

BUILDING THE TERTIARY INSTITUTION BUSINESS ENHANCEMENT MEASUREMENT MODEL

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ABSTRACT

Tertiary institutions are moving towards more flexible learning environments. Relationships between tertiary learning modes and student outcomes, or the influences between student outcomes and the delivered contributions of graduate students in the workplace have been approached indirectly by a range of partial studies. This paper employs a holistic view, and develops a Business Value Enhancement Measurement Model, which maps the tertiary institution learning offerings or modes into student learning outcomes, and then maps these via graduate students, into to a business enhancement approach. This paper sets the frameworks for tertiary institutions to more closely align their educational learning solutions towards business requirements, and possibly to enhance its graduate student's employability.

Key Words: Learning modes , tertiary education, business linkages graduate outcomes

INTRODUCTION

Tertiary institutions educate and instruct learners to acquire high levels of knowledge and skills (Barrie, 2006, 2007) and deliver learning enhanced student solutions (Holsapple & Lee-Post, 2006). They often engage learning cycles which operate in a similar manner to business 'plan-do-check-act' quality cycles (Finch, 2008). Thus both product and/or quality of service are captured, and student knowledge application solutions are continually revamped to best capture the learning requirements of the student cohort, and to align these with the requirements of both the external environment and the business world (Forbes & Hamilton, 2004).

Closely aligned, tertiary institution knowledge-application solutions (Hamilton, 2007) may capture combinations of traditional, blended or flexible learning modes (Cybinski & Selvanathan, 2005). These in-turn, may affect performance outcomes of the students. These measures (capturing teaching and learning effectiveness) are related to the student learning processes. Quality tertiary learning institutions aim to balance their tight budgets, meet student expectations and deliver targeted, business-acceptable graduate solutions (Peterson, Berenson, Misra & Radosevich, 2008).

LEARNING MODES AND LEARNING OUTCOMES

To illustrate flexibility, Collis and Moonen (2002) mapped degrees of flexibility and goal of activities into four quadrants of learning. Their model may be viewed from learning modes perspective as shown in Figure 1 – with four learning modes. It is possible to move from any learning mode to another – directly or indirectly.

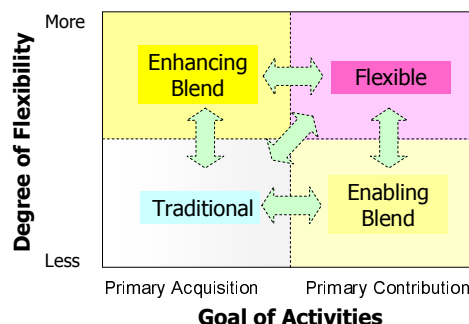


Figure 1: Learning Modes Transitions

Traditional learning is typically occurs in a face-to-face and teacher directed environment with person to person interactions in a live synchronous rich learning environment (Gamliel, & Davidovitz, 2005; McCarthy, & Anderson; 2000). Blended learning is a form of flexible delivery that encapsulates ‘the what’, ‘the where’, and ‘the when’ of learning (Hill, 2006). To deliver learning richness Graham and Bonk (2005) split blended learning into an enabling blended mode with additional ranges of student centered learning activities or into an enhancing blended mode with more flexible management approaches by students as to when and how to acquire agreed learning outcomes. While flexible learning encompasses the essence of flexible delivery but also capture the ‘how’ of the learning process like access, content, delivery style, logistics and productivity (Wade, Hodgkinson, Smith & Arfield, 1994; Collis & Moonen, 2002; Hill, 2006). Flexible learning mode approaches have appeal to individual independent learners (Van den Eynde, Newcombe, & Steel, 2007) seeking to balance their work-life-family commitments (Bryant, Campbell, & Kerr, 2003; Collis & Moonen, 2001; McInnis & Hartley, 2008).

