The Effect of Subject-Matter Knowledge, Educational Strategy, Lecture Quality and Classroom Social Climate on Teaching Effectiveness

Arman Hadi Abdul Manaf

AIMST University
Email: armanhadi.abdulmanaf@gmail.com

Muhammad Safizal Abdullah

Universiti Malaysia Perlis

Abdullah Osman

Universiti Malaysia Perlis

Doi:10.5901/mjss.2015.v6n3s1p437

Abstract

This study aims to examine the lecturers' teaching effectiveness on business faculty undergraduate students' academic performance in the Malaysian Public University, since the Malaysia Ministry of Higher Education (MOHE) intends to achieve quality education. This study has undertaken on survey research whereby questionnaires were distributed to 300 students from the three public universities located in the Northern of Malaysia. The SPSS was employed to determine the statistical relations between variables. The finding of this study has indicated that the independent variables are significantly related to teaching effectiveness as perceived by the respondents.

Keywords: *subject-matter knowledge, educational strategy, quality, social climate, teaching effectiveness*

1. Introduction

In this modern society, teaching effectiveness pertaining to the educators' abilities and skills has been discussed at various level of education. Barry (2010) stated that teaching effectiveness include variety of teaching planning activities, educating strategies as well as teaching materials in students' learning process. It is believed that effective teaching method not only could improve on student's learning skills, but it also shapes on their learning attitude. One of the most important outcomes would be the student attitudes toward learning (Seidel & Shavelson, 2007).

In order to have a successful learning process, students need to be involved in the subject matter, through effective teaching strategies (DuFour, DuFour, Eaker & Many; 2008 and DuFour & Eaker, 1998). This is due to different style of teaching methods may create different style of learning.

Thus, teaching effectiveness would assist students in achieving and attaining outstanding performance, not only visibility on result, but also emotionally, intelligently as well as able to facing the circumstances full of energy in real life.

In Malaysia for instance, parents and policymakers agree that the main element to enhance education standard is to have highly skilled and effective educators in the classrooms. However, the scenario is still lack of a practical set of standards and assessments in ensuring that university lecturers, especially the newly hired, are well prepared and ready to deliver their lectures.

According to Barry (2010), student's learning can be improved through adjustments in the instructional practices of educators in the classroom. Students from different walk of life behave differently; possess different characteristics and attitudes. In attempt to improve on student learning process, it is unnecessary to adjust on the structure instead adjustment is ultimate on the instructional practices of educators (Elmore, 2010).

In addition, university lecturers with less teaching experience somehow are less able to control as well as to communicate effectively with the students due to least understanding on the actual needs and demands. As Theall and Franklin (2001) mentioned that, past studies have indicated that students are the most significant sources in providing feedbacks on their learning experiences. In this support, teaching effectiveness evaluated by students tend to be more reliable, valid, useful as well as unbiased (Murray, 1994).

Thus, teaching and learning are the correlated process and the common measures of good teaching are the volume of students' learning outcomes. Those students who have learned well shall provide high ratings for their lecturers or teachers (Theall and Franklin; 2001). This study intends to examine the relationships of selected variables that contribute to the teaching effectiveness at the undergraduate level.

1.1 Research questions

The research questions were developed for this study examines whether there is a relationship between subject knowledge, educational strategy, and lecture quality and classroom social climate on teaching effectiveness as perceived by the university students. The following research questions were developed as follows:

i. Does the subject knowledge possessed by a lecturer significantly contribute to the teaching effectiveness?
ii. Does the educational strategy arranged by a lecturer significantly contribute to the teaching effectiveness?
iii. Does the lecture quality portrayed by a lecturer significantly contribute to the teaching effectiveness?
iv. Does the classroom social climate significantly contribute to the teaching effectiveness?

1.2 Research objectives

The specific objectives of this study are presented as follows:

i. To examine whether the subject knowledge significantly contribute to the teaching effectiveness;
ii. To examine whether the educational strategy significantly contribute to the teaching effectiveness;
iii. To examine whether the lecture quality significantly contribute to the teaching effectiveness;
iv. To examine whether the classroom social climate significantly contribute to the teaching effectiveness.

