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Using a Balance Scorecard Approach to Evaluate the Value of Service Learning Projects in Online Courses

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Abstract

Service learning projects serve as a valuable tool for applying course concepts in a way to benefit both the students and community. However, they often require a significant amount of additional effort beyond that required of assigning conventional homework problems. When the projects take place in an online course setting, the level of complexity subsequently increases. Valuing the overall contribution of such projects, in light of their additional instructor and course costs, can be difficult. Such valuations are further complicated with the measures being subjective. In 1992, Drs. Robert Kaplan and David Norton published an article in Harvard Business Review detailing a model for measuring the effect of multiple perspectives, both financial and subjective, on business performance (Kaplan & Norton, 1992). The Balanced Scorecard approach provides both an internal (process based) and external (outcomes based) standpoint to evaluating an organization utilizing four perspectives: (1) Learning and Growth, (2) Business Process, (3) Customer and (4) Financial (Kaplan & Norton, 1996). With its thorough approach to evaluating objective and subjective measures of business performance, the model serves as a potential framework for use in the educational setting. In this article, the author developed and applied a modified version of Kaplan and Norton's Balanced Scorecard model to evaluate the value generated by a service learning project in an online course.

Keywords: Service learning projects, Online learning, Balanced Scorecard, and Management Information Systems course

1. INTRODUCTION

Educators have long recognized the potential value to be realized through service learning projects. John Dewey advocated this style of learning in the early 1900's and his work has served as an impetus for numerous educators hoping to enhance the educational experience of their students (Dewey, 1916). Through service learning projects, students are able to contribute to the community by taking concepts, they have learned over the course of their studies, and applying them to real life situations. They are often able to observe the full cycle of a concept's application from issue identification through implementation, results, and finally modification resulting from process feedback.

This hands-on approach to learning provides significant value for both undergraduate and graduate level students. However, service learning provides additional challenges to faculty as they work with local community partners to develop worthwhile projects that will accommodate the students' capabilities while providing value to the community client. Faculty may also serve in a mentoring or overseeing capacity during the course of the assignment requiring greater involvement in the project and with community clients. Providing such assistance becomes a more significant challenge as the educational landscape adjusts to online learning opportunities.

Universities are incorporating more online learning options to provide greater flexibility for

how, when and where students participate in their coursework. Thus, faculty are finding that their course enrollments contain students scattered around the world and in multiple time zones. Although the broader perspectives provided by a wider variety of students can enrich the learning environment, these factors produce additional challenges to providing service learning projects in the classroom.

The learning experience provided by online courses is expected to be equivalent to that provided through face-to-face offerings. However, the effort required to incorporate service learning projects into the online classroom may outweigh the value such projects generate.

In this paper, the author examines the application of a service learning project in a graduate level Management Information Systems (MIS) course through the framework of a modified version of Kaplan and Norton's Balanced Scorecard (1992). The literature review examines research on service learning projects as well as Kaplan and Norton's Balanced Scorecard Model and its application in the educational setting. The third section suggests a modified version of the Balanced Scorecard model for use with experiential learning projects. The fourth and fifth sections describe a course and an online service learning project to which the modified model was applied. In the remaining sections, the modified model is then applied to the course, followed by findings and suggestions for further research.

2. LITERATURE REVIEW

The review of literature starts by looking at service learning projects, their value, and then their use in online courses. Because service learning projects require a significant investment in time and course resources, they should be evaluated to determine whether or not their investment generates sufficient educational value to warrant their inclusion in future coursework.

The field of management contains a number of valuation models to appraise the application of resources to operations. One such model is Kaplan and Norton's Balanced Scorecard (1992). The Balanced Scorecard approach to valuation includes variables to which a specific quantitative value cannot easily be applied (Kaplan & Norton, 1992). This model has also been applied in the educational setting to evaluate educational institutions' operations. Thus, the last section of the literature review examines research associated with the application of the Balanced Scorecard model in education.

