

ASSESSING THE EFFECTIVENESS OF THE DIFFERENT LEVELS OF INSTRUCTIONAL STRATEGIES [DLIST] FOR ONLINE LEARNING BY UNDERGRADUATE STUDENTS AT THE UNIVERSITY OF SOUTHERN QUEENSLAND (USQ), AUSTRALIA

Syaril Izwann Jabar

Faculty of Education
Universiti of Southern Queensland
E-mail: SyarilIzwann.Jabar@usq.edu.au

ABSTRACT

Based on Chickering and Gamson's Seven Principles for Good Practice this research attempted to bring together the a priori mentioned conceptual framework with Merrill's Different Levels of Instructional Strategy. The *purpose* was to determine whether the Seven Principles could be revitalized by amalgamating them with the Different Levels of Instructional Strategy. The resultant standardized measure would then be proposed for use either as a rubric for facilitating the implementation of DLIS, or as diagnostic process indicators for assessing the quality of learning experienced by students with the aim of improving the design of future online courses.

Keywords: Assessment, Factor Analysis, Instructional Design, Instructional Technology, Internet, Measurement, Online Learning, Online Pedagogy, Quasi-experiment

INTRODUCTION

As an educator, have you ever stopped to wonder how successful we have been at leveraging what the PC and Internet have to offer in terms of conceptualizing and delivering online education to learners? What use is there of knowing what instructional technology has to offer when educators themselves are hesitant about when, where and how to best use instructional technology to support learners and the teaching process. Is there a missing link in the synergy of events between cognitive presence, social presence, teaching presence and strategies or tactics for online learning and teaching?

As it stands, pedagogy is defined as the actual function of teaching, or what teachers do when implementing their craft to assist their student's learning. Hence, would it not be a logical aim by any standards to improve upon the efficiency of how online learning is designed, developed and implemented so as to better support the process of knowledge construction and possibly the transfer of skills using sound educational theory and practice?

The primary goal of this research project was to obtain data that would facilitate the development, validation and standardization of a measure for assessing the effectiveness of DLIS. As a rule, a measure is said to be standardized when (a) its rules of measurement are clear, (b) it is practical to apply, (c) is not demanding of the administrator or respondent, and (d) its results do not depend upon the administrator.

RESEARCH METHODOLOGY

Initially, the proposed methodology for the research project was that of a follow-up sample web survey. However, such a design would suffer from an absence of designed comparison. This need for comparison is important because survey research limited to a single group often leads to invalid conclusions about cause-and-effect relationships because it only provides a static snapshot for that particular point in time. Hence, the decision to opt for a longitudinal non-equivalent pre-test-post-test control group Internet quasi-experiment. In light of this research being conducted over the Internet, it also qualifies as a field experiment because the research was in a real-life setting. The significance of in the field Internet experimentation cannot be overlooked because they are useful in terms of determining if a manipulation will work in the real-world. Thus, the design of this research attempts to make good use of the advantages offered by Internet experiments, for example (1) ease of access to participant populations that are demographically and culturally diverse, (2) being able to bring the quasi-experiment to the participant, instead of vice versa, (3) access to large samples enabling high statistical power, and (4) cost savings in terms of administration, equipment, person-hours and physical space. Moreover, there are also the value added advantages of speed, low cost, external validity, experimenting around the clock, a high degree of automation of the experiment (i.e., low maintenance, limited experimenter effects), and a wider sample.

Sampling

Sample members were drawn using a three-stage purposive cluster sampling technique. The first sampling element used was that of nationality. This was followed by the second element of how far the participants had progressed in their degree at USQ. The third sampling element was that of academic affiliation. The goal was two-fold. Firstly, to obtain data that would be large enough to minimize the effect of sampling error and increase the reliability of the correlations. Secondly, to obtain a representative sample that would afford valid inferences and generalizations to be made possibly across different nationalities.

Participants were recruited based on enrolment in intact courses subject to approval from Faculty. The whole process took sixteen months to complete beginning late November 2009, when the ethics application was first submitted followed by feedback that conditional approval had been granted subject to evidence of approval from the relevant USQ faculties. Full ethics clearance was granted by USQ's Fast Track Human Research Ethics Committee (HREC) on November 15, 2010 (H10REA016). The whole process finally came to fruition by early March 2011 in time for the start of Semester 1, 2011.

DISCUSSION

In an effort to build on what is there and not reinvent the wheel, it is proposed that instructional strategies be utilized to enable the learning experienced by students to be systematically scalable to different levels of complexity. Skillfully wielded, this should culminate in the ability to traverse and satisfactorily complete complex tasks. The rationale is to move away from information-only presentations towards a task-centered

approach that increases in level of complexity to promote more effective, efficient and engaging learning.

CONCLUSION

With DLISt, teaching staff would conceivably have the flexibility of being eclectic in their choice of pedagogy for guiding students to work their way through the pathways of knowledge to find their own answers with successively less guidance provided with each subsequent task until they are completing tasks on their own. Metacognitive comprehension about DLISt could also potentially benefit students in terms of generating awareness about the difference between planned instances of instructional strategies as opposed to random acts by teaching staff.

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REFERENCES

- Chickering, A. W., & Gamson, Z. F. (1987). *Seven principles for good practice in undergraduate education*. Retrieved July 26, 2005, from http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebook/techtip/7_princip.htm
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Hillsdale: Lawrence Erlbaum Associates.
- Comrey, A. L., & Lee, H. B. (1992). *A First Course in Factor Analysis*. Hillsdale: Lawrence Erlbaum.
- Creswell, J. W. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (4th ed.). Boston: Pearson Education.
- Cumming, G. (2012). *Understanding The New Statistics; Effect Sizes, Confidence Intervals, and Meta-Analysis*. New York: Routledge.
- Curran, P. J., West, S. G., & Finch, J. F. (1996). The Robustness of Test Statistics to Nonnormality and Specification Error in Confirmatory Factor Analysis. *Psychological Methods*. 1(1): 16-29.
- Gagne, R. M., & Briggs, L. J. (1979). *Principles of Instructional Design* (2nd Ed.). New York: Holt, Rinehart & Winston.
- Glass, G. V., & Hopkins, K. D. (1996). *Statistical Methods in Education and Psychology*. Needham Heights: Allyn & Bacon.
- Gorsuch, R. L. (1983). *Factor Analysis* (2nd Ed.). New Jersey: Lawrence Erlbaum Associates.
- Johnson, B., & L. Christensen, L. (2012). *Educational Research: Quantitative, Qualitative and Mixed Approaches*. Thousand Oaks: Sage Publications.
- Merrill, M. D. (2009). First Principle of Instruction. In Reigeluth, C.M. & Carr-Chellham, A. A. (Ed.), *Instructional Design Theories and Models; Building a Common Knowledge Base* (Vol. III, pp. 41-56). Madison Ave: Routledge.

- Nunnally, J. C. & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). New York: McGraw-Hill.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics*. Boston: Allyn & Bacon.
- Tuckman, B. W. and B. E. Harper (2012). *Conducting Educational Research*. Lanham: Rowman & Littlefield Publishers.