Measuring student engagement perceptions in university level business finance courses

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ABSTRACT

This research addresses university student perceptions of a digital learning platform, such as MindTap by Cengage Learning, and how the technology affects student engagement within finance courses. Areas of impact and features of the product were surveyed via a Likert scale of effectiveness. As expected, perceptions were generally positive across most categories measured. Students expressed higher perceived effectiveness of homework and problem-solving areas but were less likely to agree that the product improved learning outcomes. This disconnect raises questions about the relationship between the perception of such interactive tools and actual outcomes. To the extent that students are engaged in the way that they learn would be expected to produce increased learning outcomes. Further research is suggested to measure perceptions and actual observations.

Keywords: digital learning platform, education, MindTap, perceptions, student engagement

INTRODUCTION

Academic efforts to improve student outcomes have a long and varied history (Twyman and Heward, 2018). Student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught (Balwant, 2018). The subject dominates many contemporary research efforts and occupies most of the dialogue in this space. Much of the research addresses the effectiveness, as measured through grades and similar attainment, but does not include student perceptions of engagement and the use of engagement tools to produce these outcomes. It is our contention that students need to be included in how a curriculum is devised to best address his or her learning needs in the classroom in addition to the interest and curiosity spurred by the way the material is presented.

This analysis considers MindTap by Cengage Learning as a learning tool in engaging students in the process of learning. Via the use of Blackboard as a web-based Learning Management System (LMS) in building a course shell through which courses are developed and maintained, MindTap is the tool used here as a yardstick for measuring perception of its effectiveness in developing critical inspection and creativity not only within, but also across business disciplines. From survey data of university level students at primarily junior and senior classification in online personal financial planning and principles of business finance classes the analysis measures these perceptions.

Research supports actively engaging students in learning activities in producing positive learning outcomes. However, the extent that digital learning platforms are supported by student perceptions as an effective tool has not been thoroughly examined. Our goal in this analysis is to approach effective teaching from a perspective that is inclusive to the student in both an understanding of course material and how they perceive engagement efforts in developing this process of learning within business finance and personal financial planning classes, a discipline that has heretofore been neglected in favor of social science disciplines. From this introduction, the analysis includes a literature review, explanation of methods, analysis of data, and concluding remarks.

LITERATURE REVIEW

Numerous studies have analyzed if students are satisfied with the LMS of their respective higher educational institutions to justify acquiring and using the technology (DeLone and McLean, 2003; Lonn and Teasley, 2009), especially as a vehicle for delivering online teaching applications (Hawkins and Rudy, 2009). Over 97 percent of academic institutions worldwide report use of LMS technologies (Hawkins and Rudy, 2009), where use may or may not be consistent with student academic satisfaction (Jones, Johnson-Yale, Millermaier, and Perez, 2008). Blackboard, as an LMS, is favorably regarded by both faculty and students across broad areas of online course content for its ease of use, performance, communication, and delivery (Al-Malki, AbdulKarim, Alallah, 2015)

Student satisfaction positively correlates across myriad factors such as previous student achievement (Hong, 2002), course content (Selim 2007), perception of how useful is the technology (Sun, Tsai, Finger, Chen, and Yeh, 2008), and attitudes toward and preferences for its use (Lonn and Teasley, 2009) where satisfaction contributed to the student's intention to use the system (Liaw, 2008), although correlations between course and organizational variables varied and is not easily explained (Naveh, Tubin, and Pliskin, 2010).

An emerging trend in academia is for active rather than passive student involvement through self-responsibility for their learning (Wang and Stiles, 1975) and to the extent that students can manage their own learning efforts and other measures of outcomes (Felixbrod and O'Leary, 1973; Glynn, Thomas, and Shee, 1973). An argument may be made that self-responsibility is a function of determination, independence, and resolve; characteristics important to learning. Students who espouse self-responsibility for their education exhibit a trait that is not inconsistent with lifelong learning habits as a foundation for further learning and task completion (Wang, 1976).

Further, one-way communication from lecturer to student constrains student initiative beyond increased security for first year students within a more structured learning community (Bonk and Graham, 2006; Bennett and Lockyer, 2004). Significant changes have been observed (White and Sykes, 2012; Snowball and Mostert, 2010) when shifting from one-way mode of delivery to an active environment with student guided efforts via learning modules that include interactive forums and resources that incorporate peer assessment. Through a range of learning activities students across a spectrum of aptitude levels, including language learning styles and general preparedness skillsets, can be reached and encouraged. Presenting various learning opportunities places the onus on the student to select a combination of learning opportunities according to his or her needs, which increases student agency or relevance to the learner (White and Sykes, 2012).