1.3 The hypotheses

Hypotheses can be defined as the expression of conjectured logical relationship between two or more variables in a formal statement, which can be tested. Therefore, the hypotheses address and reflect on the research questions as follows:

H_{o1} There is no significant relationship between the subject knowledge and teaching effectiveness.
Ha_1 There is a significant relationship between the subject knowledge and teaching effectiveness.
H_{02} There is no significant relationship between educational strategy and teaching effectiveness.
Ha_2 There is a significant relationship between educational strategy and teaching effectiveness.
H_{03} There is no significant relationship between lecture quality and teaching effectiveness.
Ha_3 There is a significant relationship between lecture quality and teaching effectiveness.
H_{04} There is no significant relationship between classroom social climate and teachning effectiveness.
Ha_4 There is a significant relationship between classroom social climate and teaching effectiveness.

2. Literature Review

2.1 Knowledge

According to Yueh, Chen, Chiu, Lee, & Wang (2012), knowledge and skills are referred to the knowledge and information of a lecturer has and being received by the students during in class session. A lecturer with expertise in a particular field could provide more grasp, knowledge acquisition and thinking skills to students in assisting them understanding better on a subject matter. Teaching effectiveness require the lecturer to possess an adequate knowledge in enabling them to present information through sufficient explanations in obtaining the course objectives (Redding, 2011).

Sankar (2009) stated that an educator able to accumulate knowledge through certain learning activities by interacting with environment and utilize language, visualization and planning to manage thinking, understanding, memorizing and logically. With this ways, a learner would be able to relate the current and previous learning and hence formulate new implication even if the subject matter is tough.

2.1.1 Subject knowledge

Three important dimensions have been identified in measuring a lecturer's knowledge level namely; the content

knowledge, the pedagogical knowledge of content, and the general knowledge (Eggen and Kauchak, 2001 in Olaleye, 2011). The effects of these three elements are that university lecturers are not permitted to conduct lectures on matters that they are out of their current expertise. Adediwura and Tayo (2007) stressed that an effective teaching of a subject matter solely depends on the level of understanding and an in depth knowledge that the lecturer dominated.

2.2 Educational strategy

According to Thorburn and Collins (2006), guided notes such as slides show or tutorial are the materials provided by the educator for the students serving as the guideline during the lecture session. This teaching strategy allows the learners to focus on the lectures and instructions to seek information. This strategy enables an educator to apply constructive planning on class activities to create the positive effective learning atmosphere.

2.2.1 Case method teaching

This type of approach refers to the utilization of real case scenarios as an instructional tools for students to actively engaged in a discussion. As described by Barnes, Christensen and Hansen (1994), a case is an event which in cooperates decision makings and an underlying tendency in making group to think and argue on the subject matter. It is method is significant in attempt to connect between theories and application in the real world circumstances. The cases are prepared by instructors based on the textbooks, industrial experience, arising issues and others. Therefore, students need to be prepared by acquiring some knowledge and understanding from required readings or references before attending to their classes (Kunselman and Johnson, 2004).

2.2.2 Concept mapping

Concept mapping refers to a visible description of the connections between key concepts of specific subject in the learning process. The objective of this approach is to organize knowledge in order to mutually relate with the manner it is coordinated as well as constituted in the human memory (Heinze-Fry and Novak, 1990; Harpaz, Balik and Ehrenfeld, 2004). This requires students to examine a subject matter in detail in the process to understand the causal relations between different states of knowledge. As stated by Novak and Gowin (1984 in Koc, 2012), this approach able to guide learners or students to further understand on the missing knowledge, clarification of knowledge and enhance their critical thinking skills.

2.3 Quality of lecturing

According to Heck (2008), quality of teaching is the preparation and knowledge an educator possesses, knowing the content to be delivered to learners and ways should be disseminate in an effective classroom. An educator's personal qualities are definitely related with teacher effectiveness. The qualities that drive the educators to be efficacious included the educators' philosophy or principles, honesty and integrity as well (Al-Barwani, Al-Ani and Amzat; 2012). McBer (2000) stated that the professional quality and teaching strategies is one of the elements that concern on what an educator have to bring or contribute. Even though the teaching strategies can be learned or improved or develop from time to time, but the sustainable professional behaviours depends on the character in depth.

2.4 Classroom Social Climate

Students commonly get acquainted with peers and adults, and their social perceptions and relations are related to and predictive of education outcomes (e.g. Patrick, Kaplan and Ryan, 2011). The perception by students of their classroom environment involve affiliation, cohesion, fairness, mutual respect as well educators' support which relate to motivational level and achievement behaviours (Patrick, Ryan and Kaplan, 2007).

