

# A JOURNEY TO MEASURE STUDENT COMMUNITY ENGAGEMENT BENEFITS: EVIDENCE FROM AUSTRALIA

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## ABSTRACT

*Community engagement is a phenomenon that has received increasing attention among institutions of higher learning in recent years, and students engaging with communities are generally seen as beneficial. Given this, surprisingly little is known about this form of engagement in Australian higher education, let alone methods to measure its benefits on students. This study discussed the development of the Student Community Engagement Benefits Questionnaire (SCEBS), a questionnaire that measures the perceptions of community engagement benefits among undergraduate students in Australia. The final questionnaire has 32 items allocated to four benefit scales: (1) Career skills, (2) Diversity skills, (3) Interpersonal skills, (4) Civic skills. Most benefit items had a factor loading of at least 0.40 with its own scale. The results of the factor analysis revealed that the four scales accounted for 53% of the total variance. The alpha reliability coefficient for the four scales ranged from 0.79 to 0.91. Based on these findings, the Student Community Engagement Benefits Scale (SCEBS) is a valid and reliable instrument that can be used in the field of education. Undergraduate students also reported statistically significant changes in the four dimensions after participating in community engagement activities.*

**Keywords:** Student community engagement; service learning; career skills; diversity skills; interpersonal skills; civic skills

## INTRODUCTION

University students in their own capacity play an important role in engaging within the university and with the external communities. The act of students engaging with learning is termed “student engagement”. In a broader term, ‘student engagement is concerned with the nature of students’ involvement with activities and conditions likely to generate learning’ (Coates, 2005) and is linked with high-quality learning outcomes. On the other hand, “student community engagement” is a form of experiential education in which students engage in activities that address community needs. It is a phenomenon concerning students’ interaction with external communities that is likely to generate benefits to the students. Student community engagement is essentially a specific kind of student engagement.

The study of student community engagement is not new in North America, South Africa, and some Asian countries. Over the years, the term has evolved and ranged from ‘community service’, ‘outreach’, ‘engagement’, ‘community service learning’, ‘work-based learning’, ‘internship’, ‘practicum’ to ‘service-learning’ and others. Likewise, student community engagement is not a new concept in Australia; in fact, it is an activity of emerging

significance in contemporary Australian higher education. However, studies conducted in Australia are limited to single institutions (e.g. Bernado, Butcher & Howard, 2012; Lee & Holland, 2008; Parker et al., 2009). So far there have been very limited studies done in identifying and measuring the effects of such engagement on undergraduate students.

The fundamental question to be asked of any educational program or intervention is how students are affected. The effects of participating in community engagement activities have implications not only for students, but also for long-range institutional policy. Before deciding to strengthen or to expand community engagement programs, especially before embedding community engagement into the university curriculum, institutions need to ask an important question: How and in what way will a student's educational and personal development be affected? With this question at its core, this study was undertaken to explore the effects of student community engagement in the Australian higher education. Despite the growth of student community engagement activities in Australian universities, the outcomes have not been studied extensively. This study is a timely investigation as it sheds more light on what student community engagement encompasses the dynamics, the engagement behaviour among students, and how community engagement benefits can be measured objectively in a valid and reliable way.

The purpose of this study is to describe the development of Student Community Engagement Benefits Questionnaire (SCEBQ), an instrument to measure benefits undergraduate students gain from participating in community engagement activities. This study contributes to the community engagement literature as the first study attempting to develop and validate an instrument to objectively measure the benefits students gain from community engagement activities. Secondly, such instrument will make an important contribution to the field of community engagement as at present, there is no existing instrument available suited for the Australian higher education context. It can be used to measure the benefits students gain as a result of participating in community engagement activities. The SCEBQ is also expected to help universities, faculties and administrators to gain more insight, better manage and improve community engagement activities involving students. This article starts with information on student community engagement in the Australian higher education context, followed by the stages in the development of SCEBQ and a discussion of findings of this study. Lastly, the contributions of this study towards the research in community engagement are discussed.

## **LITERATURE REVIEW**

What is community engagement? The battle to define community engagement and its nomenclature has been going on for several decades. For instance, Gelmon, Seifer, Kauper-Brown and Mikkelsen (2005) define community engagement as applying institutional resources such as knowledge and expertise of students, faculty and staff, political position, buildings and land, to address and solve challenges facing communities through collaboration with these communities. Holland (2005) explains that community engagement describes the intentional collaboration between a university and its external communities. It is a mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity. Further to that, a university's external communities include local, state, national and global communities encompass profit and non-profit organizations, government and non-governmental organizations. Winter, Wiseman and Muirhead (2006) reveal that community engagements of academic institutions come in various forms, among them are engagement

through teaching and learning, community service, engaged research, business industry and professional links, social and cultural engagement, partnership with schools and other educational providers, economic development, students organization and participation. To summarize, community engagement is a two-way scholarly work that may be initiated or planned and coordinated by either side or in partnership, which are mutually beneficial and which cut across the missions of teaching, research and service.

Surprisingly, given its emergence in higher education and gearing up momentum in gaining importance, no common understanding of community engagement has emerged or has been developed in the context of Australian higher education. There are no performance indicators for community engagement that are routinely employed across the sector, nor are there government policy frameworks to support its development (Clarke, 2009). Community engagement is on top of the priority list only among a handful of Australian universities due to several factors. Some of these factors include the lack of a strong tradition of relevance and contribution to nation-building such as that of in the USA, lack of funding, and community engagement being seen as a collection of uncoordinated and largely unsupported activities carried out by academics in their own time (Clarke, 2009). Despite this, community engagement is gaining increased attention on the national and international agendas of both government and higher education institution (Winter et al., 2006). To support this, Australian University Community Engagement Alliance (AUCEA), now known as Engagement Australia, was formed in 2001. AUCEA develops tools and encourage networking, dialogue, learning and scholarship to facilitate meaningful connections between its member universities and the local and regional communities in which they are located (Garlick & Langworthy, 2008).

