

Article Critique: How College Students Engagement Affects Personal and Social Learning

Outcomes

Patrick Turner

Ferris State University

Quantitative Research Methods – Data Analysis

IDSL 845

Dr. Lee Ann Nutt and Dr. Mark Dunneback

July 14, 2019

Article Critique of *How College Students Engagement Affects Personal and Social Learning Outcomes*

Introduction

The Article Critique of Strayhorn's (2008) article entitled, *How College Students Engagement Affects Personal and Social Learning Outcomes* will be used to demonstrate familiarization with quantitative methodologies in the field of educational research. The critique evaluates Strayhorn's example of quantitative research in terms of goals, methods, limitations, results, and generalizability which is related to IDSL 845 course outcome one.

Research Problem

The article author performed a study using statistical analyses to investigate two research questions. First, to determine if a statistically significant relationship existed between students' engagement in college experiences and social/ personal learning outcomes. Second, to determine what is the relationship between students' engagement in college experiences and their self-reported social/personal learning gains; or gains in a non-academic sense. Data was collected and analysis was performed on this question while attempting to control the influence of potentially confounding inputs and environmental differences. (Strayhorn, 2008, pp. 2,9)

Regarding the clarity and appropriateness of the research questions, the topics of equity and justice in higher education is relevant. Dr. Dafina-Lazarus Stewart (2016) discusses the premise that compositional or structural diversity is only one factor contributing to needed campus climate, framework, and institutional transformation. Strayhorn's study contributes to a significantly related facet of this conversation— student's co-curricular activities impact on personal/social learning outcome. Culture, student perception, inter and intra group behavior

dynamic must be considered and play an important role in charting change in adding more value to the education that students are receiving.

Regarding the significance and importance of the articles research problem, Strayhorn (2008) refers to societal and governmental calls for accountability in higher education and specifically the need to prove the “value added” effect of college attendance (p. 1). This goes to the responsibility of higher education to create a well-rounded citizen that contributes to society, and not merely to pour topical knowledge into students. Strayhorn frames this as higher education’s goal to prepare students personally and socially for effective and civil participation in society. Additionally, higher education student affairs administrators must demonstrate how campus programs and experiences serve these broader goals. However, the subjective nature of assessing these social attributes are often considered by many college educators as overwhelming and intimidating (p. 1).

The author believes we must educate the whole individual, create a well-rounded citizen that is able to contribute in a positive way to society beyond academic significance, to engage at the value and purpose of human existence. Love, empathy, service to others, altruism and charity seem like terms that may be over the top in this context, but why? They too are part of what constitutes being a valued human which justifies a creative approach.

Review of the Literature

Strayhorn’s examination of the existing research refers to higher education's need to promote economic development, competing globally in science and technology, and innovation (Altbach, Berdahl, & Gumport, 1999) as an implied starting point where technology and strictly academic learning outcomes are not enough (Strayhorn, 2006a). Additionally, the author espouses the need for broader learning outcomes, including critical thinking, effective

communication, and diverse perspectives (Strayhorn, 2006b) that traverse beyond subject matter knowledge to application, analysis, and evaluating the subject matter knowledge from multiple and broader perspectives and domains (Bloom, 1956). Strayhorn proposes that a learning outcome gap exists because previous research doesn't measure the personal benefits and learning gains related to involvement in clubs, organizations, and other meaningful social interactions as they relate to growth in clarified values and a principled character (Pascarella & Terenzini, 2005).

Strayhorn's cited references are fairly contemporary, as well as relevant and interesting in that they approach the need to teach the whole student without getting embroiled in the often politically charged topics of diversity, inclusion, equity, and justice. The article leaves behind the notions of discrimination, and socioeconomic disadvantage while focusing purely on the need for increased inclusion and assessment of personal and social activities in higher education learning outcomes.

Research Design

Strayhorn uses a research design that is correlational in nature and based on survey results from a survey not designed by this study's researcher, but designed and implemented by a much larger formal organization for studies of a similar nature. The research design is based on Astin's (1991) inputs–environment–outcome (I-E-O) college impact model, as well as information from the theoretical framework of study entitled, *Frameworks for Assessing Learning and Development Outcomes* (FALDOs) and the *Council for the Advancement of Standard's 16 Learning Outcomes* (CAS) (Miller, 2003).