Expectations of students when pursuing higher education rests upon the use of technology (Benson, Haney, Ore, Persell, Schulte, Steele, and Winfield, 2002) with a burgeoning use of software applications and web-based platforms (Pippert and Moore, 1999; Dietz, 2002; Valentine, 2001). In sociology courses the newness of such technology was found to foster student interaction and activity between and among peers and instructors along with an enhanced dissemination of course materials (King, 1994), with a major attraction of creating a more inclusive learning opportunity beyond listening to static lectures from a teacher at the front of a classroom (Brooks, 1997; Jaffee, 1997).

The use of technology itself as an electronic means of establishing a learning community does not appear to affect either the attitude of students or the proficiency of material comprehension (Magnuson-Martinson, 1995). According to findings by Persell (1992), the major attribute of instructional technology appears to be highest with more favorable learning outcomes and student perceptions when used as a medium to expand the class and accompanying activity of students within the class rather than just a constant source of material access that does not allow for individual or collective development and growth.

Koeber (2005) concurs that the use of technology presents a positive relationship between how a student perceives a course not only from its use as a teaching tool, but also through self-responsibility of individual use in increasing personal involvement with course materials within a more active approach to learning, although this research focused exclusively on sociology as a discipline. Student attitudes toward the use and type of technology employed is a function of its usefulness and whether an advantage or disadvantage (Moore and Benbasat, 1991) to student engagement, participation, and involvement in the distance learning arena (Webster and Hackley, 1997), where successful implementation is positively correlated with attitudes and opinions (Davis, Bagozzi, and Warshaw, 1989).

METHODS

The model for this analysis consists of 173 surveys of undergraduate students of primarily junior and senior classification in personal financial planning and principles of business finance. Survey responses were collected (Fall 2016, Spring 2017, Summer 2017, and Fall 2017) and included a list of 13 questions: name and student number; age range; gender; student classification; major; plans following graduation; student activities while attending Jacksonville State University; effectiveness of MindTap in general and student engagement; specific features of MindTap and student engagement; student use of MindTap or similar application in other classes; type of course delivery where MindTap or similar application is most useful; grade improvement; prefer course with or without MindTap.

In measuring student perceptions of MindTap and similar applications the model asks if the use of MindTap is either very effective, effective, neutral, ineffective, or very ineffective in developing an interest and curiosity in the following areas: critical thinking; problem solving; understanding terminology; creating motivation to learn more about the class subject and related subjects; encouraging creativity in thinking broadly; improving learning outcome or grade; including multiple business disciplines; increasing interest in course material; and relating academic instruction to real world business application.

Specific areas of class where student perceptions are analyzed relative to MindTap are as follow: homework; practice assignments; videos; problem feedback; quizzes; and exams or tests. Type of course delivery options for best perceived application include hybrid, online, lecture or in-class, same benefit across all class structures, and none of the available options.

To test the research question that the use of MindTap - an interactive digital learning platform which combines all of one's learning tools such as readings, multimedia, activities, and assessments into a singular learning path for each curriculum - promotes classroom engagement, this model is structured as follows:

(i) To what extent is perception positive for the use of MindTap in enhancing student engagement?

(ii) How effective are various features of MindTap in enhancing student engagement?

Methods used for this research include analysis of student perception of effectiveness of MindTap areas of impact and features and Chi-Square analysis for each category for statistical differences between perceived effectiveness or ineffectiveness of categorical variables in supporting student engagement. The data are considered to be ordinal with no well-defined intervals between each data point.

RESULTS

Respondents to the survey were generally of traditional age between 18 and 22 years old, 56 percent of total responses versus 44 percent who were 23 years of age or older. Most respondents were of female gender, 54 percent of total responses versus 46 percent male. For the classes surveyed for this analysis a strong majority of students were of junior (31 percent) or senior (65 percent) classification. The remaining seven percent were either graduate students or sophomores.

