

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)



Course Analytics

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



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



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)**.

Data Analysis (con't)

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



The diagram consists of two overlapping circles. The left circle is dark blue and contains the text 'Factors Most Impacted Grade'. The right circle is a lighter shade of blue and contains a numbered list of four factors. The intersection of the two circles is a darker blue.

**Factors Most
Impacted
Grade**

- 1) Entry level GPA,
- 2) Age,
- 3) Interactions with instructor or students,
- 4) Submissions in the course.





Results (con't)

- 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!

