A Study of the Self-Regulated Learning Inventory on a HBCU Student Population in Allied Health

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ABSTRACT

Increased numbers of minorities in the allied health disciplines are sought for a number of reasons. One approach to increasing minority graduates in allied health sciences is to ensure that minority applicants have the learning behaviors necessary to succeed in the academic setting. In this study, we sought to determine if self-regulated learning, assessed via a self-report inventory, was significantly related to Grade Point Average (GPA) in undergraduate students enrolled in a historically black college or university (HBCU). The Self Regulated Learning Inventory V. 5 (SRLI V.5) was distributed to undergraduate HBCU students enrolled in allied health majors. The inventory was completed by 134 undergraduate students who provided the data for the study. Results indicated that the SRLI was not significantly correlated with academic success (based on student GPA). Further investigation revealed that different methods used in calculating GPA and the inclusion of transfer students likely decreased the statistical power of the association between academic performance and self-regulation.

INTRODUCTION

The number of minorities in the United States is growing. Currently, the majority of people joining the workforce is estimated to be minorities such as Blacks, Hispanics, Asians, and Native Americans.[1] Consequently, attention to the effect of minorities on the workforce has increased.

Part of the attention given to minorities has been in the area of health disparities. Lack of access is cited as a major cause of health disparities.[2,3] When negative factors are removed, it has been shown that African-Americans' behaviors are similar to the majority population.[4] Barriers to access may be financial and cultural. However, the two barriers are interrelated. Having the financial resources does not guarantee that minorities will access health care. Minorities do not access health care services even if they have insurance or other financial resources.[3] Cultural barriers should also be addressed.

Minority representation within health care providers is one method of addressing cultural barriers.[5,6] A relationship exists between a diverse health care provider pool and access to health care services.[7,8] Due to the distrust in the health care system, African-American women were found to respond more favorably to health care education from other African-Americans.[9,10] Compared to Caucasians, African-Americans were found to seek out preventive health care measures in traditional settings (e.g. hospitals and clinics) rather than in nontraditional settings (e.g. recreation centers, pharmacies, and shopping malls).[11] Consequently, it is possible that the presence of culturally compatible health care providers will have a greater impact on minority groups.

National goals have been set in an effort to decrease numerous health disparities.[12] One of these goals is to increase the number of health care providers from minority groups. However, Black and Hispanic people constitute a disproportionately smaller portion of students enrolled in 4-year colleges and universities. Also, while 25% of the U.S. population is Black or Hispanic, less than 10% of students enrolled in allied health professions are from Black or Hispanic origin.[13]

Several approaches could be used to increase the numbers of minorities. One approach might be to aggressively seek out minorities to apply to a school's program. Efforts by medical schools that develop a "pipeline" of minority applicants have been described.[7] This approach was used with much success by allied health programs.[14] However, federal funding for these types of outreach programs has been eliminated in recent years.[15]

Emphasis on the admission process could be another approach. Creating a "race/ethnic neutral admission process" for a dental hygiene program has been described. In addition to GPA, alternative criteria designed to assess the candidate's personal character have been used in the admission process. It was felt that alternative criteria more accurately assessed applicant's qualifications and helped increase the number of minorities in the program.[16]

That there would be a relationship between degree of academic success and persistence in the pursuit of a degree seems, at the least, plausible.[17-19] Certainly that is where the evidence points. As DeBerard et al note, "There is a consistent relationship between college academic achievement and retention, with higher performing students persisting in their studies to a greater degree than their lower achieving cohorts."[20]

Lastly, predictive measures to determine students at risk for having academic difficulty have been examined. Once students have been identified as high risk for academic difficulty, interventions to help keep them in school could be developed.[21] In one study, various components of the GRE score were used. Minorities tend to have lower standardized test scores than the majority population. This study was particularly germane because the focus was on a graduate physical therapy program. This approach could, therefore, be particularly useful for those interested in retaining minorities in other health care related education programs.[22]