Biggs (1993) hooked teaching to learning, but students learn in different ways (Trigwell & Prosser, 1991; Ramsden, 1992), and their learning is measured in many ways. Hence, tertiary institutions typically offer many combinations of learning modes, unique learning environments and learning activities. Hence, different learning modes are likely to influence the way students approach their learning, and so may influence their learning experience and learning outcomes.

GRADUATE STUDENT DELIVERED NEW BUSINESS ENHANCEMENT

Student acquired learning outcomes also house tertiary-learned skills (typically cognitive, interactive, and motor skills), and these, in-turn, may be linked into business-deployed, graduate tertiary student skills, and into the relevant business types where the graduate students often find their initial employment (Lowry, Molloy, & McGlennon, 2008). The capture is complex and Cully (2004) suggests student perception (or expectation) of the skills they may acquire at a tertiary institution which benefit them in their preferred choice area of business, will affect their tertiary learning engagement approaches. From a business perspective, Harvey (2000) emphasises employers’ seek tertiary graduate students that may deliver them additional successes in the workplace –typically those with real abilities to both transfer, and apply knowledge, and with the ability to apply the student skills learned at the tertiary institution into the workplace. Thus, tertiary institutions delivering acquired student learning solutions that closely match with business requirements will likely be strongly sought after, and this would show on tertiary graduate students’ employment preparation satisfaction measures (Martin et. al, 2000), and graduate student career progression (Nabi & Bagley, 1998).

THE BUSINESS VALUE ENHANCEMENT MEASUREMENT MODEL

Tertiary institution learning mode processes are linked to student learning deliverables, and then to a new graduate student, employee-delivered, business-enhancements value set. This new employee, business-enhancements value set is measured via a set of graduate student employee performance and business performance contributions, and a resultant business satisfaction measure as shown in Figure 2.

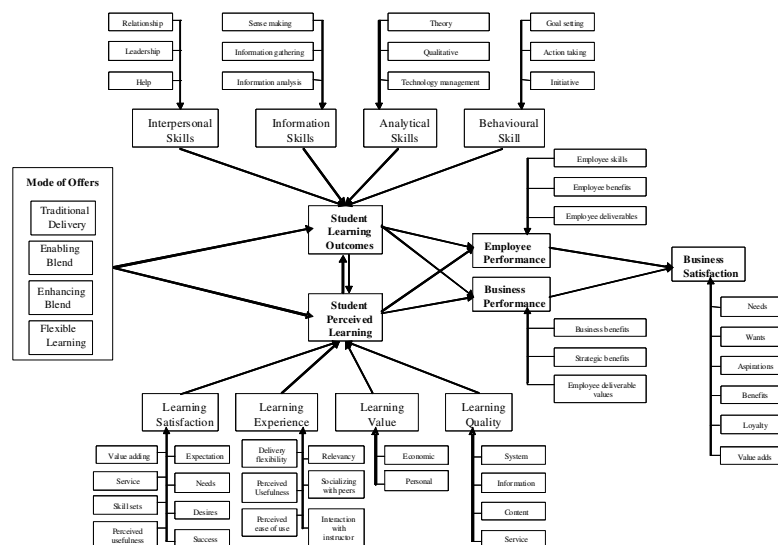


Figure 2: The Business Value Enhancement Measurement Model

The Business Value Enhancement Framework maps the relevant tertiary institution learning mode delivery options, to student-acquired learning skills-sets – perceived learning and learning outcomes, and relates these to the business setting where graduate-student, employee-delivered business enhancement value measures are captured.

Traditional learning is typically face-to-face learning operating under teacher controlled student directed learning situations where content and knowledge mastery are acquired through drills and practice, and where the content is not necessarily learned in context of the situation (Gamliel & Davidovitz, 2005; McCarthy & Anderson, 2000). Blended learning – enabling or enhancing and it encapsulates learning format that combines several different delivery methods like event-based activities, such as face-to-face classrooms, live e-learning, online delivery (Petrova, 2000), and self-paced learning (Delialioglu & Yildirim, 2008). Blended learning provides greater flexibility in teaching and learning (Brew, 2008; Georgouli, Skalkidis, & Guerreiro, 2008).