### ***Community Engagement in Australian Higher Education***

Student community engagement is a fairly new concept in Australian higher education and its development is still in its infancy. A difficulty with the case studies outlined in Watson, Hollister, Stroud and Babcock (2011) is that each university interprets student engagement differently. Community engagement, community partnership, outreach and service learning are sometimes used interchangeably. A brief research on the academic literature on the term “engagement” reveals other related terms such as “service learning” (Madsen & Turnbull, 1996), “authentic learning” (McKenzie, Morgan, Cochrane, Watson & Roberts, 2002) “experiential education” (Edwards, Money & Heald, 2001). All of the above terms have the same underlying concept - education institution partnering with external organizations to provide students with real-life experience, with possible direct benefits to the students and partnering organization, and indirect benefits to faculty and institutions. It involves students’ intellectual and civic engagement that link their work in the classroom to real-world problems and world needs. Increasingly, community engagement is being incorporated into the university settings through the integration of service learning into curriculum design (Zlotkowski, 1996). Just like the umbrella term community engagement, student community engagement, widening participation, service learning, social engagement and curriculum integration are picked up variously in many of the case studies but not systematically addressed in a common framework. While the battle to define the nomenclature continues, this study has wrestled definitional difficulties and developed its own working definition of student community engagement as activities undergraduate students participate in that are normally:

- carried out on a voluntary basis or as part of course requirement;
- organised through the university;
- involving people external to the university;
- conducted within the university, outside the university, or outside Australia;
- unrelated, directly or indirectly related to field of academic study
- mutually beneficial
- not paid

Since the literature in the area of student community engagement is limited, and a brief search on the literature suggests that student engagement reveals other related terms such as “service learning” (Madsen & Turnbull, 1996), this study refers to service learning as student community engagement. The following section discusses the benefits of student community engagement in the form of service learning.

### ***Benefits of Student Community Engagement***

Empirical studies on the outcomes of service-learning on students abound in the literature. This was the first area of research and continues to be the largest arena for study to date. In all of the research agendas, the questions of student learning remain central. Prior to the emergence of service-learning, community service was an important part of the mission of a university, and was one of the values it endeavoured to instill in its students (Cohen, 1994; Markus, Howard, & King, 1993). Community service activities aim to prepare students for adulthood and citizenship by sensitizing them to community needs and showing them how their time and talents can make a difference in their community (Smith, 1994). In the mid-1990s, community service was integrated into the curriculum and regarded as service-learning from then on. In marking that transition, several large-scale longitudinal studies conducted in the United States of America have compared the value-added differences between voluntary community service and service-learning.

As one of the foremost higher education researcher for more than three decades, Alexander Astin and his colleagues at Higher Education Research Institute (HERI) at University California Los Angeles (UCLA) carried out a longitudinal study of community service programs. Using 3,450 students attending 42 institutions between 1990 and 1994, Astin and Sax (1998) investigated the impact of community service participation on undergraduate student development. They find that service-learning has shown to produce both academic and non-academic outcomes for college students. Notable areas include increased grade point average, retention, degree completion, graduate degree aspiration, civic responsibility, social self-confidence, critical thinking skills, conflict-resolution skills and understanding of national and community problems. The pattern of the findings is striking; every one of the 35 outcome measures was favourably influenced by engagement in some form of service work. These beneficial effects occur for all types of services irrespective of whether the activities are concerned with education, human needs, public safety or the environment. These studies also resulted in empirical findings that service-learning have unique contributions beyond those of voluntary community service. Their subsequent study involved surveying over 8000 first year students in 1994, surveying them again at graduation in 1998, and then six years after graduation (Astin & Vogelgesang, 2006). Subsequent to that, Astin, Vogelgesang, Ikeda and Yee (2000) conducted a study involving 22,000 students that compared service-learning and generic community service. Their findings once again confirmed that service-learning has

benefits over and above those of generic community service in the development of cognitive skills among students.

Apart from the large-scale studies above, other smaller case studies conducted over the years have shown the significant impact of service-learning in enhancing student competencies (Friedman, 1996), team building, leadership, conflict resolution, communication, organization and time management (Tucker, McCarthy, Hoxmeier & Lenk, 1998), promoting self-efficacy (Moore & Sandholtz, 1999), increased personal development, social responsibility, interpersonal skills, tolerance, learning, and application of learning (Eyler & Giles, 1999). It was also recognized that service-learning has the effect of enhancing student competencies through providing theory to real world linkages, with the ability to change with the environment and foster innovation (Govekar & Rishi, 2007). In a cross-disciplinary survey of research on service-learning and student outcomes, Rama, Ravenscroft, Wolcott and Zlotkowski (2000) highlighted the potential of service-learning to enhance technical and cognitive capabilities and citizenship skills among students. Further to that, engagement in service-learning projects also have shown to increase students' commitment to service (McCarthy & Tucker, 2002), preparedness for careers (Gray, Ondaatje & Fricker, 2000), personal growth, self-esteem, and personal efficacy (Primavera, 1999), communication skills and social issue awareness (Leung, Liu, Wang & Chen, 2006), citizenship (Lester, Tomkovick, Wells, Flunker & Kickul, 2005), and commitment to social justice and social change (Roschelle, Turpin & Elias, 2000).

Apart from gaining benefits from the opportunity to connect the service experience to the intellectual content of the classroom, students engaged in service-learning gain a glimpse of the real world by engaging with the community (Astin et al., 2000). Eyler, Giles, Stenson and Gray (2001) identified a number of positive student outcomes associated with student participation in service-learning. They included academic development (mastery of discipline material, problem solving, and critical thinking), personal development (personal efficacy, leadership, and communication skills), social development (reducing stereotypes, facilitating racial and cultural understanding, and social responsibility), and career development (confidence, networking, and 'real world' experience).

Service-learning is a subset of student community engagement. While the literature on student community engagement is limited, reference was made predominantly to service-learning to inform the discussion of student community engagement as defined in this study. As a conclusion, there is no doubt that service-learning has many benefits for students. While most of the likely benefits are well-canvassed and documented, there are more yet to be uncovered, in relation to the benefits for students from participating in community engagement activities, especially in the context of Australian higher education.