Self-Regulated Learning Inventory
Educational research has concentrated on three areas of predicting student success. One area has involved correlating collegiate success based on a student's inherent aptitude or ability. Another area, cultural and/or environmental factors, has been analyzed to determine students' future success. A third area of study deals with the manner in which students approach tasks. This last set of factors is in the domain of "self-regulated learning." Self-regulated learners exercise a greater degree of control in dealing with classroom-related learning tasks. A student may not have control over their inherent abilities or over the environmental factors affecting their performance, but the conscious control that a student exercises over accomplishing academic tasks may be the most important feature, as self-regulated learning deals with academic aspects over which the student has control.[23]

The Self-Regulated Learning Inventory Version 5 (SRLI V.5) was developed to help understand the concept of self-regulated learning and to provide a convenient tool for identifying behaviors students need for academic success.[9] The 65-question inventory contains three subscales – cognitive processing/ knowledge, executive processing (or metacognition), and motivation.

The inventory has been primarily tested on students in a midwestern university setting.[24,25] In that setting, the SRLI V.5 was found to be a significant predictor of grade point average (GPA) independent of scores on the ACT. However, the racial composition of the university where the SRLI V.5 was administered is predominantly white. Whether the inventory is stable across other student populations and at other universities has not been determined.

PURPOSE
The authors examined whether certain student behaviors would increase the likelihood of academic success. The Self-Regulated Learning Inventory V. 5 assesses student behaviors and settings that correlate with academic success. The purpose of this study was to determine whether the SRLI V.5 can be used as a tool for identifying HBCU student characteristics that are needed for academic success (as demonstrated by a high GPA). The specific goal was whether the SRLI V.5 can predict the HBCU student's cumulative GPA.

SUBJECTS
The sample consisted of 134 undergraduate students enrolled in a historically black college or university (HBCU). Students indicated their race and culture in the demographic section of the survey. The sample consisted of 7 white students, 117 black

(non-hispanic) students, 4 hispanic students, 1 asian student, 3 students who indicated "Other", and 2 students who did not respond to the question about race/culture. The sample was comprised of 30 males and 104 females. All students were enrolled in majors leading to careers in allied health professions. Specifically, the undergraduate students were enrolled in three majors: Health Care Management, Health Information Management and Health Science (e.g. Pre-Physical Therapy and pre-Occupational Therapy).

METHODS

Undergraduate students were surveyed during class time. Professors volunteered class time to allow administration of the survey. These classes represented all academic levels - freshmen through seniors - and all majors within the range of allied health majors. In some classes, students who were attending on the date that the survey was administered received additional credit in the participation grade component. Students received credit whether they completely filled out the survey or not. Students did not have prior knowledge that the survey would be administered during the class.

Students' participation in the survey was voluntary. After signing the consent form, the students completed the SRLI V.5. The time to complete the survey ranged from 15 to 25 minutes. Students were asked to write their names on the survey in order to trace their GPA to survey results. Course instructors were given the names of students who were in attendance on the dates the students were asked to participate in the SRLI. Students were told that instructors would only receive a list of students present and would not be given individual survey results; only the researchers would know an individual student's answers to the survey.

GPAs were calculated from student transcripts based on courses they had taken at the HBCU. Courses taken at other universities and colleges were not used.

ANALYSIS AND RESULTS

Reliability was calculated using Cronbach's alpha. Cronbach's alpha measures how well a set of items (or variables) measure a single unidimensional construct. Reliabilities ranged from 0.82 to 0.83 for the three subscales and to 0.93 for the inventory as a whole. The validity of the instrument is based primarily on its relationship with the criterion measure of student GPA. Pearson's Correlations were calculated between the various subscales of the inventory. The correlation results shown in Table 1 indicate that the SRLI V. 5 is not significantly correlated with GPA in this student population. However, the relationship between GPA and score on the motivational subscale did approach significance ($p < 0.057$).