Many options are available to measure and assess performance across tertiary student learning. Tertiary institutions benchmark and rank themselves (Dill & Soo, 2005; Stella & Woodhouse, 2007; Taylor and Braddock, 2007), teaching staff are measured (Dill & Soo, 2005; Taylor and Braddock, 2007), student delivery approaches are assessed (Clouse & Evans, 2003), student outcomes are assessed (Barrie, 2007), and occasionally business enhancement from tertiary institution graduates student is analysed (Martin, Milne-Home, Barrett, Spalding, & Jones, 2000).

Student learning is driven by perceptions and relevant outcomes. Learning satisfaction typically measures expectations, needs, desires or experiences, success, value adds, eco value, services, skills sets, perceived learning usefulness, and the like (Alves & Raposo, 2007; Johnson, Hornik & Salas, 2008; Sun, Tsai, Finger & Chen, 2008). Learning experiences capture course delivery flexibility, perceived experiences usefulness, perceived ease of use, relevancy, interactions or socializing with peers, interactions with instructors (Davis & Wong, 2007; Douglas, McClelland & Davies, 2008; Sun et. al., 2008). Learning value houses perceived economic value perceptions such as: obtaining a good job, good investment (value for money), student skills achieved (matched to employer requirements) (Alves & Raposo, 2007; Jambulingam, Kathuria & Doucette, 2005). Learning quality captures dimensions including: global applicability, perceived teacher quality, perceived course and content quality, system quality, technology quality, information quality, service quality (Alves & Raposo, 2007; Holsapple & Lee-Post, 2006; Johnson et. al., 2008; Sun et. al., 2008).

Learning outcomes may be viewed by business as graduate student attributes, core or key skills; and employability skills like: employers' skills profiles, employers' professional accreditation requirements, and graduate student skill profiles), desirable learning outcomes (leadership skills, communication skills, interpersonal skills, analytical skills, decision-making skills, technological skills, information gathering skills and behavioural skills), and employability skills (Boyatzis & Kolb, 1995; Duke, 2002; Curtis & McKenzie, 2002).

Many researchers (Harvey, 2000; Clearly et al. 2007) have investigated employers graduate student selection processes and tertiary institution deliverables and have found employee deliverable business benefits were also desirable. Such measures contributed to business satisfaction. Employee skills (Silva & McFadden, 2005), business deliverables (Chen, 2008; Spiteri & Dion, 2004), and business performance resulting from graduate employee contributions have also been found to contribute to business satisfaction (Daigle, Hayes & Hughes, 2007; Jayawardhena, Souchon, Farrell, & Glanville, 2007). While learning satisfaction has been linked to tertiary institution learning deliverables, it is projected learning satisfaction will also relate to business enhancement - as measured by employee performance and business performance and then to business satisfaction and captured as work related deliverables (Clem, Promes, Glickman, Shah, Finkel, Pietrobon & Cairns, 2008), learned knowledge, relevance, responsibility and independence (Kanet & Barut, 2003; organizational benefits (Chitturi, Raghunathan & Mahajan, 2008) and business loyalty (Dholakia & Morwitz, 2002).