### ***Background of This Study***

Student community engagement research in the form of service-learning has a long and illustrious history involving a variety of instrument. However, there is limited study focusing on the development and validation of an instrument to measure the benefits students gain from community engagement activities in the Australian higher education context. This study is one of the first that attempts to develop the Student Community Engagement Benefits Questionnaire (SCEBQ). The focus of this study is to develop an instrument to objectively assess the benefits student gain from community engagement. Therefore, it is essential to

examine the literature on measurement. In this study, references are made to the measurement instrument developed to gauge benefits of service learning. These instruments include:

- The Scale of Service Learning Involvement (SSLI) by Olney and Grande (1995).
- Community Service Self-Efficacy Scale (CSSSES) by Reeb, Katsuyama, Sammon and Yoder (1998).
- Civic Responsibility Outcomes, Academic Outcomes and Life Skills Outcomes Scale by Astin and Sax (1998).
- Citizenship Skills, Citizenship Confidence, and Social Justice Perceptions Scale by Eyler, Giles and Braxton (1997).
- The Community Service Attitudes Scale (CSAS) by Shiarella, McCarthy and Tucker (2000).
- The Civic Attitudes and Skills Questionnaires (CASQ) by Moely, Mercer, Ilustre, Miron and McFarland (2002).
- Service Learning Benefits (SELEB) Scale by Toncar, Reid, Burns, Anderson and Nguyen (2006).

The above instruments were important and served as the basis of this current study and much of the references were made to the above scales.

## **METHOD**

The aim of this investigation was to identify the benefits university students gain from participating in community engagement activities. This study was undertaken in four stages.

### **Stage 1**

A comprehensive literature review was carried out with an eye towards identifying the effect for students from participating in community engagement activities. It is important to note that the benefits identified were from service-learning. This study draws a direct link between student community engagement and service-learning, with service-learning as a subset of student community engagement. This crucial step was carried out to identify the items in the existing instruments which can be applied in the Australian context. After scrutinizing 98 items in four studies done in the United States, some irregularities were noted. First of all, many of the items appear in all the four studies, with a slightly different choice of words. This was mainly due to the fact that the studies done by Astin and Sax (1998) and Toncar et al. (2006) were partly based on Eyler et al. (1997), whereas the CASQ by Moely et al. (2002) was modeled based on those used in previous researches by Astin and Sax (1998), Eyler et al. (1997), and Markus et al. (1993). Secondly, the same items were categorized into different dimensions in the four separate studies above. For instance, the item 'critical thinking skill' was grouped under 'citizenship skills scale' by Eyler et al. (1997); however it was grouped as one of the 13 'life skills outcomes' by Astin and Sax (1998), in Toncar et al. (2006), it was under 'practical skills' dimension. In another example, the item 'communication skill' was grouped under 'citizenship skills scale' dimension in Eyler et al. (1997), but the same item was categorized under 'interpersonal skills' dimension in Toncar et al. (2006). More interestingly, it was worded 'interpersonal skill' as an item in the 'life skills outcomes' dimension in Astin and Sax (1998). The discrepancies above were perhaps mainly due to the non-mutually exclusive nature of the items in the studies above. Due to the complexity and non-mutually exclusive nature of the various items presented above, a decision was made to



combine similar items and omit items which were irrelevant to the current study. As a result, 38 items were generated to capture the range of benefits reported in prior studies. These 38 items are presented in Appendix I together with their sources. The items were labeled to correspond to the benefit dimensions. These dimensions are interpersonal skills (IPS), general skills (GLS), and civic responsibility (CRS). There are 16 interpersonal skill items, fifteen general skill items, and seven civic responsibility items.

## **Stage 2**

Next, focus group discussions with student from different cohorts were carried out in order to hear from the students themselves the benefits they gained from taking part in community engagement. In total 12 students were interviewed, including 4 males and 8 females. The students were drawn from the three universities participating in the study, and were distributed equally across the strata used to structure sampling. Using the interview protocol as guide, a conversation was started to discuss the themes outlined. Whenever appropriate, the conversation was led by the students' initiatives. They were encouraged to talk freely about the subject, but were kept to the point on issues of their community engagement experience. The respondents were encouraged to reveal everything that they felt and thought about their experience. Throughout the process, reflective listening and active communication techniques were used, and the interview protocol was used to stimulate and structure dialogue. This was then followed by interviews with the coordinators from the external organizations. The second group of target population was made up of ten coordinators from the external organizations where the first group of targeted population was attached to during community engagement activities. They consisted of staff members who made decision on whether or not to accept students into their organization, who designed and oversaw the students' engagement activities. Sampling these coordinators enabled them to provide more insight into what they believed were the benefits students have gained. The reason for this was that they were present to witness the engagement activities. It was also highly possible that the students would have spoken and shared their experience with these coordinators during the engagement activity. Content analysis took place once the stories have been collected through focus groups and interviews. Prior to that, the interview recordings were transcribed word for word. Information contained in the stories and interviews was then carefully scrutinized to identify data categories that summarize and describe the incidents. The main categories of classification were deduced from theoretical models, and were also formed on the basis of inductive interpretation. Generally, the goal of the content analysis was a classification system to provide insights regarding the frequency and patterns of factors that affect the phenomenon of interest. Together with the outcomes of literature review, results from the qualitative interviews directly contributed to the development of the survey instrument. The resultant of the analysis, in the form of 22 statements of benefit, was added to the 38 items in Appendix 1. This formed 60 items formed the draft items and scales for this study.

## **Stage 3**

As part of the development phase, a group of three experts in the area of community engagement and psychometrics were provided with a list items. They were asked to assess the quality of each of the items, check their classification in the SCEBQ, and suggested necessary item revisions. A pilot test was then carried out. The pilot survey involved a purposively selected roughly uniform sample of 60 students drawn from the target population. Data from this administration supported psychometric examination of the items, scales, response scale,

response interference effects and the overall instrument. Along with the focus groups, pilot testing provided a means of getting feedback about the instrument directly from students. Findings from the pilot process led to further item modification.