As mentioned by Sturmer, Konings and Seidel (2007) that the constitution of knowledge often arises within the socialization of students in a classroom. Students are advocate to accumulate knowledge within the society of students in order to develop their knowledge as well as monitor and observe other students' learning process. Educators need to create a favourable class social climate so that the learners are being motivated and stimulated in gaining more knowledge, sharing the information and discussing the outcomes. Without a compatibility atmosphere, students are unable to work as a team, collaborate as a group, exchange the information and explore the knowledge together.

2.5 Teaching Effectiveness

Evaluation on the outcomes of teaching effectiveness covers on the aspect of delivery and teaching contents. The evaluation on the effectiveness in teaching process is ultimate in order to identify the strengths and weaknesses toward improvements. In reference to most of the higher education institution lecturers, in practice they shall use the course evaluation tool known as the happy sheet. However, these smile sheets are not necessarily of no worth due to no measurement on the learning or on the job application except for the purpose to identify whether a particular course provide positive or negative learning experiences among students (Rouse, 2011).

As suggested by Kirkpatrick (1998 in Badu, 2013, p. 76), "Learning can be defined as the extent to which participants change attitudes, improving knowledge, and/or increase skills as a result of attending the program". This shows that lecturers in the higher education institutions are resposnsible in delivering knowledge, behaviour and skills in attempt to enhance the students' attitude, knowledge as well as skills in pursuing their studies.

In relation to this, According to Mathison (2005), Kirkpatrick had introduced four levels of evaluation model namely; Level 1 (Reaction – to measure what the participants thought and felt about the learning experience), Level 2 (Learning – to measure the level in knowledge achieved by participants), Level 3 (Behaviour – to measure the extent of participants' behavior and capability improvement) and Level 4 (Results – to measure the effect on the educational process resulting from the participants' performance). These four levels of evaluation model provide the accessors to measure a learning program from various angles and perspectives.

3. Research Methodology

A quantitative study was adopted in this study in effort to statistically examine the influential factors on teaching effectiveness. The survey questionnaires were distributed to obtain feedbacks from the selected group of respondents and hence to test the reliability of the variables.

3.1 Participants

This study was designed to examine the level of teaching effectiveness of university lecturers in the business faculty based on the Student Evaluation of Teaching (SET) questionnaires. Therefore, 100 undergraduate final year students in the business administration programme of the public universities in the Northern region were selected to participate in this study. A total of 300 questionnaires have been distributed by the researchers. However, only 298 were received and 289 were usable.

3.2 Instrument

The measurements of each section of the survey questionnaire are anchored by 5 point Likert scale comprising of as follows; (i) strongly disagree, (ii) disagree, (iii) neutral, (iv) agree and (v) strongly agree. The instrumentations were selected from a validated resources based on the past studies. The instruments are represented in Table 1 as follows:

Table 1

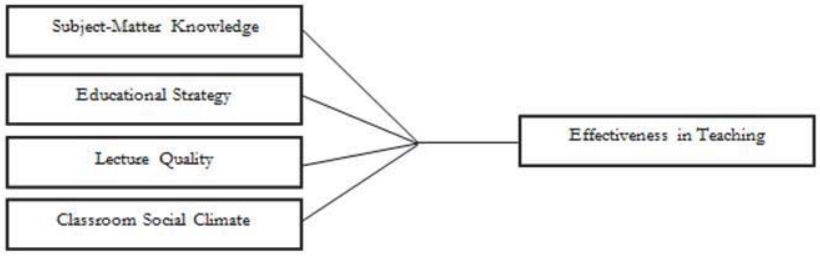
Variables	Source	No. of Items
Subject-Matter Knowledge Educational Strategy Lecture Quality	Al Barwani, Al-Ani and Amzat, (2012)	15 14 7
Classroom Social Climate	Afshar and Dhiman (2008)	5
Teaching Effectiveness Level 1 (Reaction) Level 2 (Learning) Level 3 (Behavior) Level 4 (Results)	Kirkpatrick (1998)	18 17 12 6

3.3 Research framework

A research framework refers to a conceptual model of how one theorises the links between several factors which have been identified as elementally critical to the problem (Sekaran and Bougie, 2010). In developing such a research

framework, it aids the researcher to contend and run certain relationships so as to ameliorate on understanding of the dynamics of the situation. Thus, the research framework in this current study is shown in Figure 1.

