

The Balanced Scorecard and Class Success: A Classroom Exercise for Developing Awareness of the Challenges to Successful Balanced Scorecard Implementation

Kevin Devine

Xavier University

Priscilla O'Clock

Xavier University

Abstract

This paper presents a description and discussion of a Balanced Scorecard (BSC) classroom project that has been used to enhance student understanding of the development and validation of a BSC. The project requires students to develop a BSC to be utilized in monitoring academic success in a cost accounting class. The students are required to identify strategies, develop measures, create a strategy map, and collect data associated with their BSC for academic success. Students are then required to evaluate the BSC based on data collected and offer explanations related to the strengths and weaknesses of the BSC that has been developed. From the students' perspective, the project promotes an increased understanding of the complexities associated with the development of a BSC and the role of a strategy map in BSC design and validation.

Background

The Balanced Scorecard (BSC) proposed by Kaplan and Norton (1992) introduced a performance evaluation system consisting of financial performance complimented with operational measures on customer satisfaction, internal processes and the organization's innovation and improvement activities. Typically an organization's performance had been evaluated by only considering financial metrics. The BSC presented a balanced approach to performance measurement where customer satisfaction, internal processes and innovation were leading measures of financial performance. The focus of performance evaluation shifted from emphasis on financial performance to a focus on the organization's strategy.

To further keep management focused on strategy implementation Kaplan and Norton (2000, 2001) proposed the strategy map as a critical component of the BSC that communicates strategy and the processes and linkages by which an organization's strategy is achieved. Therefore, the BSC is depicted in a manner that consists of both leading and lagging measures of performance and provides a balanced framework for organizations to achieve their strategy. Research has indicated that firms that develop and monitor the causal relationships in the strategy map are more successful with BSC implementation (Ittner and Larcker, 2003; Malina and Selto, 2001).

The BSC has become a performance management tool that is now included in most introductory managerial accounting texts (see for example, Garrison, et al., 2015; Hilton and Platt, 2014; Jiambalvo, 2013, and Noreen, et al., 2014). In addition, the topic has received varying degrees of discussion in Cost Accounting texts (see for example, Blocher, et al., 2016; Horngren, et al., 2015).

Our experience has been that frequently students express a desire for a more thorough understanding of the BSC. Although our evidence is anecdotal, we have found that traditional undergraduate students do not have an appreciation or understanding of the complexity associated with developing and implementing a successful BSC. In addition, they do not seem to appreciate the important role that a strategy map provides in the development and subsequent validation and revision of the BSC. This limited appreciation and understanding has been observed in student responses during class

discussions related to the BSC process. Ittner and Larcker (2003) suggest that even managers fail to recognize the importance of causal links as a central element of the BSC. Thus, due to the complexity of the entire BSC process, a project that allows the students to experience this complexity may be beneficial.

Experiential learning has gained popularity as an effective method to enhance the learning process. "Learning by doing" helps the student to recognize issues associated with a textbook topic that only becomes real when encountered in an experiential exercise. The AECC and AACSB, as well as other professional organizations, have been long standing proponents of accounting and business curriculum change, including the incorporation of innovative teaching methods such as cooperative and active learning. The development and validation of a Balanced Scorecard provides an appropriate setting and an opportunity to utilize an experiential learning approach to enhance students' understanding of this complex performance evaluation tool.

Barsky, et al., (2006), report using an experiential learning assignment, as opposed to a traditional case, to teach the BSC. The authors acknowledge that the case method appears to be the preferred method to teach this topic, however, they indicate that "most scorecard cases are ill-suited for undergraduate course work and many graduate courses as well" (p. 288). The experiential exercise they developed required students to familiarize themselves with the university bookstore operations and strategy and then develop a balanced scorecard with strategic objectives and measures for each dimension of the scorecard.

Classroom projects related to enhancing student understanding of the BSC include that of Boscia and McAfee (2008) who used an exercise that provided student groups with performance measures related to a hypothetical university. The project required students to categorize the measures into scorecard dimensions and then indicate whether they were measures of efficiency or effectiveness. Mastilak and Matherly (2010) used a teaching exercise that bridges the gap between the student's resume and the balanced scorecard, emphasizing the similarities between the two. The authors report that the approach helped to overcome some of the difficulties associated with teaching the BSC and student responses to the project were positive.

