Using Course Analytics for Measuring Student Engagement and Outcomes in Online MSN Students

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Disclosure*

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Objectives:
1. Describe one purpose of using course analytics in online nursing education.
2. Identify one outcome of examining engagement through course analytics in online nursing education.

*No sponsorship or commercial support was provided
Background

Course Analytics

1. May provide information on student engagement;
2. Improve the quality of online courses by making changes in learning activities, assignments and the learning environment
Background (con’t)

1. To examine student activity data to make predictions about learning outcomes;
2. Institute appropriate interventions to improve outcomes for the future

Course Analytics
Purpose

To analyze the relationship between engagement

1. **Course Access** - number of times students accessed the course;
2. **Minutes** spent in the course;
3. **Interactions** with the instructor/students;
4. **Submissions** in the course)

with

**course grade**
Conceptual Framework
adapted: Astin’s Theory of Involvement, 1975; 1985

Input
Entry GPA
Major Selected (Specialty)

Resources
Course Access
Interactions
Submissions
Minutes

Output
Course Grade
Method

Retrospective, Correlational Design

• To analyze the relationship between admission GPA with course analytics;
• To analyze associations with age, gender, major, and geography
Sample (n=360)

Abstracted data were collected using:

Blackboard Learn LMS

• MSN students enrolled at a large, private, urban university

• Online MSN program

• Northeast part of the United States
Data Analysis

1. Correlation coefficients,
2. Analysis of variance (ANOVA),
3. Multiple linear regression (backwards elimination method)
Data Analysis (con’t)

Pearson product moment correlation coefficients and Spearman correlation coefficients— to assess relationships between the input variables (GPA, major, access, minutes, interactions, submissions) and the output variable (grade).
1. ANOVA - assess impact of categorical predictor variables on grade,
2. Backwards elimination within a multiple linear regression analysis produce a model only included variables that significantly predicted grade (alpha = .05 level),
3. Kruskal-Wallis test was used to confirm the results of the ANOVA
Results

Factors Most Impacted Grade

1) Entry level GPA,
2) Age,
3) Interactions with instructor or students,
4) Submissions in the course.
• Each additional increase in submissions, resulted in an increase in course grade by 0.33% (p<0.0001).

• Each one-point increase in entry level GPA was associated with an increase in course grade by 1.93% (p = 0.0289).

• Each one-year increase in age, demonstrated a course grade decrease of 0.17% (p<0.0001).
Conclusion

Interactions and submissions had highest impact on course grade.

Consistent with Astin’s model.
Further Study

- Larger samples to determine if Astin’s model is verified in that entry GPA does determine student grades;
- Investigate finding that older students tended to have lower grades.
Further study (con’t)

Replication of the study to determine whether classes which vary in numbers or types of assignments still demonstrate an association with interactions and submissions
References

Available upon request.

Thank You!