVA,

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business size, business category, experience and education were considered as independent variables (Tabachnick & Fidell, 2007).

Based on business size, determined by number of employees, the respondents were divided into two groups (see Table 1):

i. Small (0-19 employees)
ii. Medium (20-199 employees)

Based on business category, five categories which have the highest frequency (see Figure 1) were selected. These categories were organised into five groups:

i. Retail Trade (45 businesses)
ii. Professional, Scientific and Technical Services (27 businesses)
iii. Manufacturing (25 businesses)
iv. Construction (23 businesses)
v. Health care and Social Assistance (23 businesses)

Based on experience level of owner/managers, the respondents were divided into three groups (see Table 2):

i. 1-5 years
ii. 6-19 years
iii. More than 19 years

Based on educational level of owner/managers, the respondents were divided into three groups (see Table 3):

i. Elementary education (no formal education, primary and high school)
ii. Undergraduate education (bachelor degree and TAFE)
iii. Postgraduate education (master degree and PhD)

In the ANOVA analysis, the social and environmental practices adopted by respondents became the dependent variables (Tabachnick & Fidell, 2007). Before performing ANOVA, the total scale score for social and environmental practices was needed to be calculated (Pallant, 2013). It means that scores of social and environmental practices for each respondent consist of the addition of scores on each of the items related to social and environmental practices. The Social Practices Scale is a 17-items scale with a response scale from 1 to 4. Hence the minimum value for the total score would be 17 because if a respondent answered 1 (Never) to every item, that overall score would be 17×1=17 and the maximum value would be 68 as it means that a respondent answered 4 (Often) to each item (17×4=68). Same procedure was applied to the Environmental Practices Scale as well. In the environmental practices section of the questionnaire, there were seven items with a response scale from 1 to 4, so the minimum and maximum values for the total score of environmental practices would be 7 and 28 respectively.

The following subsections provide the results of one-way ANOVA to examine whether or not business size, business category, owner/managers' experience and educational levels had a significant impact on the adoption of social and environmental practices.

Impact of Business Size on the Adoption of Social and Environmental Practices

Normality and homogeneity of variance are two assumptions required for conducting ANOVA analysis. This means that data should come from a normal distribution and the variability of scores for each of the groups must be similar (Pallant, 2013). As Table 4 shows the distributions of data in small businesses in both social and environmental practices are not normal as the obtained p-value is less than 5% indicating a violation of the assumption of normality. According to Pallant (2013), the violation of normality should not cause any major problem in groups with large enough sample sizes (more than 30). As the number of cases in small-sized businesses is more than 30, so the violation of normality in this category does not affect the results of ANOVA (Tabachnick & Fidell, 2007).

TABLE 4. NORMALITY TEST FOR TWO BUSINESS SIZES

	Business Size	Hypothesis	Shapiro-Wilk			Result
			Statistics	df	Sig.	
Social Practices	Small	The data come from a normal distribution	0.982	179	0.021	Reject
	Medium	The data come from a normal distribution	0.952	40	0.86	Accept
Environmental Practices	Small	The data come from a normal distribution	0.949	193	0.00	Reject
	Medium	The data come from a normal distribution	0.953	40	0.097	Accept

To test the assumption of homogeneity of variance, Levene's Test for equality of variances was performed. Levene Statistic for social practices was 1.674 with the p-value of 0.197 (greater than 5%)

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(accepting the null hypothesis of equal variances) (Pallant, 2013). In environmental practices, Levene Statistic was 1.205 and p-value was 0.273. After meeting the required assumptions for doing ANOVA (Normality and Homogeneity of Variances), the following hypotheses were tested using ANOVA.

$H0_S$: There is no significant difference in the adoption of social practices between two business sizes ($\mu_1=\mu_2$). It means that business size has had no effect on the adoption of social practices within Ballarat area's SMEs.

$H1_S$: There is a significant difference in the adoption of social practices between two business sizes ($\mu_1\neq\mu_2$). It means that business size has had effects on the adoption of social practices within Ballarat area's SMEs.

$H0_E$: There is no significant difference in the adoption of environmental practices between two business sizes ($\mu_1=\mu_2$). It means that business size has had no effect on the adoption of environmental practices within Ballarat area's SMEs.