With the finance classes surveyed representing primarily upper level business majors as either part of a required core class or an elective for finance majors, a disproportionate number of business major respondents is reflected as expected. However, with the personal financial planning class available as an elective for all other disciplines within the university, non-business major responses were also received and represented 20 percent of total responses. Of the

responses by business majors the largest percentage majored in management (34 percent), while marketing, finance, and accounting majors were reflected in 17 percent, 13 percent, and 10 percent of responses, respectively. Remaining percentages were single digit responses and not meaningful.

Over half of respondents have used MindTap or similar applications such as Aplia, Cengage Now, or My Finance Lab in other courses. More than two out of three respondents preferred such applications in their courses, with six out of ten believing their grade improved due to their use.

Most students (57 percent) plan to enter the workforce upon graduation with a baccalaureate degree, while 28 percent will pursue additional education. The remaining 15 percent of respondents selected other or are not sure of plans following graduation. One third of respondents have not participated in student activities outside of the classroom. Of those respondents who have participated, 18 percent were a student organization member, 17 percent a member of a fraternity or sorority, and 13 percent involved in athletics. Other responses, such as student organization officer, member of band, and participant in drama and related activities were each calculated in single digits.

When students were asked how the use of MindTap in this course affected the degree of attention, curiosity, interest, optimism, and passion that each experience when learning or being taught, the perceptions are generally favorable within most areas of impact. As indicated in Table 1 (Appendix), answer distributions within areas of impact found that the use of the digital learning platform is very helpful in relating academic instruction to the real world and in problem solving and the understanding of terminology related to the course. Three impact areas where students expressed ineffectiveness with the platform were in its ability to create motivation to learn, encouraging creativity in thinking broadly, and increasing interest in course material. In fact, from these areas of impact students indicated that the platform was very ineffective in spurring interest in the course, especially for non-business majors. Interest in the course is a significant but not complete area that comprises student engagement.

MindTap for the classes surveyed in this analysis offers numerous features that foster student engagement. These features include homework, practice assignments, instructional videos, problem feedback, quizzes, and exams or tests. Homework and problem feedback were indicated as very effective features by 45 percent and 44 percent, respectively, by respondents. However, problem feedback was tied with exams or tests at 7 percent of category responses as being very ineffective. Instructional videos were deemed to have lower effectiveness. The perceptions of the effectiveness of each selected feature of MindTap are expressed as indicated in Table 2 (Appendix).

To measure if a statistical difference exists between those students perceiving effectiveness or ineffectiveness of each area of impact and feature of MindTap, Chi-Square test of independence was employed to measure statistical significance of actual and expected values for perceived effectiveness or ineffectiveness. At a level of significance of $p < .01$ for each area of impact and feature there is a statistically significant difference in responses between the observed data and expected responses if no effect occurred.

DISCUSSION

Results indicate that students have an overwhelmingly positive perception of the effectiveness of MindTap or similar products that encourage engagement to impact learning

opportunities by stimulating interest and motivation that would ordinarily be absent otherwise. Chi-Square test of independence supports a statistical difference in the observed responses and expected responses if no effect were present at $p < .01$.

As indicated in Table 1 (Appendix), areas of impact were chosen to reflect attributes identified by Cengage Learning, but also as essential components for any learning environment to address in improving the learning experience and outcomes. Sun et al. (2008) found that one of the myriad factors that affect student satisfaction is the perception of technology used. That the findings of this research indicate support for the technology is a positive indication of how students perceive its usefulness.

Survey respondents rated the areas of impact as most effective in improving problem solving, critical thinking, understanding terminology, and real world application of academic instruction; each these four areas of impact was identified as effective or very effective by 73 to 75 percent of responses for each category.

Students were generally neutral about the perceived effectiveness of the product in creating motivation to learn the subject, encouraging creativity and thinking broadly, including and bringing together business disciplines, and increasing interest in course material. This indifference points to Whites and Sykes (2012) and the type of tool employed and student agency, but goes further by finding that approximately one out of four is neutral to the ability of such technology to link the relevance to the learner and a breadth of learning opportunities in related disciplines, where interest in not only the subject taught but in thinking and approaching education beyond a narrow focus. With research identifying the importance of two-way communication in an active environment rather than a static classroom of one-way instruction to the student (Bennett and Lockyer, 2004; Snowball and Mostert, 2010), the findings raise the question of whether a neutral response represents indifference or mirrors a larger weakness that MindTap should address in that aspect of engagement.