Service Learning Projects

Robert Sigmon and William Ramsey first used the term "service learning" in their work with the Manpower Development Internship Program in Atlanta, GA in 1969 (ASLCR, 1970). The term included a value added component as learning occurred in the context of a positive, constructive contribution to the community (Stanton, Giles, & Cruz, 1999). Sigmon was instrumental in developing a community based practicum for the University of South Carolina School of Public Health. He was also a strong advocate for community-based public service experiential learning through his work at the local, state, and national levels (Sigmon, 2009)

Sigmon advocated the "reciprocal" nature of experiential learning both for the recipient of the service as well as the provider (Sigmon, 1979) with both direct and indirect benefits possible (Terry & Bohnenberger, 2004). Boyer (1994) advocated a "scholarship of engagement" connecting theory to practice by educating students to be responsible citizens rather than just focusing on educating solely for a career (Boyer, 1994; Coye, 1997).

A number of researchers have realized the value that service learning projects can generate to both community clients and students of all ages with articles describing projects in K-12 programs through community colleges and university settings around the world (Chan, 2012). Service learning projects are increasingly becoming a common teaching tool in educational programs. Chen recently noted the importance of service learning projects worldwide as it has become "a major teaching and learning component in the upcoming curriculum reform in Hong Kong higher education…" (Chen, 2014: 414)

Service Learning Projects for Online Courses

Although there are a number of articles describing service learning projects in education, little has been written about service learning projects offered through online courses or in the online environment (Ball & Schilling, 2006; Cleary & Fammia, 2012; Hagan, 2012; Most, 2011). In an article written by Ball and Schilling (2006), the authors describe an IT service learning project offered at the Indiana University School of Library and Information Science.

Students in the course served as technology consultants providing assistance off-site to Indiana librarians and archivists.

Hagan (2012) noted that although, "… there is widespread use of experiential learning models at the undergraduate level, they are not as popular at the graduate level, especially for hybrid or online courses…" (p 625). The author indicated that further research should be conducted evaluating the effectiveness of service learning projects, student learning from the process, application of course concepts, and satisfaction of clients (Hagan, 2012).

Most (2011) noted that almost half of the accredited graduate programs in library science delivered some or all of their content through the online environment (Most, 2011). Thus, for programs such as theirs, developing valuable experiential learning opportunities for their online students has been difficult, yet important.

Little research has been conducted on service learning projects in distance learning classes. Even less has been conducted on applying evaluative instruments to determine the overall value of service learning projects. The research has primarily focused on one dimension of the service learning project (Helm-Stevens and Griego, 2003, Thomas & Busby, 2003; Toncar et al, 1996). No research was found that provided a multi-dimensional evaluation of the contribution such projects provided to the educational experience.

In the next section, the author examines the Balance Scorecard model. This model is often used in business to evaluate multiple performance metrics when some of the variables being measured are subjective.

Balanced Scorecard

Kaplan and Norton (1992) created the Balanced Scorecard (BSC) approach to business valuation as a performance measurement model to evaluate the value of businesses from multiple perspectives. The framework provides a more balanced view of the organization by including both nonfinancial as well as financial metrics in the valuation process. Since its inception, the model has evolved into a strategic planning tool, rather than simply an evaluative instrument with the vision of the organization guiding the development and measurement of subsequent strategies (Kaplan & Norton, 2005). The 2005 model consists of four perspectives driven by the vision and strategies of the organization which include (Figure 1):

- **Financial Performance:** To succeed financially, how should we appear to our shareholders?
- **Customer/Stakeholder Satisfaction:** To satisfy our customers, how do we create value for them?
- **Internal Business Process Efficiency:** To satisfy our shareholders and customers, at which business processes must we excel?
- **Knowledge and Innovation:** To achieve our vision, how will we sustain our ability to change and improve? (Kaplan & Norton, 2005)

Figure 1 – Kaplan & Norton's Balanced Scorecard

Numerous commercial organizations have applied this model for years to improve their operations. An increasing number of non-for-profits have started applying Kaplan and Norton's model as well. In the next section, the author examines the research that has been conducted on applying the Balanced Scorecard model to higher education.