#### **Stage 4**

The 60-item version of the SCEBS was administered to 191 undergraduate students who participated in community engagement activities from four different universities in the state of Victoria, Australia. These students were sampled by clusters. All of them had community engagement experience, either carried out on a voluntary basis, or as part of their course such as industrial training, internship or practicum. Respondents from University 1 completed the questionnaire at the Closing Ceremony Event of Community Engagement Project. For University 2, respondents were undergraduates from the Faculty of Education. Data was collected after they had completed a semester of tutoring refugees children living in the State Housing areas. University 3 was a Regional University in Victoria, Australia. Data was collected from a group of Nursing Undergraduates who had regular engagement with patients in the hospitals. As for University 4, data was collected during one of the evenings where they had engagement activity. In all these four sessions, the respondents were briefed before they completed the questionnaire. The questionnaire consisted of two parts: pre-community engagement and post-community engagement, which required only one administration. Respondents were asked to rate themselves before and after community engagement in the areas presented in the questionnaire. The data collection was carried out over a period of four weeks.

## **RESULTS**

### ***Respondents' Background***

From the 191 responses received, 40 were dropped as they were incomplete and deemed invalid, leaving 151 useable responses. Of the 151 respondents, 29.8% were male. Close to half of the respondents were between 21 to 23 years old, a quarter between 18 to 20, the remaining were 24 years old or older. All of the students surveyed were undergraduates. Some of them were mature aged students with several years of working experience. Nearly half of the respondents surveyed had finished two years of studies. Close to 40% had 50 hours or less of community engagement experience, 23.2% with 51 to 99 hours, while the remaining clocked 100 hours or more. Two third of the students surveyed took part in community engagement activity conducted within the university, while 83.4% had their activities outside the university but within Australia, and 11.9% outside Australia. The total exceeded 100% as a quarter of the students surveyed took part in one community engagement project, 63.6% between two to four projects, while the remaining 11.9% had 5 or more projects. One in every five respondents was an international student. About two thirds of the respondents worked in varying periods of time either in or off campus, with the majority of them working less than ten hours off campus. Most of the respondents lived with parents or guardians, 17.2% with friends in a shared house, 11.9% with a partner or children, while the remaining lived either on campus, off campus, by themselves or other form of accommodation. Characteristics of the sample are summarized in Table 1.



**Table 1:** Distribution of Sample by Demographic and Other Related Background

	Count	Total	Percentage
<b>Gender</b>			
Male	45		29.8
Female	106		70.2
		151	
<b>Age</b>			
18 to 20	38		25.2
21 to 23	73		48.3
24 and more	40		26.5
		151	
<b>Year of study</b>			
1 <sup>st</sup> year	5		3.3
2 <sup>nd</sup> year	25		16.6
3 <sup>rd</sup> year	70		46.4
4 <sup>th</sup> year	24		15.9
5 <sup>th</sup> year	27		
		151	
<b>Hours spent on community engagement activities</b>			
50 or less	59		39.1
51 to 99	35		23.2
100 or more	57		37.7
		151	
<b>Types of engagement</b>			
Compulsory	55		36.4
Voluntary	70		46.4
Both	26		17.2
		151	
<b>Location of community engagement activities</b>			
Within University	91		60.3
Outside university, in Australia	126		83.4
Outside Australia	18		11.9
		238	
<b>Nationality</b>			
Australian or New Zealander	119		78.8
International	32		21.2
		151	
<b>Hours spent working</b>			
Not working	52		34.4
Working 10 hour or less in campus	7		4.6
Working 10 hours or less off campus	42		27.8
Working 11 to 19 hours off campus	28		18.5
Working 20 hours or more off campus	29		19.2
		158	
<b>Living arrangement</b>			
Living with parents	92		60.9
Living with friends	26		17.2
Living with a partner or children	18		11.9
Others	15		11.0
		151	

### *Multivariate Item Descriptive Statistics*

In order to find out what the benefit constructs of the items were, several analyses were conducted using the 151 responses. The first step was to examine the correlation matrix. Spearman correlations were used because of the ordinal nature of the data. The correlation matrix between all the 60 before and after community engagement items was very large and

hence omitted due to its size. Basically it showed medium positive correlation among the before engagement items, and among the after engagement items. Before and after engagement items also showed medium positive correlations. A number of items were identified as having generally low correlation with others. These items were marked for exclusion from the subsequent analyses.

### ***Item and Factor Analysis***

Next, an iterative factor analysis procedure was conducted to explore the multivariate patterns of covariance among the items. Although there are many different factor analysis methods, maximum likelihood with orthogonal varimax rotation was preferred. Factors with eigenvalues greater than one were extracted. Review of scree plots and the rotated solutions suggested the presence of eleven factors in the data. Since factor loadings exceeding 0.50 suggested that in a practical sense the loadings are very significant (Hair, Anderson, Tatham, & Black, 1998), items with factor loadings less than 0.50 were marked for deletion from the subsequent analyses. In an attempt to make the scales as parsimonious as possible, factor analysis was repeated with the remaining 34 items with factor loading more than 0.50. This second round of factor analysis it resulted in six factor solutions which explained 56% variance in the data. Again, items with factor loadings of less than 0.50 were omitted. The procedure retained 30 items.

After examining the remaining 30 items, a comparison was made with the items in the existing measurement. By referencing the relevant literature, it was found that several items with factor loadings less than 0.50 could fit into the scales in this study. These items also appeared to fit in the context of Australian higher education. These items were therefore included in the final round of factor analysis and the number of factors to be extracted was fixed at four. The resulting solution retained 32 scale items in total, with 28 items with factor loadings greater than 0.40 and four items with factor loading between 0.21 and 0.37. This fulfilled the criterion by Hair et al. (1998), whereby the lowest acceptable level of factor loading for the current study is between  $\pm 0.202$  and  $\pm 0.216$ . The factor loadings explained 53% of the variance in the data. The value of Bartlett's test (Bartlett, Kotlik & Higgins, 2001) for sphericity was 2855.86 (significant at the level of 0.001) and the Kasier-Meyer-Okin (KMO) measure of sampling adequacy was very high at 0.93. The communalities of all the items range from 0.38 to 0.70. Confirmatory factor analysis was used to test whether the four constructs model derived using exploratory factor analysis was a good representation of the scale. The results show a good model fit ( $\chi^2 = 511.54$ ,  $df = 374$ ,  $\chi^2/df = 1.37$ ) with t-values for each of the loadings significant at  $p = 0.01$ . The rotated factor matrix and its communalities appear in Table 2.

