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The Impact of Exemplars on the Academic Outcomes for Master's in Education Online Graduate Students

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Abstract

Annotated exemplars have recently been scrutinized as an academic support strategy in Higher Education Institutions (HEIs). The premise is that exemplars may front-load the system regarding student academic performance by providing meaningful feedback and task-specific comments before formal student submissions. More specifically, the Scholarship of Teaching and Learning (SoTL) research regarding exemplar use has called for an investigation into the impact of these exemplars on the academic performance of online graduate students. The purpose of this quantitative, quasi-experimental study was to determine if, and to what extent, the integration of annotated exemplars impacted the academic outcomes of Master's in Education online graduate students. Academic outcomes were measured by assessment grades and overall course grades. The study employed a quantitative, quasi-experimental methodology, using traditional pre-/post- techniques regarding this exemplar implementation with a convenience sample. The experimental group had a sample size of $n = 17$, while the control group ranged from $n = 25$ to $n = 27$. The objective stated explicitly is to investigate if and to what extent the use of annotated exemplars impacts overarching student outcomes for graduate students at a university in the southwestern United States. The results showed no statistically significant difference between the control and experimental groups for assignment grades, leading to the retention of the null hypothesis. However, there was a statistically significant difference between the control group and the experimental group for overall course grades, resulting in a rejection of the null hypothesis. Future research could explore brick-and-mortar settings, larger sample sizes, other student populations, or a qualitative examination of student perceptions regarding exemplars.

Keywords: Student achievement, exemplars, higher education, online learning, graduate students

1. Introduction

Recently there has been a growing interest in the uses and impacts of exemplars in the higher education context (To et al., 2022; Chong, 2021). Chong (2021) noted the dearth of research in higher education regarding exemplar usage and called for further investigation, a sentiment

echoed by To et al. (2022), who explicitly recommended exploring the impact of exemplars while controlling for other variables. The purpose of this quantitative, quasi-experimental study was to investigate if, and to what extent, the integration of annotated exemplars impacted the academic outcomes of Master's in Education online graduate students. Through this purposeful lens of the study, the dearth of research in higher education and the impact of exemplars as a solo variable was investigated.

2. Literature Review

A review of the literature was conducted using several online databases, including, but not limited to, Education Research Complete, ERIC, Google Scholar, Lope Search, and ProQuest Central. The interest in exemplar use in academia has stimulated research efforts and thus provided some prevalent themes in the literature, including exemplars as a feedback strategy (Bacchus et al., 2020; Carter et al., 2019; Carter et al., 2018; Chong, 2019; To et al., 2022; Wu, 2019), exemplars as a means to develop self-regulation, self-efficacy, and/or evaluative judgment (Chong, 2019; Chong, 2021; Dixon et al., 2020; Grainger et al., 2018; Hawe et al., 2021a; Hawe et al., 2021b; Ho, 2015; Morgan, 2021; To et al., 2022; Wu, 2019), and the impacts of exemplars on academic performance (Bacchus et al., 2020; Carter et al., 2018; Carter et al., 2019; Lipnevich et al., 2023; To et al., 2022). The study conducted herein falls into this third theme regarding the impacts of exemplars on academic performance. An investigation was conducted to examine both assignment grades and overall course grades.

One of the most consistent themes in the existing literature was the use of exemplars as feedback in conjunction with or to support another tool such as a rubric (Bacchus et al., 2020; Hawe et al., 2021a; Lipnevich et al., 2023). Another common theme was the use of exemplars as feedback to clarify task requirements and to enable the student to recognize quality work (Hawe et al., 2021b). Lastly, other studies investigated the use of exemplars as front-loaded feedback (Ho, 2015; Wu, 2019).

Another trend that emerged from the literature was the use of an exemplar to develop specific traits in the students. The first trait under investigation was the students' self-regulation (Grainger et al., 2018). A second characteristic of the student that was examined, in light of exemplars, was self-efficacy (Dixon et al., 2020). Finally, the evaluative judgment of the student came under scrutiny as it pertained to the quality of a text and the student's understanding of the assessment standards (Chong, 2019; Chong, 2021; Wu, 2019).

The purpose that guided this study varied from the existing literature as it pertains to the impacts of exemplars on academic performance in that, exemplars as a sole variable in a Master's in Education online graduate setting have not been fully investigated. The studies that did look at exemplars and academic performance often had multiple variables like an exemplar and a rubric (Bacchus et al., 2020; Lipnevich et al., 2023) or were in completely different disciplines outside the United States (Carter et al., 2019). Thus, the definition of the problem space regarding, if and to what extent, the integration of annotated exemplars impacts the academic outcomes of Master's in Education online graduate students, specifically assignment grades and overall course grades within the United States.