Figure 1



4. Analysis of Data

4.1 Reliability test

Table 2

Variables		Number of Items	Items Dropped	Items Recoded	Cronbach's Alpha
Dependent Variable	Teaching Effectiveness	53	-	-	0.927
Independent Variables	Subject-Matter Knowledge	15	-	-	0.917
	Educational Strategies	14	-	-	0.922
	Lecture Quality	7	-	-	0.907
	Classroom Social Climate	5	-	-	0.882

Table 2 shows that the values of Cronbach's Alpha for all factors range from 0.822 to 0.927 indicated good inter-item consistency for each factor. According to Sekaran (2010) that values below 0.60 are considered as poor and values above 0.70 are well accepted and considered as strong relations.

4.2 Descriptive analysis

Table 3

Variables		N	Mean	Std. Deviation
Dependent Variable	Teaching Effectiveness	289	3.7636	.56261
Independent Variables	Subject-Matter Knowledge	289	3.6772	.56539
	Educational Strategies	289	3.6314	.61331
	Lecture Quality	289	3.6611	.79724
	Classroom Social Climate	289	3.7329	.68681

Based on the Table 3 above, mean value for all variables were ranges from 3.6314 to 3.7636. The dependent variable, teaching effectiveness, score 3.7636 mean value and 0.56261 in standard deviation value. This indicates that the averages data obtain from the respondents are above neutral and the dispersion of data was acceptable as it is less than 1.

On the other hand, the independent variable, classroom social climate (mean=3.7329; SD=0.68681) and lecturer quality (mean=3.6611; SD=0.79724) shows that they have higher average value among other independent variables. In contrast, lecturer's domain knowledge (mean=3.6772; SD=0.56539) and teaching strategies (mean=3.6314; SD=0.61331) indicated lower in standard deviation value for the independent variables.

4.3 Correlational analysis

Table 4

Teaching Effectiveness	*Pearson Correlation*	*1*				
	Sig. (2-tailed)					
	N	289				
Subject-Matter Knowledge	Pearson Correlation	.812**	1			
	Sig. (2-tailed)	.000				
	N	289	289			
Educational Strategies	Pearson Correlation	.700**	.702**	1		
	Sig. (2-tailed)	.000	.000			
	N	289	289	289		
Lecture Quality	Pearson Correlation	.660**	.671**	.661**	1	
	Sig. (2-tailed)	.000	.000	.013		
	N	289	289	289	289	
Classroom Social Climate	Pearson Correlation	.768**	.835**	.703**	.738**	1
	Sig. (2-tailed)	.003	.000	.031	.020	
	N	289	289	289	289	289

**. Correlation is significant at 0.01 level (1-Tailed)
*. Correlation is significant at 0.05 level (2-Tailed)

Table 4 indicates the correlations coefficient and items of each variables. The high value represents that the relationship between two variables are strong. The sig. (1-tailed) indicates the relationship is significant as the value is less than 0.05.

The relations between educational strategies and teaching effectiveness showed that the value was significant at sig. (1-tailed) 0.01, and has the value of r = 0.700. Moreover, the relationship between lecture quality and teaching effectiveness showed the relationship was significant at sig. (1-tailed) 0.01, and the value r = 0.660. The relationship between subject-matter knowledge and teaching effectiveness as well as between classroom social climate and teaching effectiveness demonstrate strong relationships, with r = 0.812 and r = 0.768 respectively, and both are significant.

4.4 Regressional analysis

Table 5

Variables	**Beta**	**t-ratio**	**Sig.t**
Subject-Matter Knowledge	.137	2.671	.008
Educational Strategies	.441	9.221	.000
Lecture Quality	.069	2.241	.026
Classroom Social Climate	.213	6.295	.000
R square = 0.768 Durbin Watson = 1.995 F = 242.214			
Sig. F = .000[a] Condition Index = 32.563			

The strength of the relationship between dependent variable and independent variables are reported in Table 5. The *R* square for the teaching effectiveness is 0.768 or 76.8%. This indicates that the statistical result suggest that the four independent variables explain 76.8% variation of teaching effectiveness. This *R* square indicates a strong relationship between the independent variables and teaching effectiveness in the faculty of business in northern region public universities.

The result has indicate that the lecturer's domain knowledge has significantly influence (sig. t = .008) on teacing effectiveness. In other words, lecturers that have better subject-matter knowledge would deliver more effective teaching which resulted in positive relationship (Beta = 0.137. The H_1 is fully supported at the significant level of p < .01 which led to the acceptance of the first hypothesis.

