

# The Impact of Online Discussion on Capstone Quality of STEM Educators

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## Introduction

Online discussion is a common component of online courses as it seeks to mimic in-person discussion in face-to-face classes. As more credentialing and courses move to online platforms, it is important to investigate if online discussion actually supports student achievement. This study investigates the correlation between online discussion, attitudes towards online discussion and the quality of capstone produced by students.

## Questions

**Primary Question:** What is the impact of online discussion on capstone quality?

**Sub-questions:**

1. How does the type of post (thread initiations/ reply) correlate to capstone quality?
2. How does quality of posts correlate to capstone quality?
3. How are student attitudes towards online discussion correlated to academic achievement?
4. What are some factors impacting online discussion behavior?

## Methods & Treatment

Twenty graduated students engaged in a online discussion as part of Ed 509 Fall 2015 of the MSSE program. Their total number of posts were analyzed for correlation to the quality of capstone they produced. Students were also interviewed concerning factors that affected their online discussion and surveyed for attitudes towards online discussion.

Instruments	Quantitative (Sept. – Oct. 2016)	Qualitative (Nov. 2016)
Discussion Transcript Analysis	X	
Capstone Assessment via MSSE Rubric	X	
Attitude Survey		X
Personal Interview		X

## Conclusion

Overall, no correlation was found between students' online discussion volume or post type and capstone quality; however, post quality was positively correlated to academic achievement. Interestingly, student attitudes concerning the helpfulness or importance of online discussion were negatively correlated to capstone score.

Factors which negatively affected online discussion primarily focused on time management and platform design. Students shared several suggestions to engender greater online discussion participation could be supported including platform design improvements, search and mobile accessibility functions, as well as more frequent prompts to engage, akin to social media models.