3. Methods

The purpose of this quantitative, quasi-experimental study was to determine if, and to what extent, the integration of annotated exemplars impacted the academic outcomes of Master's in Education online graduate students. The data was pulled from historical grade information for the course taught by the researcher both before and after the implementation of the exemplars

to the standard course material. The Master's in Education online graduate students were separated into pre/post-exemplar implementation groupings. The control group was comprised of cohort data for courses with start dates before June 28, 2023 (n = 17). The experimental group was comprised of cohort data for courses with a start date on or after June 29, 2023 (n = 25) to (n = 27) depending on the results of the data cleaning and screening for each participant related to missing assignments, outliers, or oddities in the data. Examples of this data cleaning might include students who have scores for Assignment 1, Assignment 2, Assignment 5, and the overall course grade but are missing values for the Assignment 6 score. As such, these outliers were removed before data analysis leading to the n = range for each different data set. For this study, data cleaning included checking for missing scores, checking for outliers, ensuring independent scoring, and double-checking that group labels were consistent and correct throughout (Control/Experimental).

The independent variable for the study was the annotated exemplar integration, while the dependent variable was the academic outcomes. Operationally defined, the academic outcomes for this study were specific assignment grades (Assignment 1, Assignment 2, Assignment 5, and Assignment 6) and overall course grades. The research questions that guided the study were:

RQ1: Is there a statistically significant difference in assignment grades of Master's in Education students when integrating exemplars?

H_{01}: There is not a statistically significant difference in assignment grades of Master's in Education students when integrating exemplars.

H_{A1}: There is a statistically significant difference in assignment grades of Master's in Education students when integrating exemplars.

RQ2: Is there a statistically significant difference in the overall course grades of Master's in Education students when integrating exemplars?

H_{01}: There is not a statistically significant difference in the overall course grades of Master's in Education students when integrating exemplars.

H_{A1}: There is a statistically significant difference in the overall course grades of Master's in Education students when integrating exemplars.

Lastly, a nonprobability or convenience sampling technique was utilized for the research using historical data which was followed by data analysis using the IBM SPSS computer program utilizing a Mann-Whitney U test as the data was not evenly distributed upon initial review and the sample sizes were small, yet different for the control and experimental groups. Considering these limitations, other statistical tests (such as a t-test) were inappropriate for the study.

4. Results

Historical data were used for two separate groups of students for online, 6-week sections of Master of Arts in Curriculum and Instruction education courses. Procedures to prepare the data were taken including cleaning and screening of the data. IBM SPSS computer software was used to perform a Mann-Whitney U test as noted which revealed that there was not a statistically significant difference in assignment grades of Master of Education students when integrating exemplars resulting in the retention of the null hypothesis for RQ1. Four separate tests were conducted for the assignments that received the treatment (exemplars provided), Assignment 1, Assignment 2, Assignment 5, and Assignment 6.

The Mann-Whitney U test revealed that Assignment 1 scores were not statistically significantly different in the treatment group (*Md* = 70.0, *n* = 17) compared to the control group (*Md*=70.0, *n*=25), *U* = 202.50, *z* = -.421, *p* = .674, with a small effect size *r* = .06.

Table 1. Independent-Samples Mann-Whitney U Test: Assignment 1

Hypothesis Test Summary			
Null Hypothesis	Test	Sig. a, b	Decision
The distribution of Assignment 1 Score is the same across categories of Control or Experimental Group.	Independent-Samples Mann-Whitney U Test	.674	Retain the null hypothesis.
a. The significance level is .050. b. Asymptotic significance is displayed.			

Secondly, the Mann-Whitney U test revealed that Assignment 2 scores were not statistically significantly different in the treatment group (*Md* = 100.0, *n* = 17) compared to the control group (*Md*=98.7, *n*=26), *U* = 154.50, *z* = -1.802, *p* = .072, with a small effect size *r* = .27.

Table 2. Independent-Samples Mann-Whitney U Test: Assignment 2

Hypothesis Test Summary			
Null Hypothesis	Test	Sig. a, b	Decision
The distribution of Assignment 2 Score is the same across categories of Control or Experimental Group.	Independent-Samples Mann-Whitney U Test	.072	Retain the null hypothesis.
a. The significance level is .050. b. Asymptotic significance is displayed.			