Secondly, educational strategies are found to have a significant effect (sig. t = .00) on teaching effectiveness and has positive relationship (Beta = 0.441). This shows that it has the strongest influence on the dependent variable among the independent variables. Thus, the H_2 which stated that teaching strategies has significantly positive effect on teaching effectiveness is fully supported at the significant level of p < .01 and accepted.

Thirdly, the lecture quality was found to be significant (sig. t = .026) and positive Beta of 0.069. This indicates that a high quality lectures contribute to the teaching effectiveness. Thus, H_3 which stated that lecturer's quality positively affects on teaching effectiveness of business faculty lecturers are fully supported at the significance level of p < .05.

Further, classroom social climate was also found to have significant effect on teaching (sig. t = .000) and has positive relationship (Beta = .213) with teaching effectiveness. Thus, H_4 which stated that classroom social climate has significantly affects the teaching effectiveness of business faculty in universities is fully supported and accepted at the significance level of p < .01.

5. Concluding Remarks

Teaching effectiveness permit the undergraduate students to engage and participate in their learning process, in which important for their learning performances. This study was undertaken in attempt to examine the influential factors on teaching effectiveness of the business faculty academic members as perceived by the final year business administration programme students of public universities in the Northern region of Malaysia.

Table 6 exhibits the results of the study of each variable. The result indicated that there is significance level between the variables, whereby the null hypotheses were totally rejected. The results showed that the independent variables are significantly influencing on teaching effectiveness.

Table 6

Hypotheses	Statement	Results
H_1	The domain knowledge has significantly affected on the lecturers' teaching effectiveness.	Accepted
H_2	The educational strategies has significantly affected on the lecturer's teaching effectiveness.	Accepted
H_3	The quality in lectures has significantly affected on the lecturers' teaching effectiveness.	Accepted
H_4	The classroom social climate has significantly affected on the lecturers' teaching effectiveness.	Accepted

Educators at the higher educational institutions need to continuously improve on these four aspects to ensure their effectiveness in teaching in the classroom. The less effective teaching would result in students to be less interested or less understanding on the subject matters. The educators also need to be aware that the attitude and ability of students practicing on what they have learnt during class would shape their characteristic in future.

References

Adediwura, A.A. & Tayo, B. (2007). Perception of Teachers' Knowledge Attitude and Teaching Skills as Predictor of Academic Performance in Nigerian Secondary Schools. *Educational Research and Review, 2* (7), 165-171.

Afshar, T., & Dhiman, S. (2008). Assessment of the excellence of academic advising: Lessons learned. *Journal of College Teaching & Learning (TLC)*, *5* (3).

Al-Barwani, T.A., Al-Ani, W.T. & Amzat, I. H. (2012). An Effective Teaching Model for Public School Teachers in the Sultanate of Oman: Students' Stance, Education, Business and Society. *Contemporary Middle Eastern Issues, 5* (1), 23-46.

Archibong, I. A., & Nja, M. E. (2011). Towards Improved Teaching Effectiveness in Nigerian Public Universities: Instrument Design and Validation. *Higher Education Studies*, *1* (2), 78-91.

Barnes, L., Christensen, C. & Hansen, A. (1994). *Teaching and the Case Method: Text, Cases and Readings (3rd ed.).* Boston, MA: Harvard Business School Press.

Barry, R. A. (2010). *Teaching Effectiveness and Why It Matters.* Portland, OR: Marylhurst University and the Chalkboard Project, Retrieved from http://www.chalkboardproject.org/images/CB_TeachEffctPaper_A3.pdf.

DuFour, R., DuFour, R., Eaker, R., & Many, T. (2007). *Learning by Doing: A Handbook for Professional Learning Communities at Work.* Bloomington, IN: Solution Tree.

DuFour, R., & Eaker, R. (1998). *Professional Learning Communities at Work: Best Practices for Enhancing Student Achievement.* Bloomington, IN: Solution Tree.

Eggen, P. & Kauchak, D. (2001). Educational Psychology: Window on Classrooms. In Olaleye, F.O. (2011). Teacher Characteristics as Predictor of Academic Performance of Students in Secondary Schools in OSU STATE NIGERIA. *European Journal of Educational Studies, 3* (3), 505-511.

Elmore, R. (2010). Leading the Instructional Core. *In Conversation, 11* (3), 1-12.