The correlational research design method is appropriate as it looks at the relationship between survey variables without applying a treatment or control. Additionally, this study is of a

similar nature, and a confirmation/extension of previous studies using generally available survey data of studies of a similar purpose.

Hypotheses

It appears that neither a null hypothesis or an alternative hypothesis is explicitly discussed in this article. To Strayhorn's credit, his discussion of previous research implies a set of expected outcomes while confirming and extending previous outcomes. However, from a clarity standpoint this falls dramatically short of the standard practice of explicitly stating the null hypothesis and reporting inferential statistics results that either confirms or fails to confirm that null hypothesis. With regards to the nature of the hypothesis, depending upon which independent variables are being considered, the hypotheses may take on either a directional or non-directional format—though none was explicitly stated.

Variables

The variables represented in the study are broken into three groups including: Input, Environmental, and Output. The Input variables include: Gender (Sex), Marital Status, Age, Year in College, American Indian/Alaskan Native, Asian Pacific Islander, Black, White, and Hispanic. The Environmental variables include: Barron's selectivity, Faculty – Student Interaction, Peer Interaction, and Active Learning. The single Output variable is Personal/Social Gains.

The independent variables include all Input and Environmental variables listed above. The only dependent variable is the single Output variable which is Personal/Social Gains, considered a learning outcome. This variable is an amalgamation of those identified and published by the Council for the Advancement of Standards in Higher Education (Miller, 2003)

which can be classified as “personal and social.” The dependent variable of personal/social gain model is shown in Strayhorn's (2008) Table One.

In addition, the analysis included correlation studies to examine cross correlation between some of the independent variables. Certain variables such as sex, age, and race were used as controls to examine confounding effects. The Barron’s Selectivity variable was used as a mediator to avoid including class rank, high school GPA, college entrance exam scores, and percent of applicants admitted. In one case, the analysis was conducted two ways to determine if including some environmental variables would impact correlations. The results indicated that the r^2 value and adjusted r^2 of 0.24 remain the same. Given that r^2 and adjusted r^2 remained the same at 0.24 indicates that the math model, with all of its factors, was not hurt by the added factors of Faculty-Student interaction, Peer interaction, and Active Learning (Strayhorn, 2008, p. 9).

A potentially missing variable that could add interesting insight would measure the influence of the level of technology used inside and outside of the classroom as it pertains to perceived personal/social gains. An additional facet to this variable might be the level of technology used in increased levels of active learning as well.

Measurement

The selected independent and dependent variables, shown in the table below, are based on the conceptual (CAS) and theoretical (FALDOs) frameworks discussed in the Research Design section of this paper. In alignment with the conceptual framework (i.e., CAS’s learning outcomes), a single global measure of social or interpersonal learning gains using items from the College Student Experiences Questionnaire (CSEQ) was developed. Specifically, the dependent variable was operationalized using 5 items from the CSEQ (Gonyea, Kish, Kuh, Muthiah, & Thomas, 2003) (Strayhorn, 2008, p. 5).

The level of measure of the variables can be derived by examination of the following table from the article (Strayhorn, 2008, pg. 6).

<i>Model specification</i>	
Factor/Variables	Coding scheme
<i>Inputs</i>	
Sex	1 = male, 2 = female
Marital status	1 = not married, 2 = married, widowed, divorced
Age	1 (“19 or younger”) to 6 (“over 55”)
Year in college	1 (“first year”) to 4 (“senior”)
African American	0 = no, 1 = yes
Asian Pacific Islander	0 = no, 1 = yes
American Indian/Alaskan Native	0 = no, 1 = yes
Hispanic	0 = no, 1 = yes
<i>Environment</i>	
Faculty-student interactions	13 (“never”) to 52 (“very often”)
Peer interactions	9 (“never”) to 36 (“very often”)
Active learning	21 (“never”) to 84 (“very often”)
Selectivity	1 (“non competitive”) to 6 (“most competitive”)
<i>Outcome</i>	
Social and personal development	5 (“very little”) to 20 (“very much”)