CONCLUSION

The 'Business Value Enhancement Measurement Model' for the tertiary education sector has empirically developed, well supported alignment modes and measurement indicators. It is now being empirically analysed using a structural equation modeling approach. The model depicts fifteen factor blocks, with possibly two mediating variables. Assuming the measurement items build onto the factors shown, and that factor score regression weights offer suitable factor loadings, then an alignment model is projected to emerge. Thus, significant pathways linking between business value enhancement (created by the graduate student's perceived performances), tertiary institution learning modes offered, student-perceived, tertiary-acquired, learning acquisition sets, and student-perceived, tertiary-acquired, skills outcome sets, should emerge. If successful, this research offers possibilities for tertiary institutions (particularly those targeting student employment outcomes such as business schools, health services) to more closely align (or reposition) their educational learning solutions towards business requirements. A close alignment between a tertiary institution (through its learning mode student offerings) with targeted relevant business area requirements is projected to enhance its graduate student's employability. This, in-turn, may in the future, lead to increased successes in tertiary institution marketability – especially in regard to better delivering business-value-adding, graduate student requirements.

References

- Alves, H. and Raposo, M. 2007. Conceptual model of student satisfaction in higher education. *Total Quality Management & Business Excellence*, 18 (5), 572-588.
- Barrie, S. 2007. Conceptual framework for the teaching and learning of generic graduate attributes. *Studies in Higher Education*, 32(4), 439-458.
- Baugher, D., Varanelli, A. and Weisbord, E. 2003. Student hits in an internet-supported course: How can instructors use them and what do they mean? *Decision Sciences Journal of Innovative Education*, 1 (2), 159-179.
- Beattie, K. and James, R. 1997. Flexible coursework delivery to Australian postgraduates: How effective is the teaching and learning. *Higher Education*, 33 (2), 177-194.
- Biggs, J.B. 1993. From Theory to Practice: A Cognitive Systems Approach. *Higher Education Research and Development*, 12, 73-85.
- Bonk, C. & Graham C. 2005. *The Handbook of Blended Learning: Global perspectives, local design*. San Francisco CA: Pfeiffer.
- Boyatzis, R. and Kolb, D. 1995. From learning style to learning skills: the executive skills profile. *Journal of Management Psychology*, 10 (5), 3-17.
- Brew, L. (2008). The Role of Student Feedback in evaluating and revising a blended learning course. *The Internet and Higher Education*, 11 (2), 1-31. (In Press, Accepted Manuscript.)
- Bryant, K., Campbell, J. and Kerr, D. 2003. Impact of web based flexible learning on academic performance in information systems. *Journal of information systems education*, 14 (1), 41-50.
- Chen, C. 2008. Investigating structural relationships between service quality, perceived value, satisfaction, and behavioral intentions for air passengers: Evidence from Taiwan. *Transportation Research Part A*, 42 (4), 709-717.
- Chitturi, R., Raghunathan, R. & Mahajan, V. 2008. Delight by design: The role of hedonic versus utilitarian benefits. *Journal of Marketing*, 72 (3), 48-63.
- Collis, B. and Moonen, J. 2002. Flexible learning in a digital world. *Open Learning: The Journal of Open and Distance Learning*, 17 (3), 217-230.
- Clearly, M., Flynn, R., Thomasson, S., Alexander, R. and McDonald, B. 2007. *Graduate Employability Skills. A report by Precision Consultancy team for the Business, Industry and Higher Education Collaboration Council Australia*, 1-68.
- Clem, K., Promes, S., Glickman, S., Shah, A., Finkel, M., Pietrobon, R. and Cairns, C. 2008. Factors enhancing career satisfaction among female emergency physicians. *Annals of Emergency Medicine*, 51 (6), 723-728.
- Clouse, S. and Evans, G. 2003. Graduate business students performance with synchronous and asynchronous interaction e-learning methods. *Decision Sciences Journal of Innovative Education*, 1 (2), 181-202.