Capelo, et al., (2015) developed a project using a business simulation to teach the BSC. As part of the project students were provided with performance measures for the four perspectives of the BSC. The students were then required to complete a partially developed strategy map for the measures and indicate linkages. The students revised the strategy map as they progressed through several rounds of business decisions. The authors found that incorporating the BSC into the simulation methodology enhanced students' appreciation and understanding of the role of the strategy map in evaluating performance.

The projects related to teaching the BSC above tend to focus on one or a limited number of the components associated with the development and validation of a BSC. That is, they focused on strategies and measures, or categorization of measures, or review and revision of the strategy map once simulated data had been created.

The classroom project that we report on in this paper is different from previous projects in two important ways. First, the BSC context utilized is one that is familiar to students in that the project requires students to develop a BSC related to strategies for academic success in a cost accounting course. Second, students are involved in all phases of the BSC process, providing a focus on the complexity of the BSC that is not found in previous projects. Specifically, the students identify strategies, critical success factors and corresponding performance measures. Next, they record and analyze data related to the measures and, finally, review the measures and evaluate the BSC thereby completing the feedback loop of the BSC/strategy map process. Thus, the project represents an experiential hands-on project designed to enhance students' understanding of issues associated with all facets of BSC development, measurements, utilization, and evaluation. The project is administered in a context very familiar to students where they should be qualified to develop strategy as well as review and critique the causal relationships implied by the strategy map.

This paper describes a classroom activity designed to enhance student appreciation and understanding of the development and validation of the BSC. The objective of the exercise is to make students aware of the difficulties associated with strategy identification and design; with selection and measurement of quantitative and qualitative variables; with linkage of

the variables to a strategy map; with data collection; and with interpretation and validation of the BSC. This goal is achieved by employing a multi-step project related to student academic success.

For most students academic success is defined as receiving a good grade in the course and they will typically develop strategies to achieve it. This setting is chosen because it is one which is familiar to students and most students have at least sub-consciously developed strategies for academic success.

The project consists of several primary activities. The first step is to introduce students to the BSC and the role of a strategy map. The second step is to ask students to develop strategies for successful completion of the course. The third step is to develop a preliminary strategy map related to classroom success. This is followed by development of measures corresponding to the various perspectives that relate to the strategy students pursue for academic success. Once the measures are agreed upon a final strategy map is developed. Students are then required to collect data and evaluate the relationships defined by the final strategy map.

The remainder of this paper is divided into three major sections. The first section describes in detail the major components of the project. The second section includes a teaching note with examples of the requirements that have been used with this project and the types of issues that students can be asked to resolve. The paper concludes with a discussion that summarizes student feedback, limitations associated with our findings, and suggestions for utilizing the project in other accounting courses.

Development of a BSC for Class Success

The classroom activity described below requires students to develop a BSC for student success in a cost accounting course. The students in this course are usually junior or senior accounting majors who have most likely been introduced to the concept of a BSC in an introductory managerial accounting class.

Most, if not all, students possess a desire to be successful in their courses. Certainly students have different expectations in terms of what determines or defines class success. However, for most, determinants of class success typically revolve around the grade that they receive in the course. Of course, a few students share the goal that their professors hold for them, i.e., the goal to acquire knowledge for knowledge sake in spite of the manner in which that accumulation of knowledge is evaluated. Since students desire to be successful in class they typically have developed, or at least have considered, strategies to ensure their success in a classroom environment. This knowledge of the educational process, their desire to be successful in some manner and the development of strategies to be successful makes the classroom experience an ideal setting for enhancing students' understanding of the complexities associated with the development and validation of a BSC. The following sections describes the detail associated with implementing the BSC project.