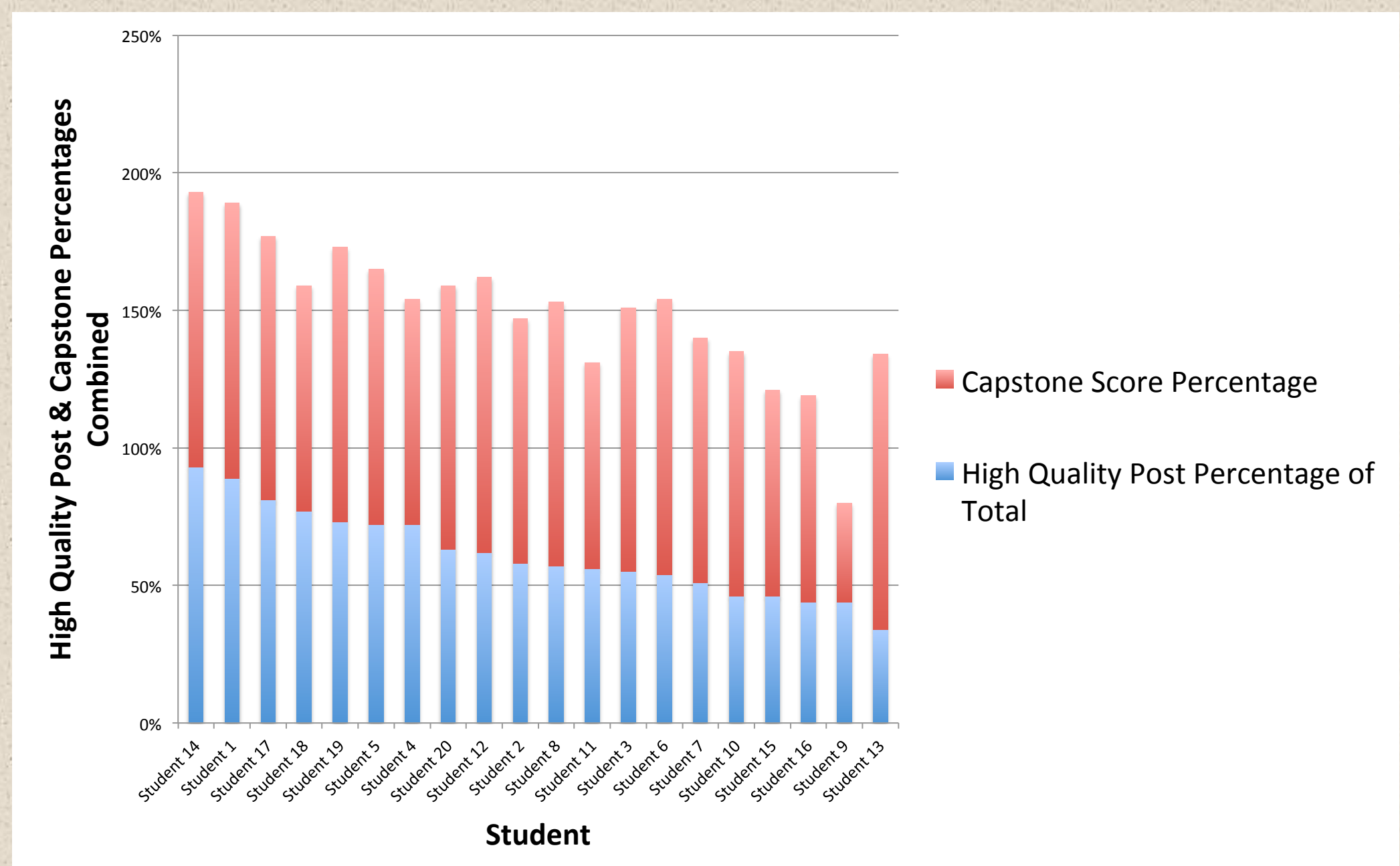
## Results

QUANTITATIVE RESULTS (N = 20)	Capstone Quality	Post Quality
Overall discussion post amount	No Correlation	Moderate Correlation

The correlation between total post amount and capstone score was .09 indicating there is no correlation between how much an individual posts and the quality of capstone they produced. However, concerning post quality, high quality posts were found to positively correlate with capstone score ( $r = .4$ ).

QUALITATIVE RESULTS (N = 20)	Positive Attitude
Capstone Score	Negative Correlation

Two sets of aligned attitude survey questions revealed that positive attitudes towards the helpfulness ( $r = -.81$  and  $-.46$ ) or importance ( $r = -.74$  and  $-.18$ ) of online discussion moderately or strongly negatively correlate to capstone score. Further, motivation to engage in online discussion is also negatively correlated to capstone score. ( $r = -.56$ )



Factors Supportive of Online Discussion			
	Motivators	Obstacle-Reducers	Prompts
Social	Inspiration, relationship building, and community generation;	Identify with the group;	Well formatted layout;
Individual	Personal/professional growth; seeking information, solutions, or understanding;	Fast Internet Connection; regular schedule doing work or discussion;	Third-party app alerts or built-in alert features; pairing MSSE tasks to recurring work/personal events;
Technology-based	Clear, engaging platform;	Well-formatted prompts and links; multiple gateways to commonly used subpages	Reading all posts to reset "unread" notification to zero; number notification icon for subscribed threads upon login;

Factors Detractive of Online Discussion			
	Demotivators	Obstacles	Lack of Prompts
Social	Inauthentic conversation by others;	Lack of synchronous "live chat" function; isolation from other MSSE students;	Irregular due date intervals; lack of social media extension;
Individual	Not feeling like one has anything to contribute;	<b>Lack of time</b> – work, grading, extra-curricular activities; additional jobs, family;	Lack of mobile app;
Technology-based	Lack of ability to keyword search across threads, groups or semesters; unclear, dull, un-engaging platform;	Lack of easy/swift tracking of active threads ("rabbit-hole"); lack of mobile app; lack of tagging function; poorly formatted prompts or links; slow Internet connection; lack of mobile app;	Lack of nonverbal expression ("emoticons" "upvotes") to indicate active "listening";