

Enhancing Student Self-regulated Learning in First-Year Biology with an Assignment Wrapper

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Rationale

First year university students are adjusting to new norms and academic culture. Despite best efforts from instructors, many first year students are still uncertain about what is required or expected in their course assignments. Assignment wrappers provide a series of questions that facilitate student reflection on their work and progress and promote the awareness of the need for modifying their practices or strategies for completing assignments (Lovett, 2013). This research project attempts to measure the motivation, emotions and self-regulation of students in a first year Biology course and the impact that the use of an assignment wrapper has on their performance.

Elements of Self-Regulated Learning: Student Perspective

Self-regulated learners control their own learning process through a cycle of reflection leading to the choice of strategic actions and behaviours. Emotions influence the metacognitive process as well as motivation and management of behaviours.

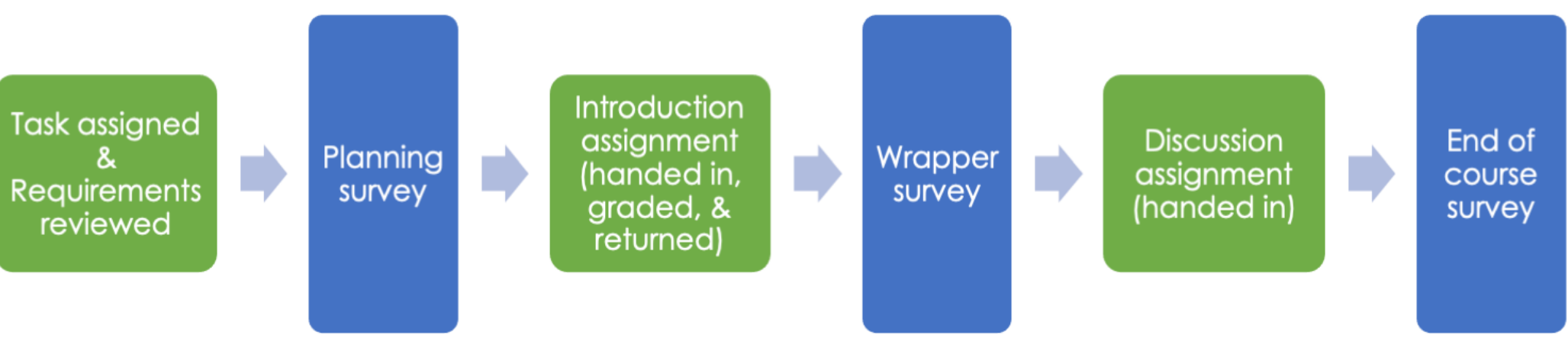


Research Questions

- Can self-assessment be enhanced with the use of an assignment wrapper?
- Does the facilitated reflection initiated by the assignment wrapper promote changes in student behaviours?
- Does the promotion of self-assessment and reflection in courses enhance student performance?

Methods

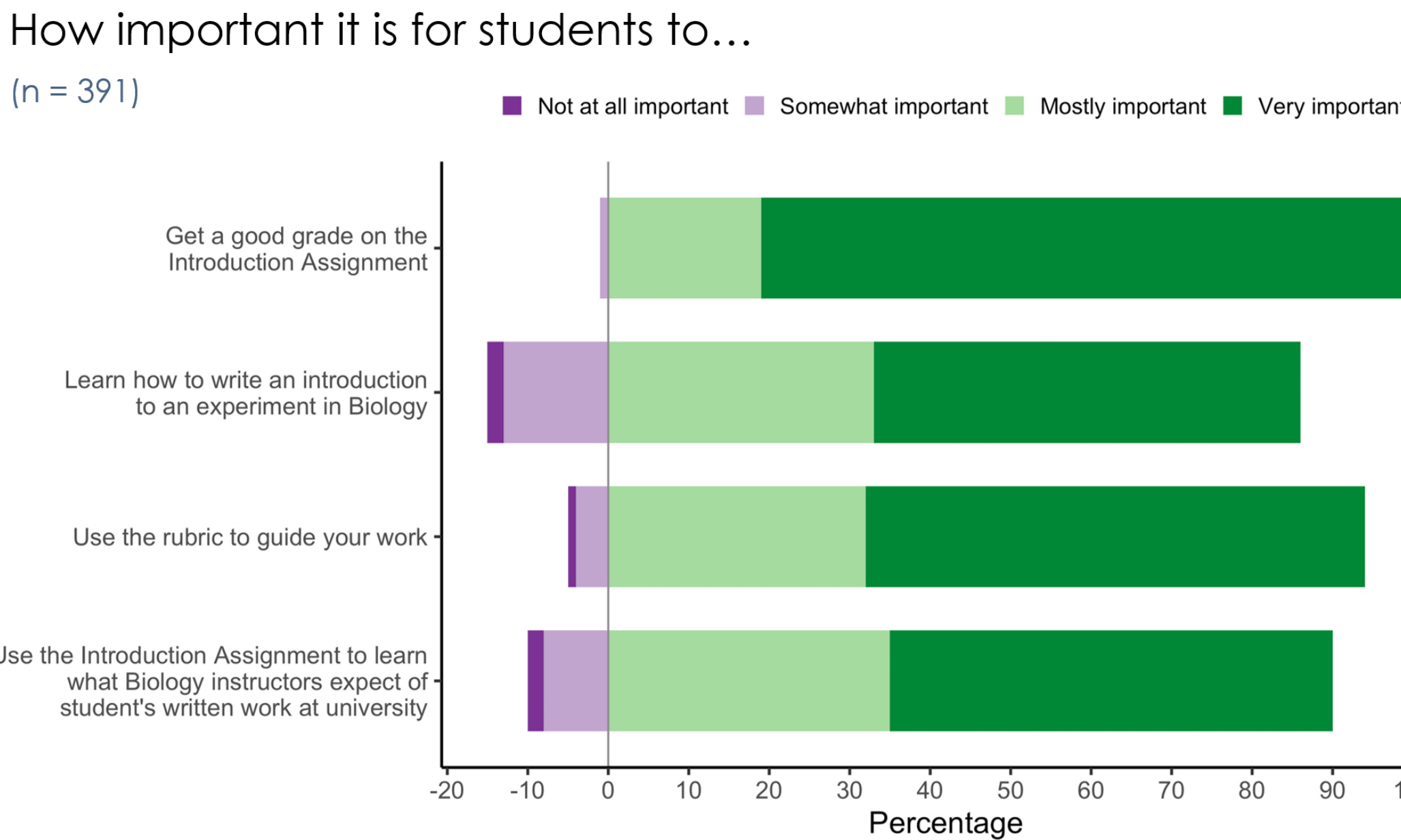
Students were asked to complete an on-line planning survey, wrapper survey, and end of course survey before and after they completed two major course writing assignments (Introduction and Discussion assignments) during the 2020 W2 term.