Day One

Some Cost and Managerial Accounting textbooks which focus on a more strategic orientation introduce the balanced scorecard very early in the curriculum (see for example, Atkinson, et al., 2012, and Blocher, et al., 2016). This early orientation provides the opportunity to develop a project that can evolve over a significant portion of the academic term. On the first day that the project is discussed the class is introduced to the concept of a BSC as a comprehensive system of performance evaluation. The classic BSC with four dimensions, consisting of Financial, Customer, Internal Processes, and Learning and Growth is provided as one such example of a BSC. These dimensions tend to be important to most organizations, however, they are not necessarily the correct dimensions for every situation. In fact, the most important characteristic of BSC dimensions is that they be related to the organization's overall strategy. This discussion is followed by considering the roles of both leading and lagging measures in the development of a BSC and a discussion of the use of both quantitative and qualitative measures.

The next concept introduced is how a strategy map depicts the relationships between the BSC dimensions and measures. In its simplest form one might expect that learning and growth would lead to improved internal processes, leading to enhanced customer value/satisfaction which would ultimately lead to enhanced financial performance. Describing the idea behind a strategy map in this manner allows the students to develop a better understanding of the importance of a mix of

leading and lagging measures of performance and to develop some appreciation for the use of both quantitative and qualitative performance measures.

Toward the end of the first day the students are encouraged to think about developing a BSC for academic success in the cost accounting course. The students are asked to describe what they believe are determinants of successful completion of the course. Most students quickly cite a "good" grade as the primary measure of success. Some students profess a desire to acquire as much knowledge as possible as the measure of course success. After the goal of successful completion of the course is discussed the students are asked to think about strategies that they utilize to ensure course success. The first day concludes by requesting the students to come to the next class period prepared to present their ideas for strategies that are important for class success.

Day Two

The goal of the second day of the BSC class project is to reach consensus on the general strategies that students employ to successfully complete the course and to develop measures in order to monitor adherence to those strategies. A final strategy map linking the measures in the BSC is developed.

This class day begins by asking the students to list the strategies important for being successful in the course. Students typically volunteer the usual items which include some or all of the following: read the textbook, work the assigned problems, attend class, participate in class, form study groups, visit with the instructor outside of class, study for the exam and numerous others. Development of a fairly long list of their suggestions fosters a discussion of the students' perceived strategies for class success and how the students' adherence to those strategies can be measured.

After the students are allowed time to develop a list of factors related to class success they are asked if they see any recurring themes that seem to provide evidence of the strategies that will lead to success in the course. Fairly quickly students have come to agree that success in the course appears to be related to two or three major categories. First, students see the importance of what they do outside of class and second they realize that their engagement in class is also important to success. Students also typically perceive their out of class activities divided into two major categories. First, they generally tend to believe what they do to prepare for class on a daily basis is important and second, what they do to prepare for the exam is important.

Next, the students are asked to identify any clearly obvious components of the strategy, i.e., those which the students can agree should be employed to be successful in class. The students tend to agree on a strategy consisting of four dimensions. The four major recurring dimensions are class preparation, class participation, exam preparation, and exam performance/class success. After the class has agreed on the major dimensions of their strategy the real challenge begins; how will adherence to those strategies be measured?

Discussion of Measurements

The next task requires that critical success factors be identified for each dimension as well as measurements for those factors. Critical success factors are those that will ensure adherence to student strategies for academic success. This discussion usually returns to the list of factors related to class success that were mentioned at the beginning of Day Two. At this point the task focuses on which of these factors are most closely aligned with the dimensions that have been agreed upon and how these factors will be measured.

Easy measures that students focus on for "class preparation" tend to be items such as problems worked, chapters read, and time spent reviewing notes from prior classes. The students are then asked how they would like to measure these items. The conversation revolves around decisions such as the number of problems worked or pages read or a percentage of these items. This conversation is followed by choosing to use a continuous or categorical variable. For example, should the actual number of pages be recorded or some categorical variable such as less than 25%, 25-50%, 51-75%, greater than 75%? This forces the students to think about the value of precise information versus a range of information. Students also tend to realize that things like number of problems worked may not be as important as the type or complexity of problems. Students usually opt for the use of a categorical variable.

