Acquisition of graduate attributes through the service learning pedagogy: the case of the University of Botswana

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ABSTRACT: Educators are faced with a demanding generation of learners who are assertive and demand immediate results in a high-tech environment. Service learning is proving to be a successful approach to engage these active learners and empower them by using real-life applications. Students have the chance to practice what they learn in the classroom, while enhancing their citizenship, social and personal responsibility, practical, interpersonal and problem-solving skills. Service learning is an innovative learning pedagogy, which possesses the potential to improve students' knowledge and awareness about their communities, develop citizenship, as well as helping them to attain positive graduate attributes. A case study was conducted at the University of Botswana with 11 undergraduate industrial design students with one community-based organisation involved in the travel and tourism industry. The main challenge was to assist the organisation to be more visible and remain competitive by bringing their brand on-line. The findings indicate that the service learning pedagogy facilitates a reciprocal learning process between the University and the community partners.

Keywords: Service learning, community awareness, citizenship development, graduate attributes

INTRODUCTION

Service learning is a critical educational pedagogy that intentionally integrates academic learning and practice, and in the process replaces traditional classroom experiences [1][2]. The abstract and theoretical material of the traditional classroom takes on new meaning as this approach allows students to experiment and reflect on their experiences. *…Students engaged in service learning are engaged in authentic situations as they get to know real people whose lives are affected by these issues... As a result, they have lots of real questions that they want to have answered* [3]. This makes students to become interested and motivated to learn the material in order to resolve their questions. In this scenario, Caruso argues that the role of the educator is to empower students to become more active in the learning process with a focus on creating new learning experiences [4]. The approach develops students' knowledge and skills to become contributing and useful citizens [5]. It develops students' community exposure, civic development and career growth, social development, as well as development of communities as equally important stakeholders [6-8].

Service learning can be defined as a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities [9]. It is a method of encouraging students' learning and development through active co-participation in thoughtfully organised service that is conducted in the community, and meets society's urgent needs.

Research shows that service learning has been successfully incorporated into the medical, legal and business disciplines [2][10][11]. However, there has been little research into the various design disciplines. The main purpose of this article is to discuss the development and implementation of service learning in a community-based project (Web site development) done by the industrial design students of the University of Botswana. The aim was to find out how service learning contributes towards community development and citizenship skills enhancement and the attainment of the graduate attributes (soft skills).

SERVICE LEARNING AS CRITICAL PEDAGOGY

Boyer argued that it is important for universities to do community service as some institutions are abstracted from the communities they serve [12]. Therefore, in some cases, the communities do not see the relevance of such an institution of higher learning in their lives. Boyer advances an argument that academic staff have four separate yet overlapping

functions: the scholarship of discovery (basic disciplinary research), integration (applied interdisciplinary research), application (outreach and practice) and teaching (education and instruction). The scholarship of application (outreach and practice) is equally as important as other forms of scholarship and it needs attention. It is through this scholarship that service learning has become an important pedagogical approach. Service learning enables students to link their academic study with participation in community projects and, thus, gaining practical experience. This can be achieved through students volunteering their time to engage in community projects or as part of their civic engagement. In some cases, students can gain practical experience through the internship programme [13].

During the process of service delivery, students reflect and reciprocate on service to the community [14]. This reciprocation develops their understanding of course content, broadens their appreciation of the discipline and enhances their sense of civic responsibility [6]. Evidence from the literature confirms that service learning effectively connects service in the community with classroom learning [6-8]. Such an approach assists students to engage in hands-on real life experiences to apply their newly acquired knowledge and skills in the community context. In the end, service learning benefits all stakeholders such as the community, students, educators and organisations equally [15]. Reciprocity entails that on one hand, service learning prepares students for their academic study, and on the other hand, it provides a service to the community and students gain practical skills such as organisation, knowledge application and workplace skills.

Service learning is a pedagogy that combines classroom instruction with community service, aiming to provide students with an experience that will reinforce the curriculum, improve students' practical skills, interpersonal skills, citizen and social responsibility, problem-solving skills, critical thinking skills, communication skills, as well as connecting students to the needs of the community they live in. Previous research has provided evidence that service learning experience positively affects students' learning and application of specific concepts [10][11].

Service learning also builds up the students' sense of community service, personal responsibility and civic engagement. In addition to these, the University of Botswana *Learning and Teaching Policy* [16] outlined the following as graduates attributes that each student should attain at the end of their studies: information and communication technology knowledge and skills, self-directed, lifelong learning skills, critical and creative thinking skills, problem-solving skills, communication skills, entrepreneurship skills, organisational and teamwork skills, research skills, social responsibility, leadership skills, interpersonal skills, cross-cultural skills, accountability and ethical standards [16].