In terms of perceived ineffectiveness increasing interest in the course received the highest categorical responses, followed by improving learning outcomes or grade. Persell's (1992) findings that instructional technology supported more favorable learning outcomes when such technology expands the interaction and opportunity for students to learn, directly relates to lack of interest in the subject material, which would likely adversely affect grades from inadequate preparation and effort.

Students generally indicated that both homework and problem feedback features were very effective in stimulating engagement, with almost four out of five rating the homework feature as either effective or very effective. With more than two out of three categorical respondents indicating that the exams / tests feature is effective or very effective, the results support an action-based approach to teaching finance in much the same way that King (1994) and Koeber (2005) found with sociology courses. However, with the quantitative nature of these finance classes surveyed results suggest that practice and feedback provide instructional benefit through this use of technology in addition to lines of communication and material dissemination.

While this analysis supports the research question that students positively perceive the use of MindTap as digital platform in stimulating an interactive classroom and thus learning, future research opportunities abound. There appears to be a disconnect between perception of improved learning outcome as an area of impact and the effectiveness of the available features. Testing the relationship between features such as homework, quizzes, exams, etc. and actual grade earned would point to actual effectiveness and offer an opportunity to compare to student perceptions.

REFERENCES

Al-Malki, N., AbdulKarim, A. H., & Alallah, F. S. (2015). Teaching staff's and students' initial perceptions and satisfaction with teaching and learning via the Blackboard LMS. *International Journal of Advanced Corporate Learning*, 8(2), 37 – 40.

Balwant, P. T. (2018). The meaning of student engagement and disengagement in the classroom context: Lessons from organisational behaviour. *Journal of Further and Higher Education*, *42*(3), 389–401.

Bennett, S., & Lockyer, L. (2004). Becoming an online teacher: Adapting to a changed environment for teaching and learning in higher education. *Educational Media International*, *41*(3), 231–248.

Benson, D. E., Haney, W., Ore, T. E., Persell, C. H., Schulte, A., Steele, J., & Winfield, I. (2002). Digital technologies and the scholarship of teaching and learning in sociology. *Teaching Sociology*, *30*(2), 140–157.

Bonk, C. J., & Graham, C. R. (2006). *The handbook of blended learning: Global perspectives, local designs*. San Francisco: Pfeiffer, c2006.

Brooks, J. M. (1997). Beyond teaching and learning paradigms: Trekking into the virtual university. *Teaching Sociology*, *25*(1), 1–14.

Davis, F. D., Bagozzi, R. P., & Warshaw, P.R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, *35*(8), 982-1003.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean Model of Information Systems Success: A ten-year update. *Journal of Management Information Systems*, *19*(4), 9-30.

Dietz, T. L. (2002). Predictors of success in large enrollment introductory courses: An examination of the impact of learning communities and virtual learning resources on student success in an introductory level sociology course. *Teaching Sociology*, *30*(1), 80–88.

Felixbrod, J. J., & O'Leary, K. D. (1973). Effects of reinforcement on children's academic behavior as a function of self-determined and externally imposed contingencies. *Journal of Applied Behavior Analysis*, *6*(2), 241–250.

Glynn, E. L., Thomas, J. D., & Shee, S. M. (1973). Behavioral self-control of on-task behavior in an elementary classroom. *Journal of Applied Behavior Analysis*, *6*(1), 105–113.

Hawkins, B. L., & Rudy, J. A. (2009). Fiscal year 2007 summary report, EDUCAUSE core data service, May 11, 2009, Retrieved from http://net.educause.edu/ir/library/pdf/PUB8005.pdf

Hong, K.S. (2002). Relationships between students' and instructional variables with satisfaction and learning from a web-based course. *The Internet and Higher Education*, *5*, 267–281.

Jaffee, D. (1997). Asynchronous learning: Technology and pedagogical strategy in a distance learning course. *Teaching Sociology*, 25, 262-277.

Jones, S., Johnson-Yale, C., Millermaier, S., & Perez, F. S. (2008). Academic work, the internet and U.S. college students. *Internet and Higher Education*, 11(3), 165-177.

King, K. M. (1994). Leading classroom discussions: Using computers for a new approach. *Teaching Sociology*, *22*(2), 174–182.

Koeber, C. (2005). Introducing multimedia presentations and a course website to an introductory sociology course: How technology affects student perceptions of teaching effectiveness. *Teaching Sociology*, *33*(3), 285–300.