Similar discussions arise in measuring “class participation”. Class attendance is a simple yes or no variable. However, students often realize what their professors know too well; there is a difference between physical and mental attendance. This leads to a discussion of some type of qualitative variable for level of engagement or level of distraction in the class. Typically, the students again choose a categorical variable that takes the form of highly engaged through highly distracted. Similarly, students have at times decided a measure of the quality of notes taken would be a good measure. If so, this tends to be anchored by qualitative descriptors.

“Exam preparation” measures have included a wide range of items. Sometimes students desire a measure related to time spent studying for the exam or a self-assessment of how prepared they felt going into the exam. Frequently students opt for both of these measures. Students have also indicated a desire to use percent/number of topics “comfortable” or “uncomfortable” with prior to the exam when a list of exam topics is provided by the instructor.

During the discussion related to choosing which measures to use to monitor their strategy the students are allowed to debate and discuss the merits of their measures with only minimal guidance from the instructor. The concern at this point is not to have perfect measures. The objective is to have students choose measures with the realization that they are not perfect but do appear to capture information related to how well they are adhering to their strategy for course success. Since the project does not occupy the entire semester, the score on the first exam is used as a surrogate for course success.

Once the class agrees on the measures to be monitored, the second day concludes with the development of a strategy map that links the measures in the BSC. Strategy maps are one-page visual frameworks that depict cause and effect relationships between scorecard performance measures. Statistical analysis of the proposed relationships in the strategy map provides the opportunity to validate the BSC. A preliminary strategy map for the project is developed by writing the major dimensions across the board and listing the students’ proposed measures below them. Relationships between those measures are then discussed.

The process of developing the strategy map provides students with the opportunity to consider how measures in one dimension may positively or negatively impact measures in other dimensions. More than one other measure can be affected. For example, the level of distraction in class can impact the quality of notes as well as comfort level with material. After students have agreed on the relationships between the measures, a final strategy map is developed. Figure One presents a typical strategy map developed by the students at this phase of the project. This strategy map is saved for future reference once data compilation has been completed. The following section describes administration of the BSC project.

Administering the BSC Project

There are a number of ways the collection of data related to the BSC project could be administered. However, one method utilized is a manual data matrix that the students complete each class day. This data matrix, designed by the professor, is typically developed in Excel and emailed to the students who then use it to record their data. An example of a BSC data matrix is provided in Figure Two. The students are reminded to complete their data matrix at the beginning and end of each class period. The beginning of class is used to record their preparation for class; the end of class is used to record their “in class” engagement. Data related to the project is recorded each class period until the first exam. Students are asked to turn in their completed data matrix prior to receiving the first exam.

The instructor enters student data into an Excel spreadsheet for each of the required class dates. In addition, exam and quiz scores (if they are part of the strategy map) are entered by the instructor. Since the data will be returned to the students for completion of the project, random numbers are assigned in place of student names. Exam scores are mathematically altered in a manner that disguises the true score but does not significantly alter the correlation with other measures in the student’s strategy map. An abbreviated sample of the completed data spreadsheet is provided in Figure Three. At this point it is time to assign the project requirements and return the compiled class data to the students. Students can now be assigned a variety of tasks to analyze and evaluate what they have just compiled. Suggested analysis includes determining correlations between dimensions and specific measures. An assignment requiring students to discuss strengths and weaknesses may also be appropriate.

Project Requirements and Teaching Note

The students who participated in this project were traditional, full time, undergraduate accounting majors. The students were enrolled in a Cost Accounting class with approximately twenty students in each class. Since Cost Accounting is an upper division course, the class rank of each student could have been junior or senior. Their previous exposure to a BSC was most likely in an introductory managerial accounting course. The students enrolled in this class are required to have completed the statistics component of the curriculum which consists of an introduction to statistics and a business statistics course. Therefore, they possess knowledge of statistics, the use of Excel to obtain correlations, and have at least been exposed to the importance of ensuring data integrity in the use of statistical methods. This knowledge is no doubt beneficial in completing the requirements of the project.

