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Evaluating Independent Learning Development in a University Program

Dr. Larry Barnes

Department of Communication Disorders, West Texas A&M University, WTAMU Box 60575, Canyon Texas 79016

Email: lbarnes@mail.wtamu.edu

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Abstract

Universities are challenged to find meaningful methods of evaluating program influences on independent learning traits of students. This study implemented an assessment protocol to determine validity of program efficacy on ten learning traits thought to be key factors to the development of independent learning. The Learning and Study Strategies Inventory (LASSI) was administered to two groups of graduate students as a pre/post measure of program intervention on independent learning traits. Results indicated the extent of program effectiveness on specific learning traits and the influence of GPA and gender on program intervention outcomes. Program intervention can naturally translate into a measure of intrinsic growth. For this reason, educational programs of higher education are encouraged to engage in similar program assessments to identify areas of strength and weakness related to fostering independent learning skills among students.

Keywords: Evaluation, Independent Learning, LASSI, Program Efficacy

Introduction

The pedagogical complexity associated with new generational learning styles presents universities with unique challenges. Newer generations represent a variety of learning traits and personality profiles making them more difficult to engage in the classroom. Traditional presentation of material in the classroom through auditory and visual stimulus is often ineffective in engaging mental processes of the current generation. As a result, it is questionable whether university students are shaped into independent learners.

Enabling students to become independent learners is a universal goal left somewhat unopposed in assessment secondary to a lack of literature supporting efficacious evaluation protocols. Much has been accomplished in evaluating the instruction and content of the classroom, but the evaluation of learning outcomes in regard to independent learning is still emerging. Research is wanting in the evaluation of learning traits known to be associated with independent learning styles. The purpose of this study is to determine the efficacy of a specific evaluation protocol in assessing a university program's ability to foster independent learning among its students.

Literature Review

Academic accountability over the past decade focused on universities improving teaching and learning strategies to meet the challenges of a new generation of learners (Dill, 1999). Redefining "learning organizations" involved methods of measurement allowing instructors to determine the impact of teaching on attained student knowledge (Neave 1988). These methods included student evaluation of course instruction and content lending itself more to a valid measure of student emotion related to the learning experience than a measure of learning itself. This left organizational literature with an "eclectic" array of restructuring models evaluating ideas and concepts (Dill, 1999) rather than focusing on specific trait development. New developments studying learning organizations as behavioral frameworks implementing activities associated with better learning (Garvin, 1993) resulted from these models of concept evaluation. However, although improvements in classroom activity were implemented, there still existed a void in program evaluation of student traits associated with independent learning styles and how they were affected by the behavioral restructuring of learning organizations.

Recent literature examined the reform of educational systems and its effect on shaping students into effective workers and citizens (Ananiadou & Claro, 2009; Jerald, 2009). Within this framework of understanding the modern day student, competency included a set of skills, attitudes, and knowledge needed to be successful in a variety of learning and workplace environments (Wolters, 2003). Models of self-regulation were established to help students become more aware of their development as effective workers and learners (Baumeister & Vohs, 2004). However, even with a specific focus on academic and workplace functioning, models of self-regulation became so varied that determining what constructs to regulate were an uncertainty (Wolters, 2003). Although self-regulating models incorporated many skills associated with 21st Century classroom challenges they provided little insight into the intrinsic growth of independent learning styles.

A search for the most effective means of validating university report cards of student learning included what was perceived as outcomes valued by society (Dill & Soo, 2005). The assumption that socially valued student outcomes would contribute to "human capital" (Becker, 1964) led to public policies focused on student learning outcomes (Dill, 2000). The validity of report cards was called into question because the measures chosen resulted in statistical inaccuracies and contributed to a negative impact on university performance (Bowden, 2000). The theory of "human capital" supported the need for statistically accurate accountability of outcomes directly associated with independent learning but not at the expense of learning productivity.

Recently, researchers have challenged faculty members to review questions directly related to student performance as a result of classroom instruction (Burnley et al., 2005). Academic audit questions for faculty discussion were designed to improve student learning outcomes by engaging faculty in self-assessment of specific instructional activities. Importantly, the questions required faculty members to define student ability necessary for successful employment, citizenship, and graduate work. The focus was to look beyond specific content learning objectives in the classroom to include a broad understanding of the student as an intrinsic learner. Such questioning supported the need for specific, measurable, and objective assessment of student traits that contribute to lifelong independent learning.