Eyler argues that authentic service learning experiences, share some common characteristics [17], such as:

- It involves cooperation and promote skills associated with teamwork, community involvement and citizenship.
- It addresses complex problems in complex settings rather than simplified problems in isolation.
- It offers opportunities to engage in problem-solving by requiring participants to gain knowledge of the specific context of their service learning activity and the challenges faced by the community, rather than only to draw upon generalised or abstract knowledge such as might come from a textbook.
- It offers opportunities to acquire the habits of critical thinking, that is, the ability to identify the most important questions or issues within a real-world situation.
- It promotes deeper learning [17].

Service learning is best thought of as a cycle, where each step in the process leads to the next. This is known as the service learning cycle [18]. The process does not end with the completion of the service activity. A project may be completed, but service learning is a transformational process, where students, practitioners and communities continue to grow. Service learning courses vary widely in time span, quality, and in the balance between *service* and *learning* stressed in the course. A classic service learning course will have the following three factors:

1) A *service* component through which students spend time serving in the community, meeting actual needs.
2) A *learning* component through which students seek out or are taught areas that they will integrate into their service. Learning is often both interpersonal and academic.
3) A *reflection* component that ties the service and learning together. Reflection involves the consideration of one's own experiences and thoughts which can be in the form of journals, blogs and discussions. Reflections are done in three stages:

- Pre-service reflection - students get the most out of the service experience when they carefully examine their prior knowledge of and opinions on issues raised by the project. In the context of new emerging economies, such as Botswana, community engagement is very important from the onset, so that there is community ownership of the project. Such ownership will sustain the project. Both the student and the community, then, need to identify a social need together. Through this collaboration, the stakeholders can map out the learning objectives of the project and, then, plan activities that will be undertaken.
- Reflection during the service - this is a chance to discover where students are in the learning process, and gives them a chance to voice concerns and share feelings, while they are engaged in a meaningful service experience that addresses a genuine need.
- Post-service reflection - students take time to assess the meaning of the service experience, integrate their new understanding, and propose further action, projects or enhancements to the current project.

RESEARCH METHOD

A case study was conducted with a class of 11 undergraduate industrial design students at the University of Botswana. A case study was adopted for this study because it is an empirical inquiry that investigates a phenomenon within its real-life context [19]. The approach allows the researcher to explore individuals or organisations, through interventions, relationships, communities or programmes and supports the deconstruction and the subsequent reconstruction of various phenomena [20].

The service learning project was conducted as part of a semester course called Internet for Designers. The students were challenged to identify a community-based organisation into which they could put into practice the knowledge and skills they acquired during the course. The students chose a community-based tourism company, which deals with travel and tourism to develop a Web site for, in order to increase its on-line visibility and remain competitive. In tackling this challenge, the human-centred design (HCD) approach was used, which focuses on the user's needs, wants and abilities. The HCD is aimed at enhancing the development of research systems by involving stakeholders throughout the development process; thus, increasing accuracy, cultural appropriateness and relevance of intervention approaches and tools.

At the end of the service learning project, a survey was administered to students, which was composed of both open and close-ended questions. Of the 11 students enrolled in the course, 10 completed the survey, representing a response rate of 91%. In the closed ended questions, the students were asked to rate the importance of the service learning project towards achieving a variety of graduate attributes, against a five-point scale. A score of 1 represented (poor) attainment, 2 (satisfactory), 3 (good), 4 (very good) and 5 (excellent). Moreover, the students reflected on some open-ended questions on what they liked about the project, explained why they have rated some graduate attributes 2 or below and outlined what aspects can be improved in future service learning projects.

The quantitative survey data were analysed by using SPSS software. The data analysis concerning students' attainment of graduate attributes was done by calculating the mean scores on the attitude scale. To achieve this, numerical scores were assigned to five-point response options given to each item on the attitude scale. The data were entered into an SPSS data editor for analysis.

The main aim was to find out how students and the variables of the study were related to each other. The data on attaining graduate attributes was analysed by using frequencies, means and percentages. Qualitative data were coded and analysed using Atlas.ti software and reported using the emergent themes. The overall data were presented in terms of tables, graphs and text.