Items in each of the scales were given a new label that corresponded with the new factors. The resulting factors possessed some, but not total, in relation to the hypothesized structure based on the domain of the construct in this study. This is not surprising given the non-mutually exclusive nature of the *a priori* benefit dimensions. Ten of the 32 items loaded significantly on Factor 1, which was named 'Career Skills' (CrS). Eight items loaded significantly on Factor 2, which was named 'Diversity Skills' (DS). Eight items loaded on Factor 3, 'Interpersonal Skills' (IS) and the remaining six items loaded on Factor 4, 'Civic Skills' (CvS). The first factor, Career Skills, is a new dimension not found in the existing literature on student community engagement measurement, nor on service-learning scales. The items in this scale were derived predominantly from focus groups and interviews with the students.

**Table 2:** Rotated Factors and Communalities for Community Engagement Items

Label		Factor				h <sup>2</sup>
		1	2	3	4	
CrS1	Ability to build contacts and networks for future career	0.72				0.61
CrS2	Awareness of career opportunities	0.69				0.56
CrS3	Readiness for a career	0.65				0.55
CrS4	Understanding your possible future career	0.64				0.48
CrS5	Understanding of the working world	0.60				0.53
CrS6	Capacity to prepare resume	0.58				0.52
CrS7	Understanding world complexity	0.57				0.50
CrS8	Skills in learning from experience	0.53				0.54
CrS9	General knowledge	0.53				0.54
CrS10	Ability to cope with challenges	0.48				0.50
DS1	Understanding people of other ethnic backgrounds		0.75			0.65
DS2	Relating to people from a wide range of backgrounds		0.71			0.51
DS3	Ability to adapt to different environments		0.49			0.47
DS4	Knowledge of different cultures		0.51			0.44
DS5	Working cooperatively in groups of people differ from you		0.47			0.54
DS6	Respecting others' views		0.46			0.51
DS7	Tolerance of others' differences		0.66			0.63
DS8	Understanding cultures differences		0.60			0.43
IS1	Ability to work in teams			0.71		0.64
IS2	Getting along well with others			0.60		0.58
IS3	Being trusted by others			0.56		0.57
IS4	Communicating well with others on a daily basis			0.55		0.51
IS5	Understanding yourself			0.37		0.41
IS6	Leading a group project			0.37		0.47
IS7	Critically evaluating different approaches to a problem			0.37		0.38
IS8	Ability to build a caring relationship			0.55		0.46
CvS1	Serving people in need				0.70	0.67
CvS2	Ability to make a difference in other people's live				0.56	0.57
CvS3	Awareness of issues facing your community				0.56	0.52
CvS4	Understanding problems facing this country				0.48	0.47
CvS5	Sensitivity to the plight of others				0.40	0.45
CvS6	Ability to make a difference in the community				0.41	0.51

CrS- Career Skills

DS- Diversity Skills

IS- Interpersonal Skills

CvS- Civic Skills

The second factor, Diversity Skills, contained a combination of items from 'General Life Skills' and 'Interpersonal Skills' category from the literature search, as outlined in Chapter Four. The third factor, Interpersonal Skills also contained items from 'General Life Skills' and 'Interpersonal Skills' from the earlier set of questionnaire. Finally, the fourth factor, Civic Skills contained items from 'Civic Responsibility Skills'.

### ***Scales Validity Analysis***

To test the construct validity of scales, convergent and discriminant validities analyses were performed. In determining the convergent validity, the correlations among the four constructs were tested, as shown in Table 3. The correlations of the four scales ranged from 0.43 to 0.56, all significant at 0.01 level. In addition, each of the four constructs was also highly correlated

with the overall scale. The pattern of correlation indicated that the four constructs were convergent on the same construct. The convergent validity was also suggested by the high Cronbach's alpha coefficient (0.91) attained when the scores on the four scales were combined into one scale. Theoretically, non-relevant and dissimilar constructs should not associate with the scores on the instrument. Discriminant validity is established when two theoretically different variables are empirically found to be uncorrelated (Sekaran, 2000). Discriminant analysis was done using t-tests on the differences between pairs of the scale constructs. The results showed that only diversity skills and civic skills, interpersonal skills and civic skills were significantly different from each other ( $P = 0.000$ ), while the other pairs of scale constructs were not significantly different from each other ( $P > 0.000$ ). This could be due to the fact that the items in interpersonal skills and diversity skills were non-mutually exclusive. Kline (1998) suggests that indicators of supposedly different constructs should not be so highly correlated ( $r^2 < 0.85$ ). As the correlation among the constructs from the analysis above were obviously less than 0.85, as can be seen in Table 4, there was hence strong evidence for discriminant validity.

**Table 3:** Scales Correlations for Four Constructs

	Career Skills	Diversity Skills	Interpersonal Skills	Civic Skills
Career skills	1.00			
Diversity skills	0.43**	1.00		
Interpersonal skills	0.56**	0.56**	1.00	
Civic skills	0.46**	0.50**	0.56**	1.00

\*\*  $P < 0.01$

Table 4 lists the number of items of the scales together with the Cronbach alpha reliability coefficient of the final version. A common rule of thumb is 0.80 or higher for adequate reliability and 0.90 or higher for good reliability. Hair et al (1998) suggests that a threshold value of 0.70 indicates acceptable reliability and values below 0.70 are acceptable if research is exploratory in nature. The results in Table 4 indicate that the coefficient alpha ranged from 0.79 to 0.91 for the four pre- and post-SCEB scales and between 0.76 to 0.90 for each item. The reliabilities for the career skills (pre-0.89, post-0.91), diversity skills (pre-0.89, post-0.89), interpersonal skills (pre-0.84, post-0.81) and diversity skills (pre-0.84, post-0.79) are considered as good. Overall, the analyses showed that the four scales, Career Skills, Diversity Skills, Interpersonal Skills and Civic Skills, as well as both before and after community engagement items yielded good reliability results. The Cronbach's alpha coefficients were between 0.79 to 0.91 for each scale. The breakdown of alpha reliability coefficient for each of the items in the four different dimensions appear in Table 5 to Table 8.