Furthermore, the Mann-Whitney U test revealed that Assignment 5 scores were not statistically significantly different in the treatment group (*Md* = 300.0, *n* = 17) compared to the control group (*Md*=300.0, *n*=27), *U* = 221.50, *z* = -.287, *p* = .774, with a small effect size *r* = .04.

Table 3. Independent-Samples Mann-Whitney U Test: Assignment 5

Hypothesis Test Summary			
Null Hypothesis	Test	Sig. a, b	Decision
The distribution of Assignment 5 Score is the same across categories of Control or Experimental Group.	Independent-Samples Mann-Whitney U Test	.774	Retain the null hypothesis.
a. The significance level is .050. b. Asymptotic significance is displayed.			

Lastly, the Mann-Whitney U test revealed that Assignment 6 scores were not statistically significantly different in the treatment group (*Md* = 150.0, *n* = 17) compared to the control group (*Md*=150.0, *n*=27), *U* = 219.00, *z* = -.507, *p* = .612, with a small effect size *r* = .08.

Table 4. Independent-Samples Mann-Whitney U Test: Assignment 6

Hypothesis Test Summary			
Null Hypothesis	Test	Sig. a, b	Decision
The distribution of Assignment 6 Score is the same across categories of Control or Experimental Group.	Independent-Samples Mann-Whitney U Test	.612	Retain the null hypothesis.
a. The significance level is .050. b. Asymptotic significance is displayed.			

The Mann-Whitney U test for the overall course grades however did reveal a statistically significant difference for the Master of Education students resulting in the rejection of the null hypothesis for RQ2. The Mann-Whitney U test revealed that the overall course grades were statistically significantly different in the treatment group (Md = 4.0, n = 17) compared to the control group (Md=4.0, n=27), U = 178.50, z = -2.061, p = .039, with a moderate effect size r = .31. These results are promising and open potential avenues for research going forward.

Table 5. Independent-Samples Mann-Whitney U Test: Overall Grade

Hypothesis Test Summary			
Null Hypothesis	Test	Sig. a, b	Decision
The distribution of Overall Grade 4.0 Scale is the same across categories of Control or Experimental Group.	Independent-Samples Mann-Whitney U Test	.039	Reject the null hypothesis.
a. The significance level is .050. b. Asymptotic significance is displayed.			

5. Conclusion/Practical Implications

The potential benefits not only to the College of Education but also to other Higher Education Institutions (HEIs) could be many when one looks at the results of this study. First, it satisfies Grand Canyon University's (GCU) commitment to nurturing outstanding educators with a dedication that extends beyond the classroom to research. One of the paramount goals is to deliver a quality education to our students that inspires excellence not only in pedagogy but also in scholarship. A reflection of that should occur in our faculty's professional achievements. The results of this study could serve as a springboard to further research endeavors or changes to educational policy as it pertains to exemplars.

The College of Education, and presumably all academic institutions, seeks to maximize student learning and achievement regardless of modality. The study sought to do exactly that as it investigated the impact of introducing annotated exemplars to our Master of Education online cohort classes. Specifically, the purpose was to provide additional data that addressed the defined problem space in the literature as it pertains to the integration of annotated exemplars and the impact on academic outcomes for Master's in Education online graduate students in an online environment. As such, HEIs might consider actionable items such as integrating annotated exemplars into their course design or training faculty on effective exemplar usage.

The results were mixed with the exemplar/assignment data not showing a significant relationship while the exemplar/course grade data did show a significant relationship. These findings align with previous studies that have also found inconsistent or mixed effects of exemplars on student performance. For example, Bacchus et al. (2020) and Carter et al. (2019) similarly observed variations in the impact of exemplars on different types of assessments. While exemplars have been shown to improve self-regulation and evaluative judgment (Chong, 2019; Grainger et al., 2018), their direct effect on performance outcomes remains context-dependent, as seen in this study.

While these findings provide valuable insight for policy and curriculum designers, further research is necessary to explore the broader impact of exemplars in other contexts. For example, additional studies might focus on undergraduate programs or different educational environments, such as blended learning or face-to-face settings. Furthermore, despite the promising results, this study is not without limitations. The relatively small sample size and convenience sampling approach may affect the generalizability of the findings. Future research

could consider larger, more diverse samples to further validate these results. Other avenues of future investigation may include qualitative measures to explore students' descriptions and/or perceptions regarding the use of exemplars in the classroom. These suggestions reflect the calls for further research by scholars such as Chong (2021) and To et al. (2022), who emphasize the need for more robust explorations of exemplar use across different educational settings.

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