RESULTS

The results show that no respondent rated the attainment of the graduate attributes as poor, and (10%) rated them as satisfactory, (26%) as good, (43%) as very good and (21%) as excellent. (Figure 1).
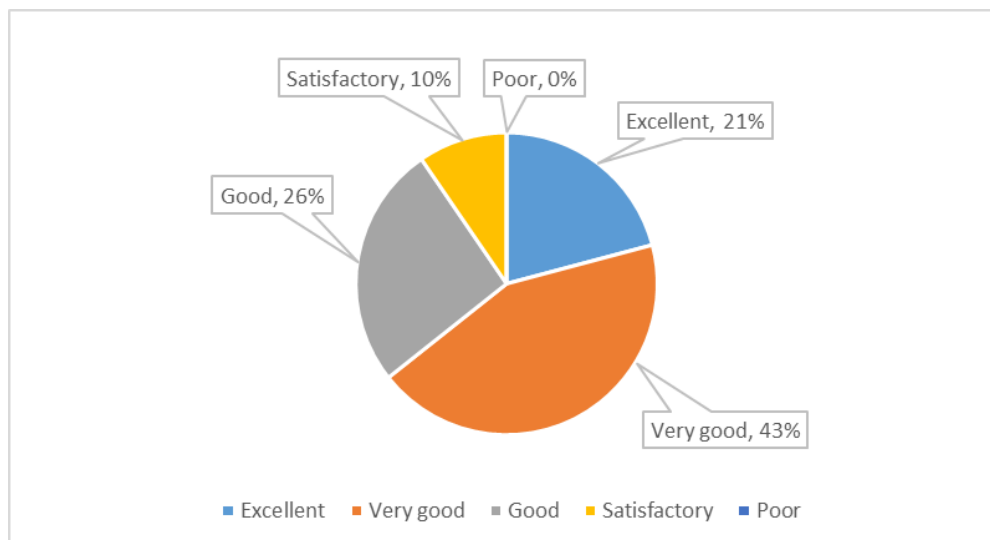

Figure 1: Overall perceived attainment of graduate attributes.

The overall results show that all 10 students perceived that they had attained graduate attributes through the service learning project. By undertaking this project, it became clear that the following skills were excellently attained as shown in Figure 2: gaining social self-confidence (86%), communication skills (86%), lifelong learning skills (82%), knowledge application (80%), ability to assume personal responsibility (80%), critical thinking skills (80%) and commitment to make a difference (80%).
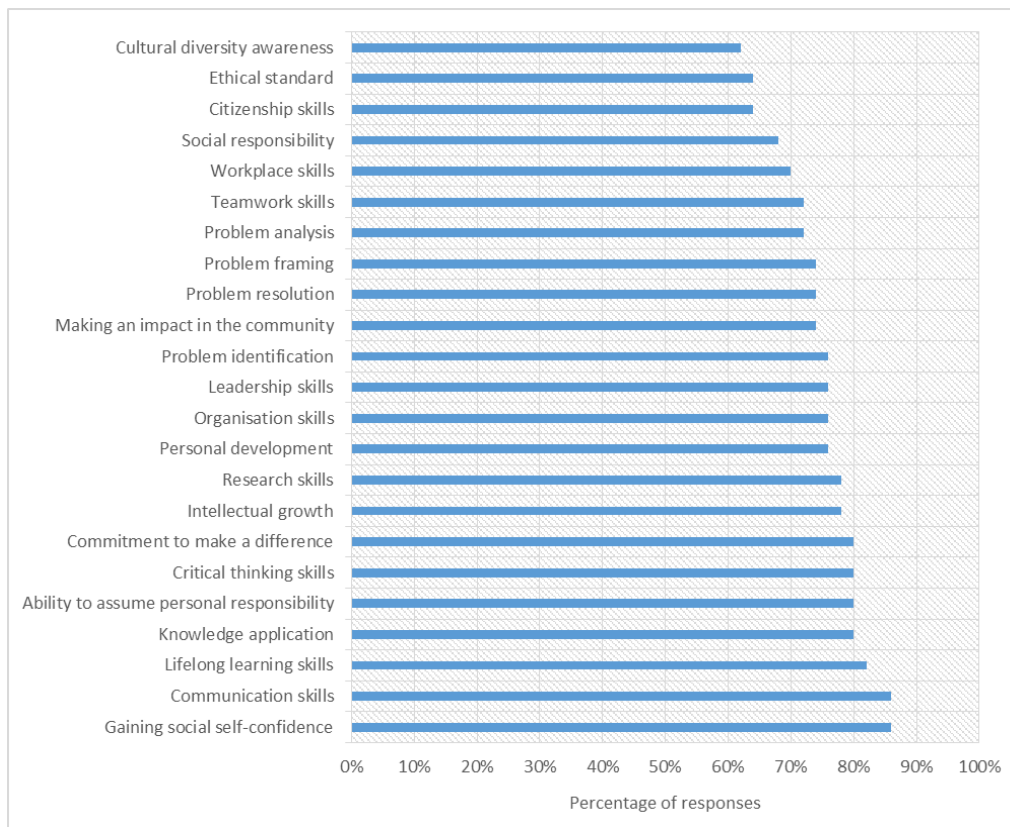
Figure 2: Rating and comparison of all the graduate attributes attainment.

