Review of Literature

Chickering and Gamson’s Seven Principles of Good Practice in Undergraduate Education (1987) charge educators to encourage cooperation among students, emphasize time on task, and respect diverse ways of learning. Peer tutoring has been identified as one way to infuse these principles in undergraduate education, providing a rationale for the development of ACE tutoring services.

Lippsky's (2013) training guide for peer tutors identifies assisting with time management, developing effective learning strategies, and facilitating student learning in a group setting as the role of peer tutors in order to increase student academic performance. This training guide has been used to guide the work of ACE tutors, under the assumption that this focus will lead to increased academic achievement of students using ACE tutoring services.

There is an increasingly urgent call in higher education to provide evidence that Student Affairs activities contribute to student learning in order to answer demands for accountability. However, research in this area is limited or is not of the highest quality, and additional research is needed to address issues of achievement gain.

Purpose

In order to inform programming efforts and justify the allocation of additional resources to ACE, this research sought to determine the extent to which ACE tutoring visits impact undergraduate fall semester grade point averages (GPAs) upon admitting to required participation in ACE tutoring (i.e., athlete status), high school GPA, and ACT score.

Data for this study were acquired from a database tracking undergraduate student enrollment for fall 2011 through spring 2015, along with student grade point average (GPA) for each semester, credits earned each semester, high school GPA, ACT score, ACE tutoring and quiet study visits, athlete status, and rates of use for other NDsu resources. The database was made available from the NDsu Division of Student Affairs. Students were assigned a random identifier for identity protection purposes.

Data were analyzed using multiple linear regression.

To what extent does the number of tutoring visits to the ACE Tutoring Center impact undergraduate fall semester GPA?

Method

Data Source

Data for this study were acquired from a database tracking undergraduate student enrollment for fall 2011 through spring 2015, along with student grade point average (GPA) for each semester, credits earned each semester, high school GPA, ACT score, ACE tutoring and quiet study visits, athlete status, and rates of use for other NDsu resources. The database was made available from the NDsu Division of Student Affairs. Students were assigned a random identifier for identity protection purposes.

Procedures

Participants included all degree-seeking, undergraduate students with high school GPA and ACT scores who were enrolled at NDsu in fall 2011 (N = 3,831).

Variables

Based on the research question, need to control for athlete status due to required ACE participation for athletes, and known predictors of college GPA, the following variables were selected for this model:

- Y (Criterion Variable): Fall Semester GPA, measured on a scale of 0.00 to 4.00
- X1 (Predictor Variable): High School GPA, measured on a scale of 0.00 to 4.00
- X2 (Predictor Variable): ACT Score, measured on a scale of 1 to 36 in 1 point increments
- X3 (Predictor Variable): Student-Athlete Status, categorical variable dummy coded as 0 for non-athletes and 1 for athletes
- X4 (Predictor Variable): Number of ACE Tutoring Visits, measured on a scale beginning at 0 in 1 visit increments (no maximum number of visits)

Contact Information

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References


Academic Collegiate Enhancement:
The impact of group-facilitated peer tutoring on undergraduate student academic achievement.
Erika Beseler Thompson

Assumptions

- Based on an inspection of various diagnostic graphs, the assumptions of linearity, homogeneity of variances, and normally all appear tenable. Independence is assumed based on the data source.
- The largest value for Cook’s D in these data was .036, indicating it is safe to assume no undue influence by any observations in this sample.
- Collinearity was not an issue as the largest VIP for any of the predictors was 1.341, well below even the most stringent guidelines.

Summary of Statistical Analysis

- In this sample, the model comprised of the four predictors could account for 18.8% of the total variance observed in student fall semester GPA score. There was no shrinkage from the unadjusted R² to the adjusted R². This was shown to be significant at the .001 level (F[4,378] = 485.346, p < .001).
- Each of the four predictors made significant contributions to the prediction of fall semester GPA (see Table 1). On average:
  - A 1-point increase in fall semester GPA can be expected with an increase of one point in high school GPA;
  - A 1-point increase in fall semester GPA can be expected with an increase of one point in ACT score;
  - An increase of .23 points in fall semester GPA can be expected for participation as a student-athlete; and
  - An increase of .01 points in fall semester GPA can be expected with an increase of one ACE tutoring visit.
- Note that the intercept (a = .356) was not interpreted as it had no meaning in this context; specifically, a negative value for semester GPA has no meaning.

Table

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Regression Weight</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School GPA</td>
<td>.827</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>ACT Score</td>
<td>.015</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Student-Athlete Status</td>
<td>.233</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Number of ACE Tutoring Visits</td>
<td>.009</td>
<td>0.013</td>
</tr>
</tbody>
</table>

Discussion

- The results of this analysis clearly demonstrate the extent to which the number of tutoring visits to the ACE tutoring center predict fall semester GPA. While a .01 increase in semester GPA per tutoring visit may initially seem small, the compound effect of multiple visits may have a dramatic impact on a student’s final semester GPA. This information shows ACE tutoring is effective in increasing student academic achievement, which provides additional justification for continued allocation of resources to tutoring services.
- Study results also helped determine the relative impact of individual tutoring visits and will allow faculty and staff to make recommendations to student users regarding the optimal frequency of visits. Additionally, faculty and staff may consider requiring or strongly recommending that students who are struggling academically complete a certain number of tutoring visits each semester.

Limitations & Recommendations for Future Research

- This data was gathered from one, mid-size institution in the state Midwest with a largely traditional-age, white undergraduate student population. Additionally, the tutoring services offered at this institution may not align with tutoring services offered elsewhere. Therefore, the ability to generalize these results to other institutions is limited. Replication of this study in other contexts is highly recommended for generalization purposes.
- Data from only one semester were examined in this study. To verify findings, additional research is needed to examine the impact of ACE tutoring in subsequent semesters. Opportunities should be explored to include students who do not have valid high school GPA or ACT scores. This includes many post-traditional, transfer, and international students, and study results may vary with inclusion of these important populations.