**Table 4:** Four Scale Reliabilities

Scales	Number of items	Cronbach's Alpha	
		Pre-community engagement	Post-community engagement
Career skills	10	0.89	0.91
Diversity skills	8	0.89	0.89
Interpersonal skills	8	0.84	0.81
Civic skills	6	0.84	0.79

**Table 5: Career Skills Item Statistics**

	Item description	Mean(SD)		Mean (SD)	
		Before community engagement	Corrected item-total correlation	After community engagement	Corrected item-total correlation
CrS1	Ability to build contact and networks for future career	2.91 (0.95)	0.69	3.79 (0.87)	0.74
CrS2	Awareness of career opportunities	3.05(0.89)	0.64	3.84 (0.87)	0.70
CrS3	Readiness for a career	3.04 (0.99)	0.67	3.90 (0.85)	0.71
CrS4	Understanding your possible future career	3.20 (0.83)	0.64	3.91 (0.85)	0.65
CrS5	Understanding of the working world	3.09 (0.98)	0.65	3.84 (0.94)	0.69
CrS6	Capacity to prepare resume	3.03 (0.98)	0.54	3.87(0.92)	0.65
CrS7	Understanding world complexity	3.12 (0.89)	0.55	4.12 (0.70)	0.62
CrS8	Skills in learning from experience	3.26 (0.81)	0.64	3.86 (0.77)	0.66
CrS9	General knowledge	3.23 (0.81)	0.53	3.80 (0.78)	0.66
CrS10	Ability to cope with challenges	3.28(0.93)	0.69	4.15 (0.81)	0.59
Cronbach's alpha coefficient for items before engagement, 0.89					
Cronbach's alpha coefficient for items after engagement, 0.91					

**Table 6: Diversity Skills Scale Item Statistics**

	Item description	Mean(SD)		Mean (SD)	
		Before community engagement	Corrected item-total correlation	After community engagement	Corrected item-total correlation
DS1	Understanding people of other ethnic backgrounds	3.32 (0.93)	0.70	3.95 (0.79)	0.70
DS2	Relating to people from a wide range of backgrounds	3.24 (0.86)	0.72	3.95 (0.81)	0.73
DS3	Ability to adapt to different environments	3.25 (0.87)	0.56	4.01 (0.73)	0.71
DS4	Knowledge of different cultures	3.11 (0.95)	0.69	3.84 (0.87)	0.65
DS5	Working cooperatively in groups of people different from you	3.38 (0.89)	0.63	4.11 (0.74)	0.67
DS6	Respecting others' views	3.60 (0.86)	0.61	4.18 (0.75)	0.65
DS7	Tolerance of others' differences	3.40 (0.87)	0.72	3.99 (0.78)	0.61
DS8	Understanding cultural differences	3.31 (0.88)	0.60	3.99 (0.83)	0.59
Cronbach's alpha coefficient for items before engagement, 0.89					
Cronbach's alpha coefficient for items after engagement, 0.89					

**Table 7: Interpersonal Skills Scale Item Statistics**

	Item description	Mean(SD)		Mean (SD)	
		Before community engagement	Corrected item-total correlation	After community engagement	Corrected item-total correlation
IS1	Ability to work in teams	3.36 (0.88)	0.52	4.08 (0.81)	0.62
IS2	Getting along well with others	3.60 (0.89)	0.60	4.12 (0.80)	0.70
IS3	Being trusted by others	3.58 (0.83)	0.66	4.09 (0.69)	0.71
IS4	Communicating well with others on a daily basis	3.41 (0.96)	0.66	4.03 (0.76)	0.67
IS5	Understanding yourself	3.30 (0.81)	0.58	4.02 (0.80)	0.58
IS6	Leading a group project	2.98 (0.89)	0.58	3.82 (0.81)	0.58
IS7	Critically evaluating different approaches to a problem	3.24 (0.75)	0.58	3.93 (0.81)	0.53
IS8	Ability to build a caring relationship	3.38 (0.89)	0.57	3.96 (0.80)	0.64
Cronbach's alpha coefficient for items before engagement, 0.84					
Cronbach's alpha coefficient for items after engagement, 0.81					

**Table 8:** Civic Skills Scale Item Statistics

Item description	Mean(SD)		Corrected item-total correlation	Mean (SD)	
	Before community engagement	After community engagement		Corrected item-total correlation	
CvS1	Serving people in need	3.00 (0.92)	0.70	3.91 (0.92)	0.72
CvS2	Ability to make a difference in other people's live	2.84 (0.83)	0.56	3.80 (0.86)	0.65
CvS3	Awareness of issues facing your community	2.79 (0.94)	0.61	3.83 (0.93)	0.67
CvS4	Understanding problems facing this country	2.96 (0.93)	0.50	3.65 (0.92)	0.59
CvS5	Sensitive to the plight of others	3.26 (0.80)	0.52	3.95 (0.90)	0.60
CvS6	Ability to make a difference in the community	2.97 (0.89)	0.62	4.00 (0.81)	0.61
Cronbach's alpha coefficient for items before engagement, 0.84					
Cronbach's alpha coefficient for items after engagement, 0.79					

### *Changes Between Before and After Community Engagement in the Four Benefit Constructs*

One-way within subjects analysis of variance (ANOVA) was conducted to determine whether the respondents perceived any difference in their career skills, interpersonal skills, diversity skills and civic skills after the community engagement experience in general, by blocking the effects of the independent variables. A paired sample t-test was then conducted to find out if the changes they perceived between, before, and after community engagement were significant.

From the ANOVA, the career skills mean scores after community engagement were significantly different to before community engagement activities, with  $F(1, 150) = 355.3$ ,  $P < 0.05$ , partial  $\eta^2 = 0.70$ . The guidelines proposed by Cohen (1988) for interpreting partial eta squared or  $\eta^2$  was used, where 0.01 is considered as small effect, 0.06 as medium effect, 0.14 as large effect, with a substantial difference in the benefits gained after the community engagement activities. A paired samples t-test was conducted to assess if the time occasions differed from one another, with each test conducted at an alpha level of 0.025. A common practice when conducting follow-up tests is to adjust the alpha level for each test so that the entire set of follow-up tests does not exceed 0.05 (the alpha used for each test is referred to as the alpha level per comparison). In this case, the overall alpha level of 0.05 was divided by two tests - before and after community engagement, ( $0.05/2 = 0.025$ ). The results of ANOVA and paired sample t-test indicated that the career skills scores were significantly higher after the community engagement activities ( $M = 3.91$ ,  $SD = 0.63$ ), as compared to before the activities ( $M = 3.13$ ,  $SD = 0.64$ ),  $t(18.85) = 150$ ,  $p < 0.025$ . The means increase in the career skills score was 0.78 with a 95% confidence interval ranging from 0.70 to 0.86. The eta squared statistic of 0.70 indicated a large effect size. Therefore, it was concluded that there was a statistically significant increase in career skills after the community engagement activities.