Because each institution is culturally and demographically unique, there is no one formula for defining student developmental success (Tinto, 1993). The amount of student learning is proportional to the quality and quantity of student involvement within the learning environment (Astin, 1993). This has led some to assume that measuring the quality and quantity of student involvement would naturally translate into a measure of intrinsic growth. Such a theory needs to be tested rather than assuming that quality and quantity measurement of involvement alone equates to intrinsic independent learning development.

One way to evaluate the effectiveness of learning experiences on independent learning traits is to use a tool that assesses such traits. The Learning and Study Strategies Inventory (LASSI) is a 10-scale, 80-item diagnostic measure of factors that significantly impact student success and identify which factors can be enhanced through educational interventions. LASSI was effectively used in student success assessment resulting from course instruction (Osborn, 1998). It was theorized in this research study that this instrument may be a solution in evaluating program effectiveness.

The problem is there is no established research demonstrating protocol ability for evaluating a university program's effect on developing independent learning styles. This research study examined the use of a specific learning assessment instrument as a measure of student traits associated with independent learning styles. The purpose of this study was to determine the efficacy of a specific evaluation protocol in assessing a university program's ability to foster independent learning among its students.

Methodology

The researcher was a professor and department head of an accredited clinical graduate program comprising 45 students. The students were divided into two cohorts depending upon their time of entry into the program. Each group completed the same number of courses, in the same sequence, same practicum experiences and was subjected to the same procedure of semester evaluation following clinical practicum. The two groups differed in independent variables of average grade point average (GPA) upon entry and percentage of gender. This design was chosen to determine if group replication of a learning sequence demonstrated similar results in independent learning development when assessed through a specific tool.

The research questions were:

1. What impact did the independent variables of grade point average and percentage of gender have on generalization of program influence in relation to independent learning outcomes?
2. To what extent did the LASSI as an evaluation instrument provide consistent measures between groups subjected to similar learning experiences?

This study employed both a between-subjects and a between groups descriptive research design. This comparative research design involved the description of independent variables between groups of participants who differed with respect to average grade point average and percentage of gender. The design also comprised a longitudinal plan of observation of each group over a period of 2 academic years using a pre and post assessment and comparing the results. This longitudinal study had the advantage of showing how the participants changed in measured learning traits as they matured through a sequential plan of study.

Two groups of graduate students voluntarily participated in the study. Each group was separated by 1 academic year at point of entry into the graduate program. The first group comprised 21 students, all female, with an average GPA of 3.6. The second group comprised 24 students, 90 percent female, 10 percent male, with an average GPA of 3.2. Subjects in both groups were from geographical locations throughout the United States. All subjects began their academic program in the Fall semester and successfully graduated in the Spring semester two years following entry into the program. All subjects were pre-assessed their first semester of entry into the program and post-assessed in their last semester prior to graduation.

The LASSI was administered as a pre and post measurement tool. Research (Weinstein, Palmer, & Schulte, 1987) validates the following regarding the LASSI: it can be used as a pre-post achievement measure to assess the degree of success of intervention programs; it is designed to identify areas where students could benefit the most from interventions: it provides a benchmark for student learning and study strategies; as an instrument it is statistically valid and reliable; it's prescriptive feedback increases student's self-awareness; and it focuses on thoughts, behaviors, attitudes, and beliefs that relate to successful learning.

As a diagnostic measure LASSI uses 80 question items, answered through a 5 point Likert scale to assess skill level in the following learning and strategies subtests:

- Anxiety (ANX) - the degree to which students worry about their academic performance.
- Attitude (ATT) – a student's attitude toward and interest in college.
- Concentration (CON) – a student's ability to pay close attention to academic tasks.
- Information Processing (INP) – a student's use of mental imagery, elaboration, monitoring, and reasoning.
- Motivation (MOT) – a student's diligence, self-discipline, and willingness to work hard.
- Self-Testing (SFT) – a student's use of review and preparation skills for classes and tests.
- Selecting Main Ideas (SMI) – a student's ability to pick out important information for further study.
- Study Aids (STA) – the degree to which students create or use support techniques to help them learn and remember.
- Time Management (TMT) – a student's use of time management principles for academic tasks.
- Test Strategies (TST) – a student's approach to preparing for and taking examinations.