Balanced Scorecard in Education

Universities are finding the value of applying business models, such as Balanced Scorecard, to the management of the educational setting (Chen, Ching-Chow, & Shiau, 2006; Sudirman, 2014; Taylor & Baines, 2012). Karathanos & Karathanos (2005) cited the similarities between the Baldrige Education Criteria for Performance Excellence and the criteria of the Balanced Scorecard approach. The paper presented the detailed measures of the balanced scorecards of the first three recipients of the Baldrige Education Awards (two school districts and one university). The authors maintained that, "Although the BSCs of these three institutions cover the same perspectives, their individual measures differ considerably, reflecting the differences in their individual missions" (Karathanos & Karathanos, 2005:226)

Chang and Chow (1999) received surveys from the department chairs of 69 college and university accounting programs located in the U.S. and Canada. Overall, the respondents felt that the balanced scorecard could be an effective instrument in helping an accounting department achieve and improve upon their goals. Similar to Karathanos and Karathanos (2005) the authors noted that each program would need to " design its own scorecard consistent with its mission and circumstances…" (Chang & Chow, 1999: 410).

Chang & Chow (1994) took the Balanced Scorecard model even deeper into the educational process. The authors suggested that balanced scorecards be developed for each individual member of a department to exploit their specific skills and capabilities while using the synergistic effect to enhance an overall program. In the next sections, the author considers Chang & Chow's notion of "exploiting specific skills" by applying the Balanced Scorecard model to the course level to examine individual course projects, specifically, online service learning projects.

3. DEVELOPMENT OF A BALANCED SCORECARD FOR SERVICE LEARNING PROJECTS

With service learning projects, students are able to visualize the application of course concepts to real world situations and to experience the benefit of their knowledge and skills applied outside the classroom setting for the greater good. Much like a business setting, service learning projects have internal and external stakeholders as well as processes from which to learn and further improve upon.

In designing a balanced scorecard for an organization, Kaplan noted that the design process starts with determining the mission, then setting strategic objectives to fulfill the mission, and finally defining measures (Kaplan, 1994). The balanced scorecard serves as the framework for organizing and defining strategic objectives. To apply the model to the realm of a service learning project in education requires the perspectives to be slightly modified (Figure 2).

- **Vision and Strategy:** As in business, the vision of the program or course will drive the strategic objectives and, in turn, the measures.
- **Scholarship:** This perspective replaces "Financial" in the original model and focuses upon the value gained by students.
- **Customer Client:** Similar to the business-oriented model, customer client would be the recipient of the project's product or service.
- **Instructional Method Efficiency:** This variable corresponds to "internal business processes efficiency" and determining what the students must excel at in the project for the customer.
- **Innovation and Learning: Similar to business, this variable refers to evaluating the instructional method and determining how it could be improved upon for future classes.**

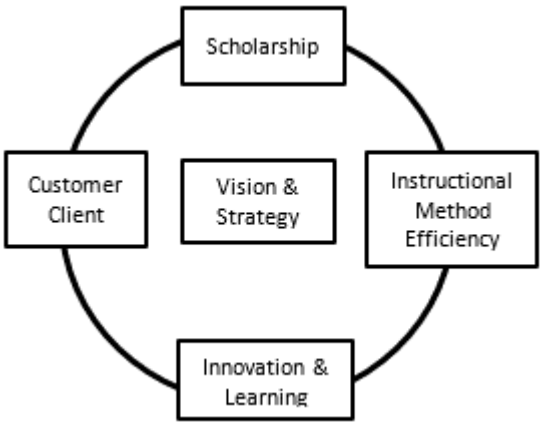

Figure 2 - Educational Balanced Scorecard

In business, the Balanced Scorecard model is used to strategically manage the business to increase the benefits of the business while managing the costs. Course projects have similar goals in the classroom setting. Instructors want to use projects that increase the educational value of the class while managing the instructional costs of the project in relation to the rest of their workload. In the next section, the author describes the course and service learning project on which the modified Balanced Scorecard model is applied.