$H1_E$: There is a significant difference in the adoption of environmental practices between two business sizes ($\mu_1\neq\mu_2$). It means that business size has had effects on the adoption of environmental practices within Ballarat area's SMEs.

TABLE 5. ANALYSIS OF THE IMPACT OF BUSINESS SIZE ON THE ADOPTION OF SOCIAL AND ENVIRONMENTAL PRACTICES

		Sum of Squares	df	Mean Square	F	Sig.
Social Practices	Between Groups	455.489	1	455.489	5.212	0.023
	Within Groups	18964.492	217	87.394		
	Total	19419.982	218			
Environmental Practices	Between Groups	32.153	1	32.153	1.511	0.22
	Within Groups	4915.598	231	21.280		
	Total	4947.751	232			

Comparing social practices across two business sizes revealed that there is a significant difference in the social practices adoption between two business sizes of small and medium. This conclusion was made based on Table 5. As shown in this table, the F statistic was 5.212 with a p-value of 0.023. Since obtained p-value is less than 5%, then the alternative hypothesis is accepted. This result showed a significant difference in mean score of social practices between small businesses (Mean=46.64, Std.Deviation=9.204) and medium-sized businesses (Mean=50.38, Std.Deviation=9.981).

Table 5 shows that there is no significant difference in the environmental practices adoption between two business sizes of small and medium. As shown in this table, the F statistic was 1.511 with a p-value of 0.22. Since obtained p-value is greater than 5%, then the null hypothesis is accepted.

Impact of Business Category on the Adoption of Social and Environmental Practices

The assumption of the normality was tested and the obtained results showed that data distributions come from a normal population. As Table 6 shows the distributions of data are normal in all five business categories in social practices as all p-values (Sig) are more than 5%. But in Retail Trade category in environmental practices, the obtained p-value (0.002) is less than 5% indicating a violation of the assumption of normality. As the number of cases in this category is 45 so the violation of normality in this category does not affect the results of ANOVA.

TABLE 6. NORMALITY TEST FOR FIVE BUSINESS CATEGORIES

	Business Category	Hypothesis	Shapiro-Wilk			Result
			Statistics	df	Sig.	
Social Practices	Manufacturing	The data come from a normal distribution	0.965	24	0.552	Accept
	Construction	The data come from a normal distribution	0.986	21	0.983	Accept
	Retail Trade	The data come from a normal distribution	0.985	41	0.844	Accept
	Professional, Scientific & Technical Services	The data come from a normal distribution	0.907	26	0.223	Accept
	Health Care and Social Assistance	The data come from a normal distribution	0.970	22	0.717	Accept
Environmental Practices	Manufacturing	The data come from a normal distribution	0.918	25	0.074	Accept
	Construction	The data come from a normal distribution	0.973	23	0.767	Accept
	Retail Trade	The data come from a normal distribution	0.913	45	0.002	Reject
	Professional, Scientific & Technical Services	The data come from a normal distribution	0.930	27	0.071	Accept
	Health Care and Social Assistance	The data come from a normal distribution	0.960	23	0.457	Accept

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The results of Levene's Test revealed that data are suitable for doing ANOVA. In social practices, Levene Statistic was 1.446 and p-value was 0.223 (accepting the null hypothesis of equal variances). In environmental practices, Levene Statistic was 1.092 and p-value was 0.363 (greater than 5%). After meeting the required assumptions for doing ANOVA, the following hypotheses were tested using ANOVA.

$H0_S$: There is no significant difference in the adoption of social practices between five business categories ($\mu1=\mu2=\mu3=\mu4=\mu5$). It means that business category has had no effect on the adoption of social practices within Ballarat area's SMEs.

$H1_S$: There is a significant difference in the adoption of social practices between five business categories ($\mu1\neq\mu2\neq\mu3\neq\mu4\neq\mu5$). It means that business category has had effects on the adoption of social practices within Ballarat area's SMEs.

$H0_E$: There is no significant difference in the adoption of environmental practices between five business categories ($\mu_1=\mu_2=\mu_3=\mu_4=\mu_5$). It means that business category has had no effect on the adoption of environmental practices within Ballarat area's SMEs.