Liaw, S.S. (2008). Investigating students' perceived satisfaction, behavioral intention, and effectiveness of e-learning: A case study of the Blackboard system. *Computers & Education*, *51*, 864–873.

Lonn, S., & Teasley, S. D. (2009). Saving time or innovating practice: Investigating perceptions and uses of Learning Management Systems. *Computers & Education*, *53*, 686–694.

Magnuson-Martinson, S. (1995). Classroom computerization: Ambivalent attitudes and ambiguous outcomes. *Teaching Sociology*, *23*, 1–7.

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, *2*(3), 192-222.

Naveh, G., Tubin, D., & Pliskin, N. (2010). Student LMS use and satisfaction in academic institutions: The organizational perspective. *The Internet and Higher Education*, *13*, 127–133.

Persell, C. H. (1992). Bringing PCs into introductory sociology courses: First steps, missteps, and future prospects. *Teaching Sociology*, *20*(2), 91–103.

Pippert, T. D., & Moore, H. A. (1999). Multiple perspectives on multimedia in the large lecture. *Teaching Sociology*, *27*(2), 92–109.

Selim, H. M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers & Education*, *49*, 396–413.

Snowball, J., & Mostert, M. (2010). Introducing a learning management system in a large first year class: Impact on lecturers and students. *South African Journal of Higher Education*, 24(5), 818-845.

Sun, P.C., Tsai, R. J., Finger, G., Chen, Y.Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & Education*, *50*, 1183–1202.

Twyman, J. S., & Heward, W. L. (2018). How to improve student learning in every classroom now. *International Journal of Educational Research*, *87*, 78–90.

Valentine, C. G. (2001). Electronic sex talk: The uses and dynamics of computer-mediated discussion groups in a team-taught human sexuality class. *Teaching Sociology*, *29*(1), 48–61.

Wang, M. C. (1976). *The self-schedule system for instructional-learning management in adaptive school learning environments*. Pittsburgh: University of Pittsburgh, Learning Research and Development Center.

Wang, M. C., Stiles, B., & Pittsburgh Univ., P. L. R. and D. C. (1975). *An investigation of children's concept of self-responsibility for their school learning*.

Webster, J. & Hackley, P. (1997). Teaching effectiveness in technology-mediated distance learning. *The Academy of Management Journal*, *40*(6), 1282.

White, S., & Sykes, A. (2012). Evaluation of a blended learning approach used in an anatomy and physiology module for pre-registration healthcare students. eLmL 2012: The Fourth International Conference on Mobile, Hybrid and On-line Learning. Retrieved from http://www.thinkmind.org/index.php?view=article&articleid=elml_2012_1_10_50027

APPENDIX

Table 1: The use of MindTap and the perception of effectiveness across areas of impact

Areas of impact	Very Effective	Effective	Neutral	Ineffective	Very Ineffective
Critical thinking	29.07%	44.77%	17.44%	6.40%	2.33%
Problem solving	32.35%	42.94%	16.47%	6.47%	1.76%
Understanding terminology	31.21%	42.20%	17.92%	7.51%	1.16%
Create motivation to learn subject and related subjects	25.73%	31.58%	25.73%	11.11%	5.85%
Encourage creativity in thinking broadly	22.81%	37.43%	22.22%	11.70%	5.85%
Improve learning outcome or grade	29.65%	34.88%	16.86%	9.88%	8.72%
Include multiple business disciplines	27.98%	40.48%	23.81%	5.36%	2.38%
Increase my interest in the course material	25.00%	32.56%	20.35%	11.05%	11.05%
Relate academic instruction to real world business applications	33.72%	40.70%	15.70%	6.98%	2.91%

Table 2: Perceptions of the effectiveness of the features of MindTap

Features	Very Effective	Effective	Neutral	Ineffective	Very Ineffective	Not Applicable
Homework	44.77%	33.14%	10.47%	8.72%	2.91%	0.00%
Practice assignments	31.98%	26.74%	24.42%	5.81%	5.23%	5.81%
Videos	23.26%	20.35%	31.40%	7.56%	4.65%	12.79%
Problem feedback	43.93%	21.97%	15.61%	8.09%	6.94%	3.47%
Quizzes	31.21%	30.64%	19.65%	7.51%	3.47%	7.51%
Exams / Tests	34.10%	34.68%	17.34%	6.94%	6.94%	0.00%