4. COURSE

Integrated Decision Support Systems (BA630) is a core MIS course required of all MBA students at the author's institution. The course is offered twice a year to graduate students in the College of Business. The three credit hour course is usually offered in a face-to-face format during the fall semester. The online format is offered for six weeks during the summer semester. Although some course work is completed

individually, the larger course projects are completed in groups in both formats with consideration made for making the learning experience equal across both offerings.

There are only two group projects assigned in the six week online course, one assigned at the beginning of the semester and the second one assigned halfway through the course. The purpose of the first group project is to familiarize students with online collaboration tools and to help students get to know each other on a small project.

The second group project is a systems analysis and design project with the purpose being to pull together the concepts covered over the course of the semester. Projects have been created for community clients in both the face-to-face and online versions of the course. When community clients have not been found, facsimiles of previous projects are used with written descriptions replacing the interview process.

Service learning projects have a tendency to require extra attention from the instructor to ensure that a quality project is delivered to the client. Likewise, online classes also have a tendency to require additional attention as more individualized assistance is provided to the students. Combining both of those characteristics by requiring online students to participate in service learning projects for class may generate more costs to the instructor, and class in general, than the value they create. With this in mind, the next section examines the value of the project through the framework of a modified version of Kaplan and Norton's Balanced Scorecard (1992).

5. ONLINE SERVICE LEARNING PROJECT

During summer 2013, a systems analysis and database design project was assigned in the six week session of the MBA MIS course. Students were tasked with developing a small database for a local community group to use in hosting their annual 5K race. The purpose of the race was to raise money for their cause as well as generate awareness.

All student groups worked on the same project for the same client. Thus, accommodations had to be made to minimize the time requirements of the community client responding to questions of, and meetings with, seven groups. The author interviewed the client and then wrote the organization's story as a case study. Each student was given the case study as well as contact information for the community client representative. Each group had been assigned a local to campus group member. The groups were asked to utilize their local group member to serve as the liaison with the community client and to filter all of their questions through that person. They were also asked to share their information with the rest of the class through a forum to minimize replication of questions.

When the students were finished with their projects, they submitted their work to the instructor for grading. The instructor then selected the best project to present to the client. Because the 5K race occurs once a year, the database was implemented later in the year.

6. APPLICATION OF THE MODEL

As Kaplan and Norton indicated in their development of the Balanced Scorecard model (1992), there is more than just the financial perspective to consider when valuing an organization. The same can be said when determining the value of classroom projects.

If the instructor examined the projects described from a personal costs perspective only, the projects would probably be abandoned for something less personally time consuming. The instructor spent time interviewing and writing the scenario, fielding some of the questions for the community client, presenting the project to the clients, and finally modifying, installing, and to some extent, maintaining the project once the course was over.

However, by using the modified balanced score card to examine the value generated by the project from multiple perspectives, a more complete view of the project's contributions can be had. In measuring the overall value of the online service learning project, we first need to determine whether or not the vision of the project was accomplished as it guides the rest of the model. (Refer to Figure 2.)

Vision: The vision of the project was to give the students a real life team-oriented experience that would allow them to apply their knowledge and course concepts to providing a product that would help a member of the community. The vision was met as students were given a team-oriented real life project through which to apply course concepts and skills.

Scholarship: The students had the opportunity to work on a project with an actual organization and to know that their work was worthwhile and

not solely used to meet a requirement for earning a grade in the course. The project provided a hands-on application of concepts learned in a virtual team environment. In this environment, students had to find ways to work together virtually and capitalize on each other's strengths.

Students also gained experience in project and time management as they had a short time frame in which to accomplish the project. Interest in the project seemed to be maintained through its duration with some students volunteering to continue on with the project once the class was finished.

In evaluating the scholarship aspect of the project, students were presented with the opportunity to gain and apply several skills that could not easily have been attained outside an experiential learning project. Students seemed more engaged in the client based project than past semesters in which a fabricated case was used.

Customer Client: The benefits to the community client were multifold with an increased awareness of the cause among the students and a working system. The client was satisfied with the project and the interaction that they had with the students. They used the database in their most recent 5K race. Because the race was a new activity for the client, the client did not think of all of the reports they would like the database to generate nor the additional fields that would need to be collected to generate those reports. The instructor assisted the client in modifying the database to include the additional fields and reports.