Table 3 from Strayhorn (2008) pg. 6

Environmental questions from the survey that rate agreement or relevance where respondents are asked to select a score, for example, ranging from 5 (“very little”) to 20 (“very much”), creates variables that are Ordinal. They are name labels that have a relevant order and can be rank ordered. These Ordinal variables include: Barron’s selectivity, Faculty – Student Interaction, Peer Interaction, and Active Learning. This group also includes Year in College, and Age, as well as the single Output variable, Personal/Social Gains—all of which are broken into rankable categories. Age and Year in College are broken into categories that are neither Interval nor Ratio. Input questions regarding race, marital status, and sex are Nominal variables as they are just name labels that have neither rank nor order. They include: Gender (Sex), Marital Status, American Indian/Alaskan Native, Asian Pacific Islander, Black, White, and Hispanic.

The extent to which Strayhorn explicitly discusses validity and reliability appears to be restricted to the following sentence, “The CSEQ [the survey measuring instrument] has been

shown to be consistently reliable and valid in college impact studies (Pascarella & Terenzini, 2005).” Regarding threats, actions were taken to deal with confounding influences and variable interactions. Clearly all the risks associated with the survey instrument come to play without knowing exactly how it was administered. We must rely on the single statement. In general, threats that apply are, researcher bias, experimenter expectancy, and unintended consequences.

Sampling

The unit of analysis are the individual students surveyed that are undergraduate students enrolled at 4-year degree granting institutions only. The author intends to generalize the findings to all undergraduate students enrolled at 4-year degree granting institutions and even goes so far as to imply that the result could apply to Federal policy making.

The sample for the present study consisted of 8,000 undergraduates who were randomly selected from the relative population of those who responded to the 2004-2005 administration of the CSEQ. The main characteristic of the sample is undergraduate students enrolled at 4-year degree granting institutions only. With a sample size of 8000, and given that the College Student Experiences Questionnaire is nationally administered and designed to measure the quality and quantity of student involvement in college activities and their use of college facilities, its appropriateness seems to be spot on and its external validity should be of the highest level.

Instrumentation and Data Collection

Data were drawn randomly from a population of 8000 students to create a sample using the 2004-2005 national administration of the College Student Experiences Questionnaire (CSEQ), consisting of 191 items designed to measure the quality and quantity of students’ involvement in college activities and their use of college facilities. These included activities such as campus events, hours spent studying, cultural event attendance, and other activities shown to

have contributed positively to learning and psychological development. (Astin, 1993; Kuh, Vesper, Connolly, & Pace, 1997; Pace, 1990).

It is important to note in a study regarding correlations, such as this one, and not cause-and-effect, internal validity is irrelevant. Conclusion validity, however, is still very relevant and the author has established it by showing that relationships exist that are significant.

Data Analysis

Data analysis was done in three stages. First, descriptive statistics were calculated to describe the analytic sample and to determine any existing patterns among data points. These included the mean and standard deviation for each of student engagement, faculty–student interactions, peer interactions, active learning, and perceived social and personal learning. Second, on the inferential statistics side, correlation analyses were conducted to estimate the magnitude and direction of statistical relationships amongst independent and dependent variables. Inferential hierarchical linear regression techniques, which are used to analyze variance in the outcome variables when the predictor variables are at varying hierarchical levels, were used with a nested design, and employed to isolate the “net effect” of engagement experiences on perceived personal and social learning gains, controlling for an array of potentially confounding background factors.

It appears that a series of statistical analysis methods, both descriptive and inferential, were used not only to generate findings, but also to isolate any cross-variable dependencies and confounding influences. These methods appear to be very appropriate for a correlational design.

Results

Results suggest that peer interactions, faculty-student interactions, and active learning experiences explain 24% of the variance in student development. The mean level of student

engagement with student–faculty interaction, peer interaction, and active learning indicated a fairly low to moderate level of student involvement in the discussed activities. However, the personal/social learning outcome variable was highly significant and positively associated with all of student–faculty interaction, peer interaction, and active learning—peer interaction being the strongest. The findings suggest significant predictors of perceived social/personal learning include: sex, year in college, race (i.e., Asian Pacific Islander and Black), selectivity, faculty interactions, peer interactions, and active learning (Strayhorn, 2008, p. 7).