Likewise, ANOVA was conducted for diversity skills. The analysis showed that  $F(1, 150) = 278.431$ ,  $p < 0.05$ , partial  $\eta^2 = 0.65$ . The results indicated that the diversity skills scores were significantly higher after the community engagement activities ( $M = 4.00$ ,  $SD = 0.59$ ), as compared to before the program ( $M = 3.31$ ,  $SD = 0.65$ ),  $t(16.69) = 150$ ,  $p < 0.025$ . The means increase in diversity skills score was 0.69 with a 95% confidence interval ranging from 0.63 to 0.79. The eta squared statistic of 0.65 indicated a large effect size. Therefore, it was



concluded that there was a statistically significant increase in diversity skills after the community engagement activities.

ANOVA for interpersonal skills resulted in  $F(1, 150) = 267.83, P < 0.05, \text{partial } \eta^2 = 0.64$ . The results indicated that the interpersonal skills scores were significantly higher after the community engagement activities ( $M = 4.00, SD = 0.58$ ), as compared to before the program ( $M = 3.35, SD = 0.62$ ),  $t(-16.37) = 150, p < 0.025$ . The means increase in interpersonal skills score was 0.65 with a 95% confidence interval ranging from 0.55 to 0.71. The eta squared statistic of 0.64 indicated a large effect size. Therefore, it was concluded that there was a statistically significant increase in interpersonal skills after the community engagement activities.

Finally, there was a significant difference in civic skills after the community engagement activities, with  $F(1, 150) = 399.56, P < 0.05, \text{partial } \eta^2 = 0.73$ . The results indicated that there was a statistically significant increase in civic skills after the community engagement activities ( $M = 3.86, SD = 0.66$ ), as compared to before the program ( $M = 2.97, SD = 0.64$ ),  $t(-19.99) = 150, p < 0.025$ . The means increase in civic skills score was 0.89 with a 95% confidence interval ranging from 0.77 to 0.95. The eta squared statistic of 0.73 indicated a large effect size.

## **DISCUSSION AND CONCLUSION**

In this study, an instrument to assess benefits undergraduate students gain from participating in community engagement was developed and validated. This instrument, Student Community Engagement Benefits Questionnaire (SCEBQ) consisted of 32 items spread across four scales. The responses were recorded on a five point Likert, with response options of 1 (Poor), 2 (Average), 3 (Good), 4 (Very Good), and 5 (Excellent). This final instrument has a pre- and post-community engagement section to capture before and after community engagement activities. The purpose was to measure the perceived gain as a result of community engagement involvement. The results of an iterative process of factor analysis resulted in 32 items spread across four scales construct which assessed career skills, diversity skills, interpersonal skills and civic skills. This was based on decision to exclude any items that did not have a factor loading of 0.40 or greater on a priori scale and less than 0.40 on all other environment scales. In the literature, 0.30 or higher is suggested for items loadings (Martin-Dunlop and Fraser, 2007). However, in the present study, in order to differentiate among the scales of the instrument in this preliminary development of the scale, a more conservative cut off score for item loadings ( $\leq 0.40$ ) has been selected. All the items of the instrument combined accounted for 53% of the total variability in students' SCEBQ scores. Though it may seem that half of the variability is unaccounted for, 53% explained variability is considered as sufficient variance explanation in social sciences studies (Tabachnick and Fidell, 2001). Since this study is preliminary in this specific context, future studies with a larger sample size might show an increased accounted variance. Overall, these results support the factorial validity of the SCEBQ. The first three scales agree with the relevant literature on key dimension of community engagement outcomes in the form of service learning (Astin & Sax, 1998; Toncar et al, 2006; Eyler et al, 1997), while career skills was an addition based on focus groups and interviews. It was confirmed through factor analysis that this scale fits in to the SCEBQ alongside the other three scales. No doubt career development has been identified as one of the outcomes of student community engagement in many studies, but this study

marks the first successful empirical study to measure this outcome by incorporating this component in a measurement instrument. In general, students reported highest gain in civic skills, followed by career skills, diversity skills and interpersonal skills.

Factor loadings for each items ranged between 0.40 to 0.75, except “understanding yourself” (0.37), “leading a group project” (0.37), “critically evaluating different approaches to a problem” (0.32). Although these three items have factor loadings less than 0.40, they were included in the final questionnaire as suggested by various literature (eg Astin and Sax, 1998; Eyler et al., 1997; Moely et al., 2002). Alpha reliability coefficient for the four scales were also examined. Analysis revealed that all of the coefficient were high enough to be considered adequate, namely all items lead to a higher alpha coefficient for the overall scale reliability. The results of the reliability for the scales ranged from 0.79 to 0.91, which is considered as acceptable for research purpose (Nunnally, 1978). As a result, it can be said that the SCEBQ which consists of 32 items is a valid and reliable instrument to measure the self-reported benefits students gain from participating in community engagement activity.

From the analysis of the changes between before and after community engagement, it was concluded that students in this study reported statistically significant changes in career skills, diversity skills, interpersonal skills and civic skills after participating in community engagement activities, with  $p < 0.025$ .

