

# Exploring the Use of Learning Analytics to Provide Effective Personalized Feedback at Scale

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## Research Problem

As class sizes continue to grow and students' needs are diversifying, instructors struggle to provide personalized feedback to students due to limited time and available resources. Additionally, research suggests that instructors and students are generally unsatisfied and frustrated with the feedback delivery process because both stakeholders hold different views about what constitutes effective feedback (Mulliner & Tucker, 2017). **The use of learning analytics has been poised to address this concern by increasing student engagement, enhancing academic achievement, and identifying at-risk students early** (Fritz, 2017; Ifenthaler, Mah, & Yau, 2019; Vigentini et al., 2017).

## Methodology

Instructors from Sociology, Soil Science, and Asian Studies were invited to pilot OnTask with their students during the Summer 2020 term (late-May to August). **The courses were taught online because of COVID-19.** Undergraduate students were sent pre- and post-course surveys by the instructors to gather their perspectives of effective feedback, including the modality, the method of delivery, and timeliness. The survey data was analyzed using Qualtrics and SPSS while open-ended responses underwent a thematic analysis.

"I tried applying what the personalized feedback has suggested to help better my learning. Since this was an online class, the feedback encouraged me to branch out and learn beyond the material. I feel like it's quite hard to improve and push yourself in an online course, but the personalized feedback at least gave me some sort of motivation and direction on how to better my learning experience."

## References

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## Findings & Implications



Students expressed positive experiences with OnTask



Students felt instructors were invested in their learning



Students said they were more motivated to participate in the course



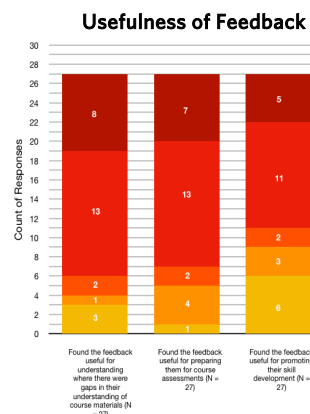
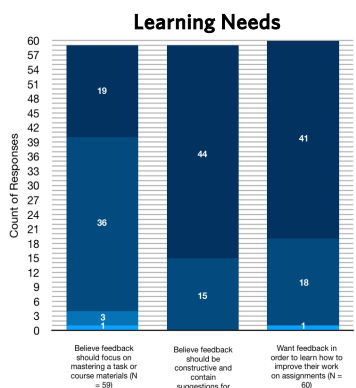
Students felt they were engaged in knowledge creation and sharing



Students said OnTask promoted further exploration of course content

### Student-Instructor Relationship & Motivation

A positive relationship between feeling like the professor cared about student learning and finding that the messages helped students stay motivated in their learning was found,  $r(43) = .58$ ,  $p < 0.001$ .



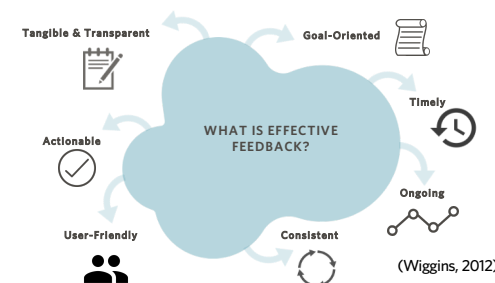
The figure on the left highlights students' pre-course opinions on what qualities of feedback met their learning needs and why they wanted to receive feedback. The figure on the right shows that students agreed OnTask was useful for purposes that were relevant to their learning goals. **In the post-course survey, 85% of students indicated they used the feedback provided in the messages for their learning in the course.**

"I believe OnTask made learning more personal, as the messages I received from the professor answered many of my questions without me having to ask, and also provided additional insight into the course that appealed to my style of learning."

"I think it helped me ensure that I was on the right task because [the instructor] would mention a few topics in each message, and because I was aware that I understood what she was talking about, I knew that I was understanding [the] course content. I personally thought the feedback was useful because it gives you a confidence boost."

## Learning Analytics & OnTask

Fritz (2017) claims we can use learning analytic data to help students take responsibility for their learning. This project piloted OnTask, which allows for personalization of student feedback at scale. Learning analytics empower "educators to collect, collate, analyze, and use student engagement and success data that they consider meaningful for their particular contexts [and] enables personalization and targeting of student learning and support ..., fostering positive student-teacher relationships and enhancing student engagement" (Vigentini et al., 2017, p. 422). **Research shows a positive impact of learning analytic tools on student motivation, participation, and academic achievement** (Pardo et al, 2019; Vigentini et al., 2017).



## How Does OnTask Work?

Instructors access readily available data from the university's learning management system to pull information (e.g., assessment results, participation data, assignment completion, etc.) and create messages that target specific learning needs. **OnTask was used to send messages that corrected misunderstandings about the course content, updated students about their progress, and directed students to additional resources that complemented the course.**

"Compared to other [courses], it was really helpful to get feedback so I can achieve more of the learning outcomes and [get] what I needed to get out of the class materials."

## Acknowledgements

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