- Cully, M. 2004. Working in harmony: The links between the labour market and the education and training market in Australia. 7th International Seminar: Linkage between Higher Education and Labor Market, Seoul, 16-20 Nov, 1-16.
- Curtis, D. and McKenzie, P. 2002. Employability skills for Australian industry: Literature review and framework development. A report to the Australian Council for Education Research (ACER) to the Business Council of Australia and the Australian Chamber of Commerce and Industry, Department of Education, Science and Training, Canberra, 1-90.
- Cybinski, P. and Selvanathan, S. 2005. Learning experience and learning effectiveness in undergraduate statistics: Modeling performance in traditional and flexible learning environment. *Decision Science Journal of Innovative Education*, 3 (2), 251-271.
- Daigle, R., Hayes, D. and Hughes, K. 2007. Assessing student learning outcomes in the introductory accounting information systems course using the AICPA's core competency framework. *Journal of Information Systems*, 21 (1), 149-169.
- Davis, R. and Wong, D. 2007. Conceptualizing and measuring the optimal experience of the eLearning environment. *Decision Sciences Journal of Innovative Education*, 5 (1), 97-126.
- Delialioglu, O., and Yildirim, Z. 2008. Design and development of a technology enhanced hybrid instruction based on MOLTA model: Its effectiveness in comparison to traditional instruction. *Computers & Education*, 51 (1), 474-483.
- Dill, D. and Soo, M. 2005. Academic quality, league tables, and public policy: A cross-national analysis of university ranking systems. *Higher Education*, 49 (4), 495-533.
- Dholakia, U. and Morwitz, V. 2002. The scope and persistence of meme-measurement effects: Evidence from a field study of customer satisfaction measurement. *Journal of Consumer Research*, 29 (2), 159-167.
- Douglas, J., McClelland, R. and Davies, J. 2008. The development of a conceptual model of student satisfaction with their experience in higher education. *Quality Assurance in Education*, 16 (1), 19-35.
- Dowling, C., Godfrey, J. and Gyles, N. 2003. Do hybrid flexible delivery teaching methods improve accounting students' learning outcomes. *Accounting Education*, 12 (4), 373-391.
- Duke, C. 2002. Learning Outcomes: Comparing student perceptions of skill level and importance. *Journal of Marketing Education*, 24 (3), 203-217.
- Finch, B. 2008. *Operations Now: Supply Chain Profitability and Performance*, New York, NY: McGraw-Hill Irwin.
- Forbes, L. and Hamilton, J. 2004. Building An International Student Market: Educational - Balanced Scorecard Solutions for Regional Australian Cities. *International Education Journal*, 3 (4), 501-520.
- Gamliel, E. and Davidovitz, L. 2005. Online versus traditional teaching evaluation: mode can matter. *Assessment & Evaluation in Higher Education*, 30 (6), 581-59.
- Georgouli, K., Skalkidis, I. and Guerreiro, P. 2008. A framework for adopting LMS to introduce e-learning in a traditional course. *Education Technology and Society*, 11 (2), 227-240.
- Hamilton, J. 2007. Building and managing modern e-services. In: Dr. Qingyu Zhang (Ed.), *E-Supply Chain Technologies and Management*, 3, 80-100, Arkansas: Idea Group Inc.
- Harvey, L. 2000. New realities: The relationship between higher education and employment. *Tertiary Education and Management*, 6 (1), 3-17.
- Hill, J. 2006. Flexible learning environments: Leveraging the affordances of flexible delivery and flexible learning. *Innovative Higher Education*, 31 (3), 187-197.
- Holsapple, C. and Lee-Post, A. 2006. Defining Assessing and promoting e-learning: and information systems perspective. *Decision Sciences Journal of Innovative Education*, 4 (1), 67-85.
- Jambulingam, T., Kathuria, R. and Doucette, W. 2005. Entrepreneurial orientation as a basis for classification within a service industry: the case of retail pharmacy industry. *Journal of Operations Management*, 23 (1), 23-42.
- Jayawardhena, C., Souchon, A., Farrell, A. and Glanville, K. 2007. Outcomes of service encounter quality in the business- to-business context. *Industrial Marketing Management*, 36 (5), 575-588.
- Johnson, R., Hornik, S. and Salas, E. 2008. An empirical examination of factors contributing to creation of successful e-learning environments. *International Journal of Human-Computer Studies*, 66 (5), 356-369.
- Kanet, J. and Barut, M. 2003. Problem-based learning for production and operations management. *Decision Sciences Journal of Innovative Education*, 1 (1), 99-118.