The instrument was administered in a group setting during the first week of orientation and again during the last week of the final semester. Administration and scoring was completed by a licensed and clinically certified speech-language pathologist.

A separate data table for each group was created to record individual scores for each participant for each subtest. Pre and post assessment averages for each subtest were derived for both groups. A paired sample *t*-test was used to statistically compare the means of the dependent variables (subtest average scores) at pre and post subtest intervals for each group separately. This allowed for measure of differences between pre and post assessment averages to determine the effect of program instruction. An Analysis of Variance was used to determine significance in differences between group scores. The significance between groups

determined if generalization of results were affected by the independent variables of GPA and gender.

The following were the hypothesis of this research:

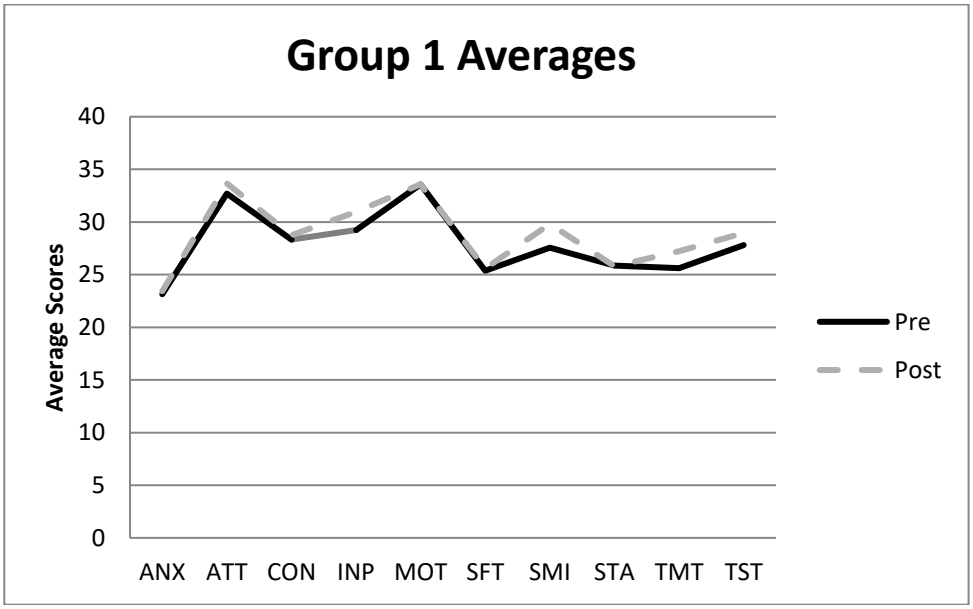
H1: Program intervention will have a positive effect on independent student learning and study strategies.

H2: Variables of GPA and Gender will have an effect on the overall subtest scores.

Results

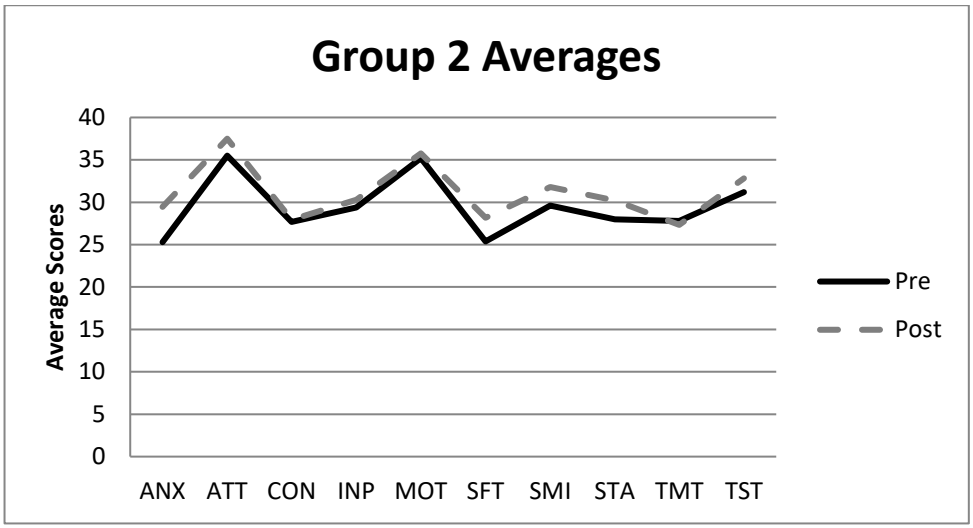
Group 1 comprised twenty-one graduate students, all female, with an average GPA of 3.6 (range = 3.4 – 4.0). Average scores from the group demonstrated improvement in eight out of the ten subtests. Subtest scores in Motivation and Study Aids demonstrated no improvement while subtest scores in Information Processing, Selecting Main Idea, and Time Management demonstrated the greatest positive change. Graph 1 illustrates the differences in pre and post scores of group 1.