The benefits of this project are far more observable if one accepts that the purpose of this project is not to develop the perfect BSC for determining academic success in a class. In fact, correlations between the various elements of the BSC are often weak, as discussed later. Instead, the purpose is to develop an exercise that allows the students to realize that a good BSC is not easily achieved. Furthermore, it is designed to help them understand the strengths and weaknesses of both quantitative and qualitative measures, the importance of data integrity, and the role of the strategy map in evaluation of the BSC. Finally, since the BSC measures agreed upon by the class may not be consistent with each student's personal strategies for academic success they begin to develop an appreciation for the limitations that are inherent in trying to use a BSC as a common measure of performance across multiple business units.

A sampling of questions that have been asked of students over the semesters this project has been used is provided below:

1. Review the way that the BSC measures were coded in the data key. For each anticipated link in the strategy map developed in class determine whether you expect the correlation to be positive or negative. For example given the way percent of problems worked is coded do you expect the relationship with quiz scores to be positive or negative?
2. Develop an average value for each student for each of the five daily measures. For students with missing data calculate the average by ignoring the missing data. This will essentially result in the missing data being set equal to the average of the reported data for those students. Also develop an average rating for the percent of homework problems worked. Use the average data in developing the class correlations in the strategy map.
3. How does the development of the averages in number two above affect the usefulness of the balanced scorecard measures?
4. Develop a figure depicting the strategy map developed in class. On the lines connecting the various measures in that figure indicate the actual correlations that you found in evaluating the data.
5. What are the strongest correlations that you found in your strategy map?
6. Do the correlations that you calculated for the expected linkages in the strategy map provide a strong case supporting the measures that the class chose to depict class success? To what do you attribute the strength or weakness of these correlations?
7. Using your class notes as a guide to determine when this material was covered, develop correlations between the appropriate measures for one or more class days, the chapter five or seven homework percentage, the quiz five score and either the problem one or problem two exam score. Indicate the class day(s) and measures that you chose.
Note: Problem one on the exam was similar to the Snyder Company Sample problem. Problem two on the exam was a problem that focused on the use of activity based costing for assessing customer profitability. How do these correlations compare to the overall correlations found on your strategy map developed for question four?

The purpose of these questions is to provide the students with an opportunity to reflect on the BSC project and think about the inherent limitations of the data collected, the method in which it was gathered, and to recognize that the steps that were taken to aid in analysis of the data actually limited the interpretability of the results.

It is worth noting that the correlations in the students' strategy maps are typically weak. We suspect that the weak correlations are due to the short time frame of the project, issues associated with self-reported data, and the averaging of

data across dates for each student. Averaging data across students allows development of a final data matrix with one average measure for each data item for each student.

By following this process a correlation matrix can be developed across students related to each of the measures in the strategy map. However, this averaging process eliminates a great deal of information for each student. Sample question seven, above, attempts to point out to students that a more powerful relationship could be developed if the measures recorded were related to specific outcomes. For example, do the correlations get stronger if we focus on one or two class days and relate them to success on a quiz given on those class days? Or, can we relate the performance in and out of class on specific dates to a problem on the exam?

Once the project has been graded and returned to the students a class discussion of the project and its implications is conducted. This discussion does not necessarily center on the specific requirements of the project. Instead, the focus is on what the students have learned about the creation of a BSC, the data gathering process, and the validation of the BSC through the development and evaluation of correlations identified in the strategy map.

Discussion and Limitations

The BSC project discussed above was created in response to a desire to enhance students' understanding of the BSC process. Limited data has been collected that appears to support this goal. At the end of the semester students were asked to voluntarily and anonymously answer five questions related to the BSC project. Those questions and the students' average responses to them are provided in Table One.

These responses generally indicate that the students feel that the project has enhanced their understanding of the development of a BSC and strategy map. In addition, it seems to increase their understanding of measurement and design issues associated with a BSC (> 80% agreed or strongly agreed). More than 90% of the students agreed or strongly agreed that this project made them more aware of the difficulty and complexity associated with utilizing the BSC as a tool to evaluate performance aligned with strategies. A lower percentage (65%) of students seem to be convinced that the BSC project is a worthwhile classroom project. We suspect this may be due to the qualitative nature of the assignment and the level of ambiguity associated with the interpretation of the BSC data.