The Effect Size is related to the Pearson product-moment correlation coefficient and is measured on a standard scale – it can only range between -1.0 and +1.0. As such, we can interpret the correlation coefficient discussed in this study as representing an effect size. It tells us the strength of the relationship between the two variables as shown in the article on table 4 (Strayhorn, 2008, p. 8). The author finds the most significant relationships to be moderately strong as show in the following table produced by Patrick Turner for Exercise 2 of this course:

Variable	r Correlation Coefficient	p-Value	r ²	Direction and Strength	Interpretation (See ****)
Sex:	0.13**	** p < 0.01	0.0169	Pos/weak	Significant. See ****
Marital Status:	-0.04**	** p < 0.01	0.0016	Neg/weak	Significant. See ****
Age:	0.02		0.0004		Not Significant
Year in College:	0.10**	** p < 0.01	0.01	Pos/weak	Significant. See ****
American Indian/Alaskan Native:	0.02		0.0004		Not Significant
Asian Pacific Islander:	0.01		0.0001		Not Significant
Black:	0.04**	** p < 0.01	0.0016	Pos/weak	Significant. See ****
White:	-0.04**	** p < 0.01	0.0016	Pos/weak	Significant. See ****
Hispanic:	0.0		0		Not Significant
Barron's selectivity:	0.05**	** p < 0.01	0.0025	Pos/Weak	Significant. See ****
Faculty-Student:	0.36**	** p < 0.01	0.1296	Pos/Mod	Significant. See ****
Peer Interaction:	0.46**	** p < 0.01	0.2116	Pos/Mod	Significant. See ****
Active Learning:	0.41**	** p < 0.01	0.1681	Pos/Mod	Significant. See ****

**** Interpretation: From the Correlation Matrix (Trochim; Donnelly; Arora, Kanika., 2016, p. 299) provided, we evaluate the significance and strength associated with each variable to personal/social gains. From the chart above, of the most significant relationships (i.e., $p < 0.01$), the strongest influences are Faculty-Student relationship (~13%), Peer Interaction (21%), and Active Learning (16%); NOT Sex, Marital Status, race, etc. These three variables being the farthest from zero would be the most statistically significant and the most practically significant; away from what might be considered noise. Nonetheless, all variables, including these three, are less than a coin flip as all r^2 values are less than 0.50—so are they practically significant? Peer Interaction (at an r^2 or Coefficient of Determination of 0.21 or 21%) had the most influence. So, as a researcher, if one were to be interested in studying any of the variables further, the most interesting would be studying Peer Interaction, followed closely by Active Learning interaction, and then Faculty-Student interaction.

Given that no hypotheses were explicitly stated, one cannot explicitly say they were accepted or rejected. However, in the absence of explicit hypotheses, significant relationships were found between three variables (student–faculty interaction, peer interaction, and active learning) and personal/social gains by students in the study.

Discussion

As previously stated, the mean level of student engagement with student–faculty interaction, peer interaction, and active learning indicated a fairly low to moderate level of involvement by students. However, the personal/social learning outcome variable was highly significant and positively associated with all of student–faculty interaction, peer interaction, and active learning—peer interaction being the strongest. The findings suggest significant predictors of perceived social/personal learning include: sex, year in college, race (i.e., Asian Pacific

Islander and Black), selectivity, faculty interactions, peer interactions, and active learning. The author claims an important contribution of this study is the realization that embedding the input and environment variables of this study in the theoretical framework for future studies would have a positive impact on informing a broader range of learning outcomes.

The author appears to do a rigorous job on analysis and selected a well-established and reliable data source. The lack of hypotheses and other methodologic missteps do not seem to detract from the findings or the external validity. Regarding limitations, the author indicated that some environment factors were related to perceived student personal/social learning. Women reported higher levels of learning than men, upperclassman reported higher levels of personal/social learning than freshman, and all other things being equal, Asian and African-American students tended to report higher levels of growth than their White counterparts. These factors may not be limitations, but simply interesting culturally and socially, and suggested areas of further study.