Graph 1: Pre and Post Test Score Averages of Group 1



Group 2 comprised twenty-four graduate students, ninety percent female, with an average GPA of 3.2 (range = 3.0 – 3.8). Average scores from the group demonstrated improvement in seven out of ten subtests. Subtest scores in Concentration, Motivation, and Time Management demonstrated no improvement while subtest scores in Anxiety, Attention, Self-Testing, Selecting Main Ideas, and Study Aids demonstrated the greatest positive change. Graph 1 illustrates the differences in pre and post scores of group 1.

Graph 2: Pre and Post Test Score Averages of Group 2



A paired sample t-test (two-tailed) comparing the average pre and post scores of each group demonstrated statistical significance for both groups. The null hypothesis here was that the means were equal. A large *t* score with a small *p*-value indicated the null hypothesis was discredited. Group 1 demonstrated a *t* score of > +2.0 (+2.159) and a statistical *p*-value < 0.05 (0.008). Group 2 also demonstrated a t score of > +2.0 (+2.398) and a statistical *p*-value < 0.05 (0.004). With the means significantly different, **H1** was confirmed and the null hypothesis was discredited for both groups.

An Analysis of Variance between group scores demonstrated no significant differences. The null hypothesis here was that the means between the groups were equal. A large *p*-value of > 0.05 (0.77) indicated the null hypothesis was not discredited. **H2** is discredited indicating GPA and percentage of gender did not have an effect on the average scores demonstrated by both groups.

Discussion

Regarding the first research question, the independent variables of grade point average and percentage of gender had no significant impact on generalization of program influence on independent learning outcomes. Since the between group analysis demonstrated no statistical differences in overall outcomes it can be determined that the program intervention had similar effects on both groups of students irrespective of the independent variables controlled. The between groups analysis supports the established protocol as a valid method of determining the effects of program intervention from one group to another.

Regarding the second research question, the LASSI as an evaluation instrument provided consistent measures between groups subjected to similar learning experiences. No regression in any single subtest was noted by either group. Both groups experienced similarities in improvement of Selecting Main Idea, and each group independently experienced positive changes in multiple subtests. Due to the similarities of improvements noted and no contra indicators associated with inconsistent regression on any single subtest it can be concluded that the LASSI served as a reliable instrument for assessing overall program intervention effect on student outcomes.

In this case program intervention over a two year period was effective in aiding students in becoming more independent in learning style through the strengthening of various learning and study strategies. The real benefit of this analysis was in the identification of need for improvement in program intervention, particularly in the area of Motivation. This study encouraged faculty members to evaluate classroom structure, demands and content to better facilitate student diligence, self-discipline, and willingness to work hard.

Conclusion

The use of a formal assessment instrument such as the LASSI proved effective in evaluating the influence of program intervention on student independent learning development. The amount of student learning is proportional to the quality and quantity of student involvement within the learning environment (Astin, 1993). This concept was corroborated by subjecting independent groups to similar learning environments and revealing the quality of growth through measurable objectives. Program intervention can naturally translate into a measure of intrinsic growth. For this reason, educational programs of higher education are encouraged to engage in similar program assessments to identify areas of strength and weakness related to fostering independent learning skills among students.

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