Instructional Method Efficiency: Course concepts were taught through their application in a client setting over a three week time period. In order to provide the three week time block for the project, course concepts had to be rearranged. Preliminary concepts were slightly rushed in order to allocate sufficient time for the project. In addition, the service learning project time frame overlapped with those of other course projects. This overlapping of project due dates added to the stress level of some students.

To accommodate the online environment and shortened time frame, the instructor provided additional groundwork beyond that normally required for service learning projects. Such work included summarizing the client's background and situation, and installing, implementing, and training the client on the final system. In addition, because the project ended so quickly, students were not given enough time to reflect upon the service learning project as a group as well as discus the closing of the project. (Part of the value associated with service learning projects and project management is the collective reflection that takes place at the end of the project.)

Innovation and Learning: The project moved both the course and the instructor forward. In trying to minimize the interruptions on the client, materials were developed that could be used in future semesters in which clients were not available. The instructor also looked for ways to make the project more efficient for all parties involved. By personally working with the client and on the project during and after the course was over, the instructor's skills were sharpened and the project was honed for future semesters.

Overall, although the project was able to accomplish several learning objectives, its application infringed upon the time allotted to other aspects of the course as well as the time resources of the instructor. Had the project been offered during a regular sixteen week time period, the results of the model would have been different. The project would not have been rushed and time could have been allotted for a give-and-take between the client and the students as well as time for a proper project closing. In reflecting upon the project and its evaluation through the model, it seems a fabricated scenario would have best addressed the needs of the project and restrictions of the course without adding undue stress.

7. EVALUATION OF THE MODEL

For the most part, the model applied well to evaluating the service learning project. However, the variables "Scholarship" and "Instructional Method Efficiency" may need to be more carefully defined in future applications to prevent overlap.

8. FUTURE WORK AND CONCLUSION

Little has been done in evaluating service learning projects from multiple perspectives. The modified model could be used to evaluate experiential learning projects that are conducted over a standard semester time frame. The model could also be used to examine online courses and programs as well as universities whose content is delivered wholly online.

In this paper, the author examined literature associated with the use of service learning projects in higher education, service learning projects in the online environment, Kaplan and Norton's Balanced Scorecard model, and use of the model in the area of higher education. The author then proposed a modified version of the model to be applied to managing and evaluating course projects. The modified model was then used to examine a service learning project offered online at the author's institution. Through application of the model, the author found that although the project generated considerable value, the time frame in which the project was taught significantly affected the value the project had individually and what it contributed to the class as a whole.

9. REFERENCES

Atlanta Service Learning Conference Report (1970). Southern Regional Education Board Retrieved from http://files.eric.ed.gov/fulltext/ED072718.pdf .

Balanced Scorecard Institute (2014). *Balanced Scorecard Basics*., retrieved on May 27, 2014 from http://balancedscorecard.org/Resources/AboutttheBalancedScorecard/tabid/55/Default.aspx.

Ball, M.A. & Schilling, K. (2006). Service Learning, Technology and LIS Education. *Journal of Education for Library and Information Science*. *47*(4), p. 277-290.

Boyer, E. (1994). Creating the New American College." *Chronicle of Higher Education*, A48.

Bringle, R.G. & Hatcher, J.A. (1995). A Service-Learning Curriculum for Faculty. Michigan *Journal of Community Service-Learning*. 2, 112-122.

Chan, C. (2012). Exploring a Service learning project through Kolb's Learning Theory using a qualitative research method. *European Journal of Engineering Education*, *37*(4), 405-415.

Chen, S., Ching-Chow, Y., & Jiun-Yan Shiau. (2006). The Application of Balanced Scorecard in the Performance Evaluation of Higher Education. *The TQM Magazine*, *18*(2), 190-205. Retrieved from http://search.proquest.com/docview/227579240?accountid=38003.

Cleary, Y., & Flammia, M. (2012). Preparing Technical Communication Students to Function as User Advocates in a Self-Service Society. *Journal of Technical Writing & Communication*, *42*(3), 305-322.