$H1_E$: There is a significant difference in the adoption of environmental practices between five business categories ($\mu_1\neq\mu_2\neq\mu_3\neq\mu_4\neq\mu_5$). It means that business category has had effects on the adoption of environmental practices within Ballarat area's SMEs.

TABLE 7. ANALYSIS OF THE IMPACT OF BUSINESS CATEGORY ON THE ADOPTION OF SOCIAL AND ENVIRONMENTAL PRACTICES

		Sum of Squares	df	Mean Square	F	Sig.
Social Practices	Between Groups	583.153	4	145.788	2.284	0.064
	Within Groups	8235.056	129	63.838		
	Total	8818.209	133			
Environmental Practices	Between Groups	81.683	4	20.421	1.009	0.405
	Within Groups	2793.590	138	20.243		
	Total	2875.273	142			

As Table 7 shows there is no significant difference in the social practices adoption between five business categories. As shown in this table, the F statistic was 2.284 with a p-value of 0.064. Since obtained p-value is greater than 5%, then the null hypothesis is accepted.

Table 7 also shows that there is no significant difference in the environmental practices adoption between five business categories (the F statistic was 1.009 with a p-value of 0.405).

Impact of Owners/managers' Experience Level on the Adoption of Social and Environmental Practices

The assumption of the normality was tested and the obtained results showed that data distributions do not come from a normal population in two experience levels (6-19 years and more than 19 years) in both social and environmental practices. Since the numbers of cases in these groups are more than 30, the violation of normality in these groups does not affect the results of ANOVA.

TABLE 8. NORMALITY TEST FOR THREE EXPERIENCE LEVELS

	Business Size	Hypothesis	Shapiro-Wilk			Result
			Statistics	df	Sig.	
Social Practices	1-5 years	The data come from a normal distribution	0.936	20	0.203	Accept
	6-19 years	The data come from a normal distribution	0.974	99	0.047	Reject
	More than 19 years	The data come from a normal distribution	0.972	100	0.034	Reject
Environmental Practices	1-5 years	The data come from a normal distribution	0.927	23	0.096	Accept
	6-19 years	The data come from a normal distribution	0.938	102	0	Reject
	More than 19 years	The data come from a normal distribution	0.949	108	0	Reject

In social practices, Levene Statistic was 2.329 and p-value was 0.1 greater than 5% (accepting the null hypothesis of equal variances). In environmental practices, Levene Statistic was 1.463 and p-value was 0.234 (greater than 5%). After meeting the required assumptions for doing ANOVA, the following hypotheses were tested using ANOVA.

$H0_S$: There is no significant difference in the adoption of social practices between three experience levels ($\mu1=\mu2=\mu3$). It means that owner/managers' experience has had no effect on the adoption of social practices within Ballarat area's SMEs.

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$H1_S$: There is a significant difference in the adoption of social practices between three experience levels ($\mu1\neq\mu2\neq\mu3$). It means that owner/managers' experience has had effects on the adoption of social practices within Ballarat area's SMEs.

$H0_E$: There is no significant difference in the adoption of environmental practices between three experience levels ($\mu1=\mu2=\mu3$). It means that owner/managers' experience has had no effect on the adoption of environmental practices within Ballarat area's SMEs.

$H1_E$: There is a significant difference in the adoption of environmental practices between three experience levels ($\mu1\neq\mu2\neq\mu3$). It means that owner/managers' experience has had effects on the adoption of environmental practices within Ballarat area's SMEs.

TABLE 9. ANALYSIS OF THE IMPACT OF OWNERS/MANAGERS' EXPERIENCE LEVEL ON THE ADOPTION OF SOCIAL AND ENVIRONMENTAL PRACTICES

		Sum of Squares	df	Mean Square	F	Sig.
Social Practices	Between Groups	414.618	2	207.309	2.356	0.097
	Within Groups	19005.364	216	87.988		
	Total	19419.982	218			
Environmental Practices	Between Groups	36.402	2	18.201	0.852	0.428
	Within Groups	4911.349	230	21.354		
	Total	4947.751	232			

As Table 9 shows there is no significant difference in the social practices adoption between owners/managers with three experience levels. As shown in this table, the F statistic was 2.356 with a p-value of 0.097 (the null hypothesis is accepted).

Table 9 also shows that there is no significant difference in the environmental practices adoption between owners/managers with three experience levels (F statistic was 1.009 with a p-value of 0.405).