The objective of this classroom activity was to provide students with a project that could help them appreciate and understand the BSC. If managers have been found to struggle with this tool it is not surprising that students also experience difficulties. There has been a call from the AACSB and others to implement innovative teaching methods in the business curriculum, particularly incorporating cooperative and active learning methods. Upon completion of this project, student responses indicate that this hands-on activity contributed in a positive manner to the student's understanding of the role and purpose of a BSC. Perhaps more importantly, it appears to enhance students' understanding of the complexities associated with the development of a good BSC and the role of a strategy map in the development, validation, and revision process.

The project described above has only been used in a Cost Accounting class at a private university. Generalization of the benefits of this project may be limited due to the number of student responses (40) and the number of professors (one) that have utilized the project. Benefits of the project could be confirmed by assigning the project in additional classes and perhaps at different class levels, i.e., introductory versus upper division managerial accounting courses.

We believe the project could be used in an introductory managerial accounting class if the students have been exposed to correlation analysis in an introductory statistics class. The use of regression analysis is also introduced in many introductory managerial accounting textbooks (see, for example, Noreen, et al., 2014, and Hilton and Platt, 2014). However, these texts frequently focus on the development of a cost line and do not focus on the correlation coefficient as both a directional indicator and a goodness of fit measure. The latter is more appropriate for this exercise. An alternative to requiring the students to analyze the data and develop a correlation matrix would be to provide this information. After they have completed recording of the data the students could be given the correlation matrix and a data key. Providing this information to the students along with a basic introduction to correlation analysis may be sufficient for students to obtain benefit from the project.

The extension of experiential BSC activities into introductory managerial, as well as cost accounting classes, may provide a broader set of students with an enhanced understanding of performance evaluation using the BSC. Such projects can contribute in a positive manner to an appreciation of the complexity and importance of the BSC process, beginning with strategy development and closing the loop with validation and revision, including the critique of the causal relationships implied by the BSC. An enhanced understanding of the process at the academic level may better prepare accounting and business students to implement and fully recognize the potential benefits of the BSC as they become managers.

References

- Atkinson, A. A., R. S. Kaplan, E. M. Matsumura, and S. M. Young. 2012. *Management Accounting Information for Decision Making and Strategy Execution*, 6th ed. (Pearson Education, Upper River Saddle, NJ).
- Barsky, N. P., A. H. Catanach, and C. A. Lafond. 2006. Student turned consultant: Teaching the Balanced Scorecard using Experiential Learning. *Advances in Accounting Education: Teaching and Curriculum Innovations*, (Vol. 9) 287-305, edited by Bill N. Schwartz and Anthony H. Catanach.
- Blocher, E.J., D. E. Stout, P. E. Juras, and G. Cokins. 2016. *Cost Management A Strategic Emphasis*, 7th ed. (McGraw-Hill, New York, NY).
- Boscia, M. W. and R. B. McAfee. 2008. Using the Balanced Scorecard Approach: A Group Exercise. *Developments in Business Simulation and Experiential Learning*, (Vol. 35), 1 - 14.
- Capelo, C., A. Lopes, and A. Mata. 2015. A Simulation-Based Approach for Teaching the Systems Perspective of Strategic Performance Management. *Accounting Education: an international journal*, (Vol. 24), no. 1, 1-26.
- Garrison, R. H., E. W. Noreen, and P. C. Brewer. 2015. *Managerial Accounting*, 15th ed. (McGraw-Hill, New York, NY).
- Hilton, R. W. and D. Platt. 2014. *Managerial Accounting Creating Value in a Dynamic Business Environment*, 10th ed. (McGraw-Hill/Irwin, New York, NY).
- Hornigren, C. T., S. M. Datar, and M. V. Rajan. 2015. *Cost Accounting A Managerial Emphasis*, 15th ed. (Prentice Hall, Upper Saddle River, NJ).
- Ittner, C. D. and D. F. Larcker. 2003. Coming Up Short on Nonfinancial Performance Measurement. *Harvard Business Review*. (Vol. 81) no. 11, 88-95.
- Jiambalvo, J. 2013. *Managerial Accounting*, 5th ed., (John Wiley and Sons, NJ).
- Kaplan, R. S. and D. P. Norton. 1992. The Balanced Scorecard - Measures that Drive Performance. *Harvard Business Review*. (Vol. 70) no. 1, 71-79.
- ____ and _____. 2000. Having Trouble with your Strategy? Then Map It. *Harvard Business Review*. (Vol. 78) no. 5, 167-176.
- ____ and _____. 2001. Transforming the Balanced Scorecard from Performance Measurement to Strategic Management: Part 1. *Accounting Horizons*, (Vol. 15) no. 1, 87-104.
- Malina, M. A. and F. H. Selto. 2001. Communicating and Controlling Strategy: An Empirical Study of the Effectiveness of the Balanced Scorecard. *Journal of Management Accounting Research*. (Vol. 13), 47-90.
- Mastilak, M. C. and M. Matherly. 2010. Resume as a Balanced Scorecard: Teaching the Balanced Scorecard using Analogy. *Advances in Accounting Education: Teaching and Curriculum Innovations*. (Vol. 11) 33-47, edited by Anthony H. Catanach and Dorothy Feldman.
- Noreen, E. W., P. C. Brewer, and R. H. Garrison. 2014. *Managerial Accounting for Managers*. 3rd ed. (McGraw-Hill/Irwin, New York, NY).