The highest rated graduate attributes were *gaining social self-confidenc*e and *communication skills*. Table 1 indicates that almost all respondents rated the social self-confidence attribute as very good or excellent.

Table 1: Gaining social self-confidence.

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Good	1	10.0	10.0	10.0
	Very good	5	50.0	50.0	60.0
	Excellent	4	40.0	40.0	100.0
	Total	10	100.0	100.0	

After the students rated the perceived attainment of the graduate attributes, they were asked to respond qualitatively to three aspects. The first aspect was for respondents to reflect on what they liked about the project. Some respondents indicated that they appreciated working with a real client. They stated that:

- *We were able to work with a real company and actually make something that is going to work.*
- *The project gave us an opportunity to work with a real company with a real problem.*
- *It allowed me to interact with the real world, we have not just designed for a school project but for a real company.*
- *It gives us a learning platform of working with a real client not an imaginary one.*

Furthermore, respondents liked the interaction with the client to whom they presented their work and received feedback. They expressed this by saying:

- *The project helped us to realise what [level of] quality clients expect out there in the market.*
- *It introduced me to a challenging area of design where I had to work with a client and try to satisfy the client's needs.*
- *It helps us to relate to the real work as it gives us an insight on what to expect and how to deal with the customer.*

The following areas need to be improved in future as per the respondents' recommendations. Since the client company was slow in providing content, the students were not able to replace the placeholder text and integrate the actual content into their Web site designs. A consequence of this result is that students were not able to carry the project up to the on-line deployment stage. One respondent reacted to this by saying …*The project should continue to an extent of being in use across the Internet to the public such that students can get a clear picture of how a project similar to this outside school can be approached.* The same was echoed by other respondents by saying: …*trying to implement it into a working Web site* and …*be able to see it working and learning all skills which come with it.*

A suggestion that could remedy this for future cases is to assist the client with content development at a much earlier stage.

DISCUSSION

Many studies have indicated that service learning not only develops civic propensities, but it also strengthens students' academic learning and enhances their higher thinking skills, such as critical thinking and problem-solving [3]. Presenting a real life client forces students to strive to meet the high expectations of the community client, thus improving their communication skills. The results reinforce the important role that reflection is assumed to play in enhancing learning by connecting the course material to the service experience. Reflection provides the transformative link between the action of serving and the ideas and understanding of learning. Attributes, such as communication skills, critical thinking skills and commitment to making a difference were highly rated by respondents (Figure 2). This shows that the service learning project achieved its intended educational goal because a lot of graduate attributes were perceived as having been successfully attained as per the views of the students. The results show that service learning goes beyond the acquisition of design and technology skills and fosters lifelong learning, commitment to civic engagement and social change.

Guskin calls for a shift in focus from *how educators teach* to *how students learn* [21]. He sees this as a way to create a learning environment that focuses directly on those activities that enhance student learning. Service learning as an alternative approach works better than just lecturing because it gets students more involved. In exploring how learning occurs in service learning courses, this study supports a shift in focus from teaching to learning. Cognitive research about the nature of learning informs us that students construct their own knowledge, that they benefit from working collaboratively, and that they do not all learn in the same way. Individualised and collaborative approaches to instruction are more effective because they respond better to differences in students, levels of preparation, learning styles and rates [22].

Service learning thus provides an avenue to connect students' living with their learning. Rather than be asked to leave their emotions, opinions and personal experiences at the classroom door, students were encouraged to reflect on their experiences in relation to the academic course material. Students in this study recognise the interconnectedness of service learning. They viewed their service activities as lived experiences that are interwoven with their academic experiences, preparing for interaction with the real world. The service learning approach has produced a new generation of designers who possess citizenship skills, are socially responsible, as well as being technologically skilled. These designers are able to apply the knowledge and theory they acquire to real life practical applications and real clients; bridging the gap between education and practice. The study confirms the claim by Eyler that service learning offers opportunities to acquire the habits of critical thinking [3].

CONCLUSIONS

This study adds weight to the argument that participation in service learning supports many of the goals of higher education by enhancing the personal and cognitive development of undergraduate students. Many of the positive outcomes reported in this study correspond closely with the outcomes reported in previous service learning research. It emphasises reflective practice - reflection facilitates the connection between practice and theory and fosters critical thinking. Service learning is a type of pedagogy in which service is an integral part of the learning experience. Students develop respect for the community by recognising that their education has an important role to play in the development of the immediate community around them. University students may not be aware just how valuable community service is, but it can play a huge role in their future aspirations. Perhaps, most importantly, being charitable and giving back to the community helps to better the society, while improving one's individuality, simultaneously allowing the community to actively participate in the learning process.

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