Coye, D. (1997). Ernest Boyer and the New American College. *Change*, *29*, 20-29. Retrieved from http://search.proquest.com/docview/208054341?accountid=38003.

Dewey, J., (1916). *Democracy and Education: An Introduction to the Philosophy of Education*. New York: The Free Press.

Hagan, L. M. (2012). Fostering experiential learning and service through client projects in graduate business courses offered online. *American Journal of Business Education (Online)*, *5*(5), 623. Retrieved from http://search.proquest.com/docview/1418446153?accountid=38003.

Helm-Stevens, R., & Griego, O. (2009). Evaluating Experiential Learning In Organizational Behavior: Taking Measure Of Student Perception Regarding Group Experience. *American Journal of Economics and Business Administration, 1*(2), 138-140. Retrieved from http://search.proquest.com/docview/1027115297?accountid=38003.

Kaplan, R. S. (2010). Conceptual Foundations of the Balanced Scorecard, *Harvard Business Review Working Paper* 10-074. 1-36.

Kaplan, R. S. (1994). Devising a balanced scorecard matched to business strategy. *Planning Review*, *22*(5), 15. Retrieved from http://search.proquest.com/docview/194368377?accountid=38003.

Kaplan, R. S. & Norton, D. P. (1996). Using the Balanced Scorecard as a Strategic Management System. *Harvard Business Review*, *74*(1) 75-85.

Kaplan, R.S. & Norton, D. P. (1992). The Balanced Scorecard: Measures that Drive

Performance. *Harvard Business Review*, *79* (1) 71-79.

Karathanos, D., & Karathanos, P. (2005). Applying the balanced scorecard to education. *Journal of Education for Business 80*(4), 222-230. Retrieved from http://search.proquest.com/docview/202822712?accountid=38003.

Lutz, K., & Unruh Snyder, L. (2014). Creating a College Level Animal Healthcare Service-Learning Project in International Elementary Schools. *Global Studies Journal*, *6*(1), 1-6.

McClellan, J. L. (2011). Beyond Student Learning Outcomes: Developing Comprehensive, Strategic Assessment Plans for Advising Programmes. *Journal of Higher Education Policy & Management*, *33*(6), 641-652.

Sigmon, R. (1979). Service-learning: Three Principles. Synergist. National Center for Service-Learning, *ACTION*, *8*(1): 9-11.

Sigmon, R. (2009). Robert Sigmon Biography. Retrieved September 16, 2014, from http://org.elon.edu/library/ead/msscoll033robertsigmon.xml.

Stanton, T. K., Giles, D. E., Jr., & Cruz, N. I. (1999). *Service Learning: A Movement's Pioneers Reflect on Its Origins, Practice, and Future*. San Francisco: Josey-Bass.

Sudirman, I. (2012). Implementing balanced scorecard in higher education management. *International Journal of Business and Social Science*, *3*(18) Retrieved from http://search.proquest.com/docview/1127690565?accountid=38003.

Taylor, J., & Baines, C. (2012). Performance Management in UK Universities: Implementing the Balanced Scorecard. *Journal of Higher Education Policy & Management*, *34*(2), 111-124. doi:10.1080/1360080X.2012.662737.

Terry, A. W. & Bohnenberger, J. E. (2004). Blueprint for Incorporating Service Learning: A Basic, Developmental, K-12 Service Learning Typology. *The Journal of Experiential Education*, *27*(1), 15-31. Retrieved from http://search.proquest.com/docview/274926685?accountid=38003.

Thomas, S., & Busby, S. (2003). Do Industry Collaborative Projects Enhance Students' Learning? *Education & Training*, *45*(4), 226-235. Retrieved from http://search.proquest.com/docview/237087973?accountid=38003.

Toncar, M. F., Reid, J. S., Burns, D. J., Anderson, C. E., & Nguyen, H. P. (2006). Uniform Assessment of the Benefits of Service Learning: The Development, Evaluation, and Implementation of the Seleb Scale. *Journal of Marketing Theory and Practice, 14*(3), 223-238. Retrieved from http://search.proquest.com/docview/212168813?accountid=38003.