The author indicates the need for future research in the form of longitudinal studies to test whether the relationship findings of this study persist when tracking the same group of students through their college lifecycle, adding cross-sectional analyses with statistical controls to present an appropriate alternative. In addition, supplemental qualitative studies, using in-depth interviews may shed light on why and how students grow and change through their involvement in co-curricular activities. Finally, the author discusses that the findings of this study hold promise in terms of future practice, policy, and research.

This study furthered our understanding of the relationship of traditionally defined non-academic activities, such as co-curricular activities, peer interactions, and active learning to improvement in personal/social learning outcomes. In other words, how higher education can

create a more well-rounded and fully functional contributor to society. As previously stated, Strayhorn approaches the need to teach the whole student without getting embroiled in the often politically charged topics of diversity, inclusion, equity, and justice. Notions of discrimination, and socioeconomic disadvantage are left behind to focus purely on the need for increased inclusion and assessment of personal and social activities in higher education learning outcomes. The point to be learned is that to create sustainable change in addressing the whole student, an institution has to get close to the entire student experience. We must understand more than numbers, and more than language. We must understand the impact on the thoughts and self-perceptions our learning environments are foisting onto our students. Sustainable institutional transformation creates understanding and practices that pulls everyone in and makes them an important and integral part of the full holistic higher education learning experience (Stewart, D., 2016, np.).

References

- Altbach, P. G., Berdahl, R. O., & Gumport, P. J. (1999). *American higher education in the twenty-first century: Social, political, and economic challenges*. Baltimore, MD: Johns Hopkins University Press.
- Astin, A. W. (1991). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. New York: McMillan.
- Astin, A. W. (1993). *What matters in college: Four critical years revisited*. San Francisco: Jossey-Bass.
- Bloom, B. S. (1956). *Taxonomy of educational objectives, Handbook 1: The cognitive domain*. New York: David McKay Co, Inc.
- Gonyea, R. M., Kish, K. A., Kuh, G. D., Muthiah, R. N., & Thomas, A. D. (2003). *College student experiences questionnaire: Norms for the fourth edition*. Bloomington, IN: Indiana University Center for Postsecondary Research, Policy, and Planning.
- Illosky, B., & Dean, S., (2017). *Introductory statistics*. OpenStax, Rice University. ISBN-13: 978-1938168208
- Kuh, G. D., Vesper, N., Connolly, M. R., & Pace, C. R. (1997). *College student experiences questionnaire: Revised norms for the third edition*. Bloomington: Indiana University Center for Postsecondary Research and Planning.
- Miller, T. K. (Ed.). (2003). *The book of professional standards for higher education*. Washington, DC: Council for the Advancement of Standards in Higher Education.
- Pace, C. R. (1990). *College student experiences questionnaire* (3rd ed.). Los Angeles: University of California, Center for the Study of Evaluation, Graduate School of Education.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade*

of research (Vol. 2). San Francisco: Jossey-Bass.

Stewart, D., (2016). *Minding the gap; The distance between compositional diversity and institutional transformation*. I Education at Illinois. Accessed from <https://www.youtube.com/watch?v=2aZYd3KmrkE>

Strayhorn, T. L. (2008), How college students' engagement affects personal and social learning outcomes, *Journal of College and Character*, 10:2, DOI: 10.2202/1940-1639.1071. Retrieved from <https://www.tandfonline.com/doi/pdf/10.2202/1940-1639.1071?needAccess=true>.

Strayhorn, T. L. (2006a). College in the information age: Gains associated with students' use of technology. *Journal of Interactive Online Learning*, 5(2), 143-155.

Strayhorn, T. L. (2006b). *Frameworks for assessing learning and development outcomes*. Washington, DC: Council for the Advancement of Standards in Higher Education (CAS).

Trochim, W.M., Donnelly, J.P. & Arora, K. (2016) *Research methods: The essential knowledge base*. Boston, MA: Cengage. ISBN: 978-1-133-95477-4