Figure One
Typical Final Strategy Map Developed End of Day Two

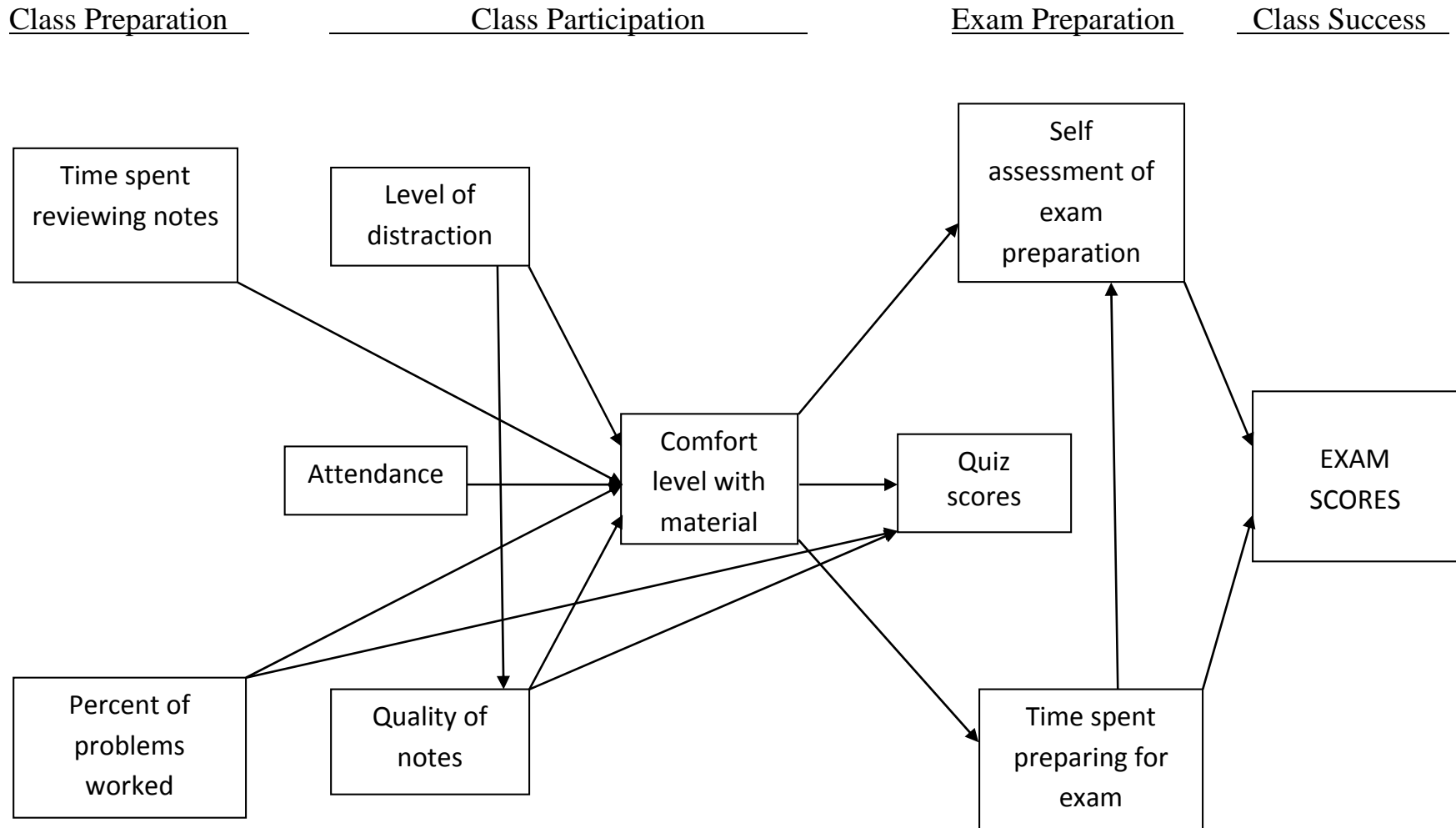


Figure Two
Sample data matrix to be completed by students

Balanced Scorecard Project - Data Entry Sheet										
		Name: _____								
Place an "x" in the cell corresponding to the appropriate response for each of the class preparation and class participation measures. The class preparation measure for problems worked should be completed after the chapter has been covered and the time spent reviewing notes should be completed immediately prior to the start of class. The class participation measures should be completed at the end of class. Exam preparation questions should be answered the morning of the exam.										
CLASS PREPARATION - OUT OF CLASS										
Percent of Chapter problems worked correctly		CH-3		CH-4		CH-5		CH-7		
	0%									
	1-25%									
	26-50%									
	51-75%									
	> 75%									
		18-Jan	23-Jan	25-Jan	30-Jan	1-Feb	6-Feb	8-Feb	13-Feb	15-Feb
Time spent reviewing class notes (list a time in minutes prior to each class period)										
CLASS PARTICIPATION - IN CLASS										
Physical attendance:										
	Did not attend									
	Attended class									
Level of engagement in class:										
	Very engaged									
	Somewhat engaged									
	Highly distracted									
Comfort level with material presented in class										
	not comfortable several uncertainties still exist									
	fairly comfortable - most uncertainties resolved									
	very comfortable - all uncertainties resolved									
Quality of notes:										