Impact of Owners/managers' Educational Level on the Adoption of Social and Environmental Practices

In social practices, the distribution of data is normal in two groups of undergraduate and postgraduate as the assigned p-values (Sig) are more than 5%. But the obtained p-value in elementary group (0.024) is less than 5% indicating a violation of the assumption of normality. Since the number of cases in the elementary group is 74, so the violation of normality in this category does not affect the results of ANOVA. As shown in Table 10, the distribution of data in environmental practices is not normal in three educational levels as the assigned p-values (Sig) are equal to or less than 5% so the alternative hypothesis of non-normal distribution is accepted. The violation of normality should not cause any major problem as the numbers of cases in these intervals are more than 30.

TABLE 10. NORMALITY TEST FOR THREE EDUCATIONAL LEVELS

	Business Category	Hypothesis	Shapiro-Wilk			Result
			Statistics	df	Sig.	
Social Practices	Elementary	The data come from a normal distribution	0.961	74	0.024	Reject
	Undergraduate	The data come from a normal distribution	0.983	105	0.202	Accept
	Postgraduate	The data come from a normal distribution	0.972	40	0.412	Accept
Environmental Practices	Elementary	The data come from a normal distribution	0.936	79	0.001	Reject
	Undergraduate	The data come from a normal distribution	0.947	114	0.00	Reject
	Postgraduate	The data come from a normal distribution	0.945	40	0.05	Reject

The results of Levene's Test revealed that data are suitable for doing ANOVA. In social practices, Levene Statistic was 1.428 and p-value was 0.242. In environmental practices, Levene Statistic was 2.282 and p-value was 0.104. After meeting the required assumptions for doing ANOVA, the following hypotheses were tested using ANOVA.

$H0_S$: There is no significant difference in the adoption of social practices between three educational levels of owner/managers ($\mu_1=\mu_2=\mu_3$). It means that owner/managers' education has had no effect on the adoption of social practices within Ballarat area's SMEs.

$H1_S$: There is a significant difference in the adoption of social practices between three educational levels of owner/managers ($\mu_1\neq\mu_2\neq\mu_3$). It means that owner/managers' education has had effects on the adoption of social practices within Ballarat area's SMEs.

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$H0_E$: There is no significant difference in the adoption of environmental practices between three educational levels of owner/managers ($\mu_1=\mu_2=\mu_3$). It means that owner/managers' education has had no effect on the adoption of environmental practices within Ballarat area's SMEs.
$H1_E$: There is a significant difference in the adoption of environmental practices between three educational levels of owner/managers ($\mu_1\neq\mu_2\neq\mu_3$). It means that owner/managers' education has had effects on the adoption of environmental practices within Ballarat area's SMEs.

TABLE 11. ANALYSIS OF THE IMPACT OF OWNERS/MANAGERS' EDUCATIONAL LEVEL ON THE ADOPTION OF SOCIAL AND ENVIRONMENTAL PRACTICES

		Sum of Squares	df	Mean Square	F	Sig.
Social Practices	Between Groups	583.1	2	291.55	3.343	0.037
	Within Groups	18836.882	216	87.208		
	Total	19419.982	218			
Environmental Practices	Between Groups	71.73	2	35.865	1.692	0.186
	Within Groups	4876.021	230	21.2		
	Total	4947.751	232			

Comparing social practices across three educational levels of the owners/managers revealed that there is a significant difference in the social practices adoption between owners/managers with three educational levels of elementary, undergraduate, and postgraduate. As shown in Table 11, the F statistic was 3.343 with a p-value of 0.037. Since obtained p-value is less than 5%, then the alternative hypothesis is accepted. Post Hoc comparisons using the Tukey HSD test indicated that the mean score for Elementary group (Mean=45.04, Std.Deviation=10.106) was significantly different from Undergraduate group (Mean=48.51, Std.deviation=8.454) as the related p-value was 0.04 (less than %5). Postgraduate group (Mean=48.43, Std.Deviation=10.064) did not differ significantly from either Elementary or Undergraduate groups.

Table 11 shows that that there is no significant difference in the environmental practices adoption between owners/managers with three educational levels of elementary, undergraduate and postgraduate. As shown in this table, the F statistic was 1.692 with a p-value of 0.186.