Table 1: SRLI V.5 Correlations with GPA

		Cognitive Processing	Executive Processing	Motivation	Total SRLS Effect
Undergraduate GPA	Pearson Correlation	-.040	-.074	-.096	-.067
	Sig. (2-tailed)	.669	.423	.297	.477
	N	118	120	119	113
Cognitive Processing	Pearson Correlation		.786(**)	.638(**)	.909(**)
	Sig. (2-tailed)		.000	.000	.000
	N		125	125	122
Executive Processing	Pearson Correlation			.714(**)	.929(**)
	Sig. (2-tailed)			.000	.000
	N			126	122
Motivation	Pearson Correlation				.850(**)
	Sig. (2-tailed)				.000
	N				122

** Correlation is less than .01
* Correlation is less than .05.

DISCUSSION

Although the SRLI V.5 has been shown to be a reliable tool in certain populations, it did not significantly predict the GPA of students enrolled in a HBCU. One possible reason why the GPA did not correlate with the SRLI V.5 is the differences in the grading policies between the Midwestern reference institution and the HBCU. In the Midwestern university, all grades are used in the calculation of the GPA. In the HBCU, a course may be retaken and, if higher, the more recent grade will replace the lower score (e.g., forgiveness policy).

Another possible reason was that the HBCU sample included transfer students from community colleges. Students may receive credit for taking courses at other institutions, but these grades are not used in the HBCU GPA calculation. Grades from community colleges and other institutions are inconsistently recorded in the students' transcripts. Some students are given credit for courses taken at other institutions without listing the grade received. Also, other institutions may have different standards for grades. For these reasons, students' GPAs were computed based only on the courses taken at the HBCU. In the previous samples used to develop the SRLI V.5, no transfer students were included in the sample.

Another possible reason is that the SRLI V.5 was developed to predict academic ability. However, success in programs such as physical and occupational therapy reflect a combination of academic and clinical ability; GPA is not an accurate predictor of such success, and thus SRLI V.5 may not be either.

LIMITATIONS

The student sample came from one program at one HBCU. The sample should be expanded to other HBCU allied health programs. Also, the inventory should be tested at other non-HBCU colleges or universities to determine if the inventory could be used in different settings in the same geographical area. As mentioned before, the problem may not lay in the ethnicity of the students but rather in applying tests used to predict academic success to predicting success in a professional program, in which both academic and clinical courses determine success.

With any survey, one hopes that the answers reflect actual behavior patterns. Even though the students were told that their answers would be confidential, the fact that the surveys were not anonymous may have altered their responses. Inclusion of a measure of social desirability may be needed as a check against this possibility. Also, those students who opted not to fill out the survey may exhibit behaviors different from those students who did respond which could skew the results. Another limitation may be that in some cases students received extra grade points as motivation to participate. This was not offered to all students and can skew the results (especially when the test aims at reflection on motivation).

No differentiation was made in the analysis between full-time and part-time students. Research previous to this study primarily surveyed students who were attending school on a full-time basis. HBCUs tend to have more part-time students than non-HBCU settings. The results could be skewed due to a higher number of students who attend school on a part-time basis. Future research should partition the results of these students to determine the effect of part-time versus full-time students.

In a separate questionnaire, the students in the sample were asked to report the number of hours that they worked off-campus. Sixty percent of the sample reported that they worked at a job at least 20 hours a week. Factors about allocation of time to studies versus work should be explored in future studies.

The GPA used in this study was based on courses taken at the HBCU. Courses taken at other schools and universities were omitted. Also, the GPA was based on a "forgiveness policy" where previous bad grades could be replaced by retaking the course. Future studies could try to recalculate GPA using all grades received for all courses.

GPA was used as a measure of undergraduate student success. Even though the survey was found not to be significantly correlated with GPA, results from the SRLI V.5 may be correlated with other measures of student success. Future studies should use other measures of long-term success other than GPA.

CONCLUSIONS

This research provided an example of how survey tools should be used in different settings with caution. Administrative and grading policies between institutions may differ, confounding the results. Also, student characteristics such as race, gender, full-time status, and number of hours employed outside of school may lead to different results. Finally, the fact that the motivation subscale on the SRLI V.5 and student GPA approached statistical significance bears further investigation.

Increased attention to minorities entering the allied health sciences professions is likely to lead more minority candidates to complete their degree programs. Since academic success is a factor in retaining and graduating minority allied health science students, it seems reasonable to conclude that the ability to predict academic performance would be valuable in determining both who is likely to persist in school and which students are most likely to benefit from interventions designed to facilitate academic success.