## **IMPLICATION**

This study contributes to the student community engagement research in several ways. First of all, this is among the first few studies on student community engagement in the Australian higher education context as this concept is still in its infancy in this country. Secondly, this is also the first study in assessing the benefits students gain from community engagement. Although this measurement instrument is based on self-report, the development of the instrument is triangulated by way of a extensive literature search on the American concept of service-learning, focus group with students in Australian universities, and interviews with coordinators of external organisations in Australia. Thirdly, a new dimension- career skills - was added into the existing benefits of community engagement/service-learning construct. Although it was reported that service-learning yielded benefits in career skills, this dimension was not psychometrically tested and proven to be reliable and valid, until now. Fourthly, as community engagement or engaging with community is gaining prominence in the higher education arena, the appearance of this instrument is timely. Central to community engagement is student learning outcomes. Therefore, with the availability of this instrument, university, faculty, engagement programs administrators and external organisations can objectively gauge the benefits student gain from the activities. If designed and administered properly, this instrument can be used as a community engagement report card for student. Administrators can also use this instrument to gain more insight and better manage community engagement programs. It can also be used to facilitate benchmarking and continuous improvement. The earlier studies validate the findings in the current study, although not directly. The service learning outcome study by Moely et al. (2002) suggest that there are six scales which reflect three goals described by Stukas, Snyder and Clary (1999). These goals are diversity attitudes, interpersonal and problem solving skills, and leadership skills, civic action and political awareness. These three constructs resemble diversity skills, interpersonal skill and civic skills in the current study. The findings in this study also

correspond with the earlier typologies by Toncar et al. (2006). In both these studies, the career skills dimension is not present. Therefore, this finding marks one of the contributions of this study to the field of student community engagement.

## LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This development of SCEBQ was conducted using students from universities in Australia, therefore, it has not been unequivocally established that the results are applicable to the other student populations. It is likely that many aspects of this study are generalizable to other countries; however many assumptions and observations apply most directly to the Australian context. Further research in other countries can be conducted in order to compare and contrast findings in this study. Another limitation of this study is the fact that the empirical investigations of student community engagement benefits relies predominantly on students' self-reports. This is the best way of collecting data as these outcomes or benefits are only best known to the students themselves. However, confirmation is achieved by drawing insights from students through focus groups, from interviews with coordinators of organizations, and via literature review as well as expert consultation. Since this study was conducted without having any control groups, future research might consider replicating this study by including one or more control groups. Solomon (1949) proposes an expansion of the standard experimental design to include two additional control groups: (a) no pre-test, treatment, post-test and (b) no pre-test, no treatment, post-test for studies employing experimental and control groups. The design of this study is not a traditional pre and post-test. Instead of surveying the students using SCEBQ prior to taking part in community engagement activities and again after the completion of the activities, students were surveyed only once after the completion of the projects. Steps were taken to allow students ample time to answer the survey accordingly. Lastly, much of the literature in this area is dated. This is due to the fact that student community engagement in its various forms has been a well-researched topic in the context of higher education in United States. However, this area remains under-explored in the context of Australian higher education. Future research can be conducted in other countries where student community engagement is often practiced but its benefits not measured.

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## APPENDIX

No	Old headings	Benefits	Sources
1	IPS	Ability to work well with others	Astin and Sax(1998) Toncar et al. (2006)
2	IPS	Ability to relate to people from a wide range of backgrounds	Astin and Sax(1998) Moely et al. (2002) Toncar et al. (2006)
3	IPS	Understanding racial and cultural differences	Toncar et al. (2006)
4	IPS	Ability to communicate well with others	Astin and Sax(1998) Eyler et al. (1997) Moely et al. (2002) Toncar et al. (2006)
5	IPS	Listening to other people's opinions	Eyler et al. (1997) Moely et al. (2002)
6	IPS	Working cooperatively with other people	Astin and Sax(1998) Moely et al. (2002)
7	IPS	Leadership skill	Astin and Sax(1998) Eyler et al. (1997) Moely et al. (2002) Toncar et al. (2006)
8	IPS	Ability to make a difference in other peoples' live	Toncar et al. (2006)
9	IPS	Self confidence	Astin and Sax(1998) Eyler et al. (1997) Moely et al. (2002) Toncar et al. (2006)
10	IPS	Ability to resolve conflict in a group	Astin and Sax(1998) Moely et al. (2002) Toncar et al. (2006)
11	IPS	When trying to understand the situation of others, I try to place myself in their position	Moely et al. (2002)



No	Old headings	Benefits	Sources
12	IPS	Better professional relationship with faculty	Astin and Sax(1998) Eyler et al. (1997) Toncar et al. (2006)
13	IPS	Being trusted by others	Toncar et al. (2006)
14	IPS	Communicating my ideas to others	Eyler et al. (1997) Moely et al. (2002)
15	IPS	Ability to speak in public	Toncar et al. (2006)
16	IPS	Appreciate different cultures	Eyler et al. (1997)
17	GLS	Respecting the view of others	Toncar et al. (2006)
18	GLS	Personal growth, understanding myself better	Toncar et al. (2006)
19	GLS	Spiritual growth	Toncar et al. (2006)
20	GLS	Apply knowledge to the real world	Toncar et al. (2006)
21	GLS	Tolerant of people who are different from me	Eyler et al. (1997)
22	GLS	Increased general knowledge	Astin and Sax(1998)
23	GLS	Being punctual	Toncar et al. (2006)
24	GLS	Having a stronger voice in classroom	Toncar et al. (2006)
25	GLS	Knowledge of people from different cultures	Toncar et al. (2006)
26	GLS	Ability to accept diversity among people	Astin and Sax(1998)
27	GLS	Skills in learning from experience	Toncar et al. (2006)
28	GLS	Ability to assume personal responsibility	Toncar et al. (2006)
29	GLS	Aware of the current events	Astin and Sax(1998) Moely et al. (2002)
30	GLS	Ability to think critically when presented with a problem	Astin and Sax(1998) Eyler et al. (1997) Moely et al. (2002)
31	GLS	Ability to analyse and solve problems effectively	Toncar et al. (2006) Moely et al. (2002)
32	CRS	Aware of the issues facing my community	Astin and Sax(1998) Moely et al. (2002)
33	CRS	Ability to make a difference in the community	Astin and Sax(1998) Moely et al. (2002) Toncar et al. (2006)
34	CRS	Develop a caring relationship	Astin and Sax(1998) Toncar et al. (2006)
35	CRS	Service to people in need	Toncar et al. (2006)
36	CRS	Understand problems facing this nation	Astin and Sax(1998) Moely et al. (2002)
37	CRS	Sensitive to and empathetic of the plight of others	Toncar et al. (2006)
38	CRS	Being aware of current events	Toncar et al. (2006) Moely et al. (2002)