DISCUSSION

The study found that business size made an impact on the adoption of socially friendly practices within Ballarat area's SMEs. In this study, the adoption of social practices was found to be higher in medium sized businesses rather than small businesses. The higher adoption of social practices in medium sized businesses may be attributed to the availability of the resources. Small businesses are unable to implement sustainable activities as they do not have enough resources. It confirms Perrini et al. (2007) study which shows size of the firm impacts its adoption of socially friendly practices. Although, Roxas and Chadee (2012) contradict this issue and believe that small firms are capable to adopt sustainable practices irrespective of their resources. This is contrary to the view that limited resources of small businesses make them unable to implement sustainable activities (Udayasankar, 2008). Luken and Stares (2005) discuss that small businesses are unable to pay the costs of addressing the social and environmental requirements of their stakeholders and natural environment.

This paper showed that business category had no impact on the adoption of social and environmental friendly practices. In other words any business category must be able to adopt the activities which are socially and environmentally friendly. Business category is not imposing a constraint or a disadvantage to engage in the sustainable practices. For example, a strategic social activity such as staff training is not only important to a manufacturing business, but also important to a retail trading business.

This paper revealed that owners/managers' educational level made an impact on the adoption of social practices within SMEs in Ballarat. Particularly, owners/managers with undergraduate educational qualifications adopted social practices more than owners/managers with elementary educational qualifications. Borga et al. (2009) contend that lack of expertise, information and training about business sustainability is a major barrier for the adoption of sustainability in SMEs. So it could be concluded that owners/managers with higher educational qualifications know more about business sustainability, resulting in higher adoption of sustainable practices. In other words, owners/managers with higher educational qualifications have more chance to learn about the advantages of the adoption of business sustainability. Roxas and Chadee (2012) believe that commitment towards business sustainability and the adoption of sustainable practices requires knowledge and experience about what kind of activities best fit the firms needs as well as how to implement such activities. Owners/managers' educational level contribute to enhance such knowledge and skill. Also a positive correlation between the level of education and experience of SME owners/managers and their commitment towards the environment and community is found in a study by Besser (1999). Potts (2010) believes that the awareness of

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sustainability in the community could be developed by education, leading to increase in the demand for environmentally and socially friendly products and services. Owners/managers with high level of education are fairly aware of this demand in the community, so they try to engage in the programs and practices which are supportive for the environment and community. Thus, this paper upholds the view that owners/managers' educational level can influence their adoption of sustainable activities.

The study contends that even an unexperienced owner/manager must be able to adopt the activities which are socially and environmentally friendly. Owners/managers' experience level is not imposing a constraint or a disadvantage for SMEs in regional Australia in supporting local community and environment. For example, a strategic environmental activity such as recycling is not only important to a business with a highly experienced owner/manager, but also important to a business with an unexperienced owner/manager.

CONCLUSIONS

Given the international variation in defining SMEs, firms classified as SMEs in this study may be categorised differently in other countries. Hence the findings of this paper may not necessarily represent the sustainability orientation of firms that are categorised as SMEs in other countries. Also any generalisations that are made in the study are limited to the population of Ballarat's SMEs provided in the electronic database of Manta. Moreover, the findings in the study are limited by the extent to which the respondents were honest, careful, and without bias in responding to the survey instrument.

The results of this paper can provide practical advice on how to contribute the implementation of sustainable practices and assist SMEs to recognise and understand that they are already practising sustainability at some level. It could be done through creating a forum for sharing experiences and giving and receiving ideas; informing regional SMEs about the business benefits of being sustainable; and distributing information about the least initiatives for SMEs to become sustainable.

Using posters and newsletters is one of the simplest and cheapest ways for raising awareness of sustainability among SMEs' owners/managers and employees. These information tools provide simple and easy to understand facts about sustainability and explain how each employee can contribute to making the business more sustainable. Also, the internal training practices could be expanded to include a short introduction to sustainability and the importance of being a sustainable business in the community. Moreover, leadership training courses is another powerful tool to motivate owners/managers of SMEs to adopt sustainable business practices. As suggested by Gadenne et al. (2009), government campaigns and promotional advertising are two effective ways to enhance SME owners/managers knowledge about benefits associated with environmentally and socially friendly practices.

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