REFERENCES

1. Davidhizar R, Dowd S, Giger JN. (1999). Managing diversity in the Health Care Workplace. *The Health Care Supervisor*: 17(3), 51-62.
2. Exworthy M, Washington AE. (2006). Organizational Strategies to Tackle Health-Care Disparities in the USA. *Health Services Management Research*: 19(1), 44-51.
3. Kennedy EM. (2005). The Role of the Federal Government in Eliminating Health Disparities. *Health Affairs*: 24(2), 452-458.
4. Hewins-Maroney B, Schumaker A, Williams E. (2005). Health Seeking Behaviors of African Americans: Implications for Health Administration. *Journal of Health and Human Services Administration*: 28(1/2), 68-79.
5. Blackwell D. Cultural Competence. *Medical Marketing and Media*: 40(4), 52-55.
6. Frist WH. (2005). Overcoming Disparities in U.S. Health Care. *Health Affairs*: 24(2), 445-451.
7. Butts G. (2001). Mount Sinai School of Medicine Responds to the Call for Diversity in Medicine. *Diversity Factor*: 9(3), 27-30.
8. King CJ. (2005). Conquering Health Disparities. *Healthcare Executive*: 20(6), 34-36.
9. Sobel ER. (2003/2004). Reporting a Health Quality Improvement Project for Reducing the Disparity in Screening Mammograms among Senior African-American Women. *Journal of Health and Human Services Administration*: 26(3/4), 350-362.
10. Healthy People 2010. (2006). Available at: http://www.healthypeople.gov. Accessed October 4, 2006.
11. Abel RL, McGaha P, Young R, Bing M, et. al. (2003). Understanding Differences in Influenza Immunization Rates: A Survey of African-American and Caucasian Medicare Beneficiaries in Texas. *Journal of Health and Human Services Administration*: 26(1/2), 174-183.
12. Abel RL, McGaha P, Young R, Bing M, et. al. (2003). Understanding Differences in Influenza Immunization Rates: A Survey of African-American and Caucasian Medicare Beneficiaries in Texas. *Journal of Health and Human Services Administration*: 26(1/2), 174-183.
13. Baldwin A, Woods K, Simmons MC. (2006). Diversity of the Allied Health Workforce: The Unmet Challenge. *Journal of Allied Health*: 35(2), 116-120.
14. Moncrease A. (2001). HRSA Addresses the Gap by Recruiting and Graduating Professionals from Diverse Backgrounds. *Diversity Factor*: 9(3), 12-15.
15. Evans M. (2006). Health Education Cuts Sting. *Modern Healthcare*: 36(8), 10.
16. Helm DM, Grabarek ES, Reveal M. (2003). Increasing Dental Hygiene Student Diversity. *Journal of Allied Health*: 32(4), 279-285.
17. Kirby D, Sharpe D. (2001). Student attrition from Newfoundland and Labrador's public college. *Alberta Journal of Educational Research*. 47(4), 353-368.
18. McGrath M, Braunstein A. (1997). The prediction of freshman attrition: An examination of the importance of certain demongraphic, academic, financial, and social factors. *College Student Journal*. 31(3), 396-408.
19. Ryland EB, Riordan RJ, Brack G. (1994). Selected characteristics of high-risk students and their enrollment persistence. *Journal of College Student Development*. 35(1), 54-58.
20. DeBerard MS, Spielman GI, Julka DL. (2004). Predictors of academic achievement and retention among college freshmen: a longitudinal study. *College Student Journal*. 34.
21. Schwartz RA, Washington CM. (2002). Predicting Academic Performance and Retention Among African American Freshmen Men. *NASPA Journal*: 39(4), 354-370.
22. Jewell D, Riddle DL. (2005). A Method for Predicting a Student's Risk for Academic Probation in a Professional Program in Allied Health. *Journal of Allied Health*: 34(1), 17-23.
23. Zimmerman BJ. (2006). Theories of self-regulated learning and academic achievement: An overview and analysis. In Zimmerman BJ and Schunk DH, Eds. *Self-regulated learning academic achievement: Theoretical perspectives*. Mahwah, NJ: Lawrence Erlbaum Associates.
24. Lindner RW, Harris BR. (1992). Self-regulated learning: its assessment and instructional implications. *Educational Research Quarterly*: 16(2), 29-37.
25. Lindner RW, Harris BR. (1998). Self-regulated learning in Education majors. *Journal of General Education*: 47(1), 63-78.