- Lowry, D., Molloy, S. & McGlennon, S. 2008. Future skill needs: Projection and employers' view. National Centre for Vocational Education Research (NCVER): Report to Australian Department of Education, Employment and Workplace Relation, 1-35.
- McCarthy, J. and Anderson, L. 2000. Active learning techniques versus traditional teaching styles: Two experiments from history and political science. *Innovative Higher Education*, 24 (4), 279-294.
- McFarland, D. and Hamilton, D. 2006. Factors affecting student performance and satisfaction: Online versus traditional course delivery. *Journal of Computer Information Systems*, 46 (2), 25-32.
- McInnis, C. and Hartley, R. 2008. Managing study and work: The impact of full time study and paid work on the undergraduate experience in Australian universities. Department of Education Science and Training, Retrieved 20 June 2008 from http://www.dest.gov.au/archive/highered/eippubs/eip02_6/eip02_6.pdf.
- Martin, A., Milne-Home, J., Barrett, J., Spalding, E. and Jones G. 2000. Graduate satisfaction with university and perceived employment preparation. *Journal of Education and Work*, 13 (2), 199-213.
- Nabi, G. and Bagley, D. 1998. Graduates' perceptions of transferable personal skills and future career preparation in the UK. *Career Development International*, 3 (1), 31-39.
- Peterson, R., Berenson, M., Misra, R. & Radosevich, D. 2008. An Evaluation of factors regarding students' assessment of faculty in the business school. *Decision Sciences Journal of innovative Education*, 6 (2) 375-402.
- Petrova, K. 2000. Teaching differently: A hybrid delivery model. Proceedings of the 2001 GBATA International Conference, Istanbul, Turkey, 717-727.
- Ramsden, P. 1992. *Learning to teach in higher education*. London: Routledge
- Silva, D. and McFadden, K. 2005. Combining operations management and information systems curricula: Assessing alumni preparation for the workforce. *Decision Sciences Journal of Innovative Education*, 3 (2), 307-321.
- Spiteri, J. and Dion, P. 2004. Customer value, overall satisfaction, end-user loyalty, and market performance in detail intensive industries. *Industrial Marketing Management*, 33 (8), 675-687.
- Stella, A. and Woodhouse, D. 2007. Benchmarking in Australian higher education: A thematic analysis of AUQA audit reports. Australian Universities Quality Agency (AUQA), Occasional Publication, 13, Retrieved June 10, 2008 from: <http://www.auqa.edu.au/qualityenhancement/publications/occasional/publications/>.
- Sun, P., Tsai, R., Finger, G. and Chen, Y. 2008. What drives a successful e-learning? An empirical investigation of the critical factors influencing learners' satisfaction. *Computer and Education*, 50 (4), 1183-1202.
- Taylor, P. and Braddock, R. 2007. International university ranking systems and the idea of university excellence. *Journal of Higher Education Policy and Management*, 29 (3), 245 - 260.
- Trigwell, K. and Prosser, M. 1991. Improving the quality of student learning: The influence of learning context and student approaches to learning on learning outcomes. *Higher Education*, 22, 251-266.
- Van den Eynde, J., Newcombe, P. and Steel, C. 2007. Responding to learners' need for choice: Flexible learning modes for creating an e-learning community. Proceedings ascilite Conference, Singapore, 1041-1044.
- Wade, W., Hodgkinson, K., Smith, A. and Arfield, J. 1994. *Flexible Learning in Higher Education*, London: Kogan Page.
- Yudko, E., Hirokawa, R. and Chi, R. 2008. Attitudes beliefs and attendance in a hybrid course. *Computers and Education*, 50 (4), 1217- 1227.