	Poor - relatively few notes taken									
	Reasonable - notes are fairly complete									
	Very Good - notes are very complete									
EXAM PREPARATION										
Personal assessment of preparedness for exam - recorded prior to the exam only										
	Poorly prepared for the exam									
	Prepared fairly well for the exam									
	Very well prepared for the exam									
ASSESSMENT (provided by instructor)										
	Exam Score									
	Quiz one									
	Quiz two									
	Quiz three									

Table One
Summary of student responses regarding BSC project benefits

Question	Mean and Median Response*	% of students ranking 4 or 5*
BSC project enhanced my understanding of the development and use of a BSC and strategy map.	Mean = 4.025 Median = 4.00	82.5% n = 40
BSC project enhanced my understanding of the importance of identifying relevant measures associated with critical success factors (CSF).	Mean = 4.25 Median = 4.00	85% n = 40
BSC project aided my understanding of the importance of ensuring the integrity of data collected for measurement in utilizing a BSC and strategy map.	Mean = 4.35 Median = 4.50	87.5% n = 40
BSC project increased my awareness that designing and implementing a BSC that identifies and measures CSFs aimed at successful implementation of a strategy is a complex and difficult process.	Mean = 4.6 Median = 5.00	92.5% n = 40
Overall, I found the BSC project to be a useful class project.	Mean = 3.75 Median = 4.00	65% n = 40

*1 = strongly disagree, 2 = somewhat disagree, 3 = neutral, 4 = somewhat agree, 5 = strongly agree