Harpaz, I., Balik, C. & Ehrenfeld, M. (2004). Concept Mapping: An Educational Strategy for Advanced Nursing Education. *Nursing Forum, 39*, 27-30.

Heck, R. H. (2008). Teacher Effectiveness and Student Achievement: Investigating a Multilevel Cross-Classified Model. *Journal of Educational Administration, 47* (2), 227-249.

Heinze-Fry, J.A. & Novak, J.D. (1990). Concept Mapping Brings Long-Term Movement Toward Meaningful Learning. *Science Education, 74,* 461-472.

Kirkpatrick, D.L. (1998). Evaluating Training Programs: The Four Levels in Badu, S.Q. (2013). The Implementation of Kirkpatrick's Evaluation Model in the Learning of Initial Value and Boundry Condition Problems. *International Journal of Learning and Development, 3* (5), 74-88.

Kunselman, J.C. & Johnson, K.A. (2004). Using the Case Method to Facilitate Learning. *College Teaching, 52* (3), 87-92.

Mathison, S. (2005). *Encyclopedia of Evaluation.* SAGE Publication, Inc.

McBer, H. (2000). *Research into Teacher Effectiveness: A Model for Teacher Effectiveness.* (Research Report #216). Nottingham, England: Department of Education and Employment. http://www.teachernet.gov.uk/_doc/1478/haymcber.doc [Accessed on 6th Jul. 2014].

Murray, H.G. (1994). *Can Teaching Be Improved?.* Canada: Brock University.

Novak, J.D. & Gowin, B. (1984). Learning How to Learn. In Koc, M. (2012). Pedagogical Knowledge Representation through Concept Mapping as a Study and Collaboration Tool in Teacher Education. *Australasian Journal of Educational Technology, 28* (4), 656-670.

Patrick, H., Kaplan, A. & Ryan, A.M. (2011). Positive Classroom Motivational Environments: Convergence between Mastery Goal Structure and Classroom Social Climate. *Journal of Educational Psychology, 103* (2), 367-382.

Patrick, H., Ryan, A.M. & Kaplan, A. (2007). Early Adolescents' Perceptions of the Classroom Social Environment, Motivational Beliefs, and Engagement. *Journal of Educational Psychology, 99* (1), 83-98.

Redding, J. B. (2011). *The Effect of Choral Conducting Intensity on the Perception of Teacher Effectiveness* (Doctoral Dissertation). Retrieved from ProQuest Dissertations and Theses Databases. (Publication No. 3483596).

Rouse, D. (2011). Employing Kirkpatrick's Evaluation Framework to Determine the Effectiveness of Health Information Management Courses and Programs. *Perspect Health Information Management, 8,* 1-5.

Sankar, L. (2009). *An experimental study comparing the effectiveness of two formats of professional learning on teacher knowledge and confidence in a co-teaching class.* (Order No. 3376877, University of West Georgia). *ProQuest Dissertations and Theses*, 191. Retrieved from http://search.proquest.com/docview/305063742?accountid=33397. (305063742).

Seidel, T., & Shavelson, R. J. (2007). Teaching Effectiveness Research in the Past Decade: The Role of Theory and Research Design in Disentangling Meta-Analysis Results. *Review of Educational Research*, *77*(4), 454-499.

Sekaran, U., & Bougie, R. (2010). *Research Methods for Business: A Skill Building Approach* (5th ed.). John Wiley and Sons Inc.

Sturmer, K., Konings, K.D. & Seidel, T. (2013). Declarative Knowledge and Professional Vision in Teacher Education: Effect of Courses in Teaching and Learning. *British Journal of Educational Psychology, 83* (3), 467-483.

Theall, M. & Franklin, J. (2001). How Do Student Ratings Measure Up to A New Validity Framework? In Theall, M., Abrami, P.C. and Mets, L. A. (Eds.), The Student Ratings Debate: Are They Valid? How Can We Best Use Them? *[Special Issue].* New Directions for Instructional Research, 109, 27-44.

Thorburn, M. & Collins, D. (2006). The Effect of An Integrated Curriculum Model on Student Learning and Attainment. *European Physical Education Review, 12* (1), 31-50.

Yueh, H. P., Chen, T. L., Chiu, L. A., Lee, S. L., & Wang, A. B. (2012).Student Evaluation of Teaching Effectiveness of a Nationwide Innovative Education Program on Image Display Technology. *Education, IEEE Transactions on*, *55*(3), 365-369.