Findings

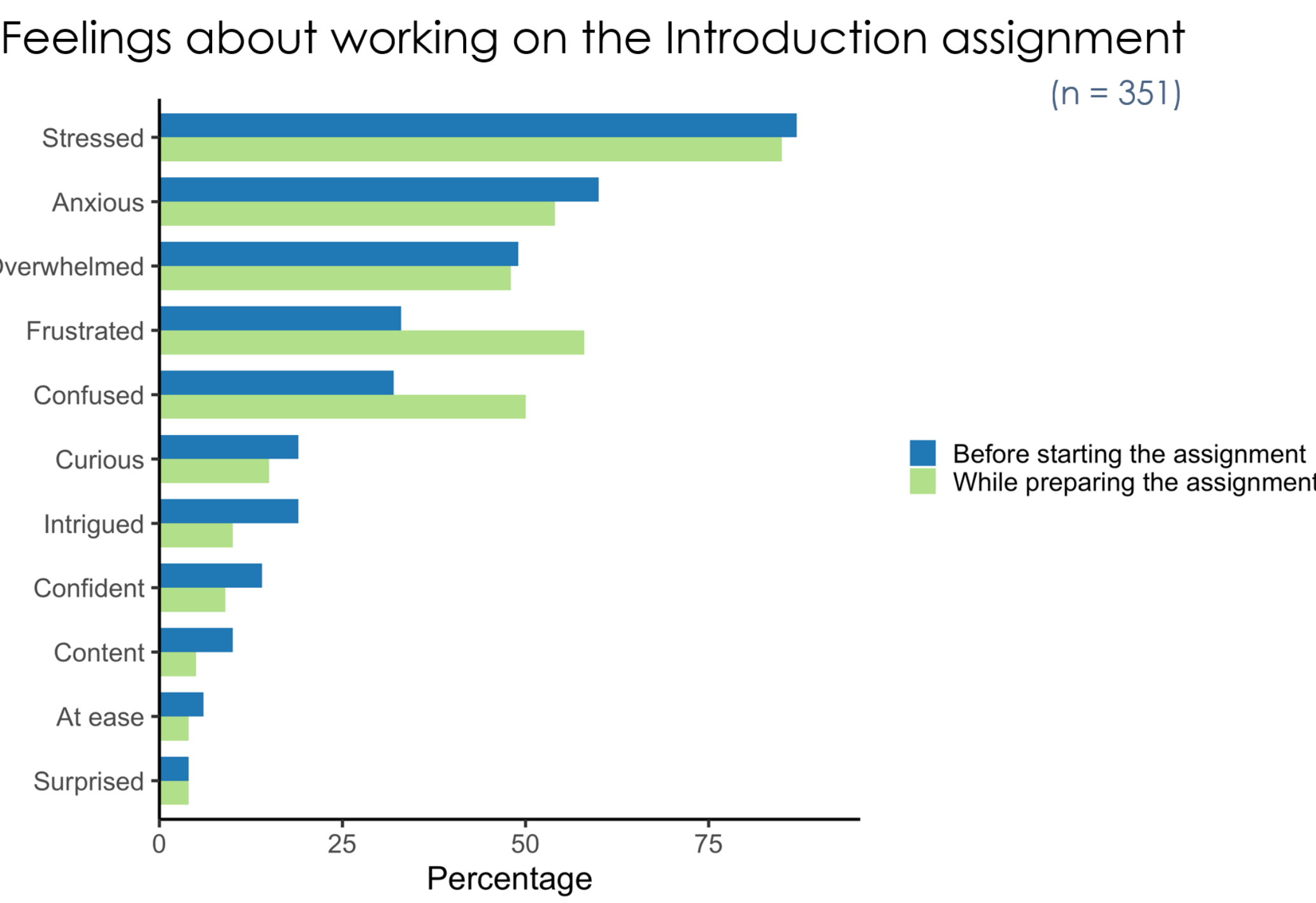
Student Motivation

Grades were a strong motivational factor. All student respondents indicated that getting a good grade was important to them.



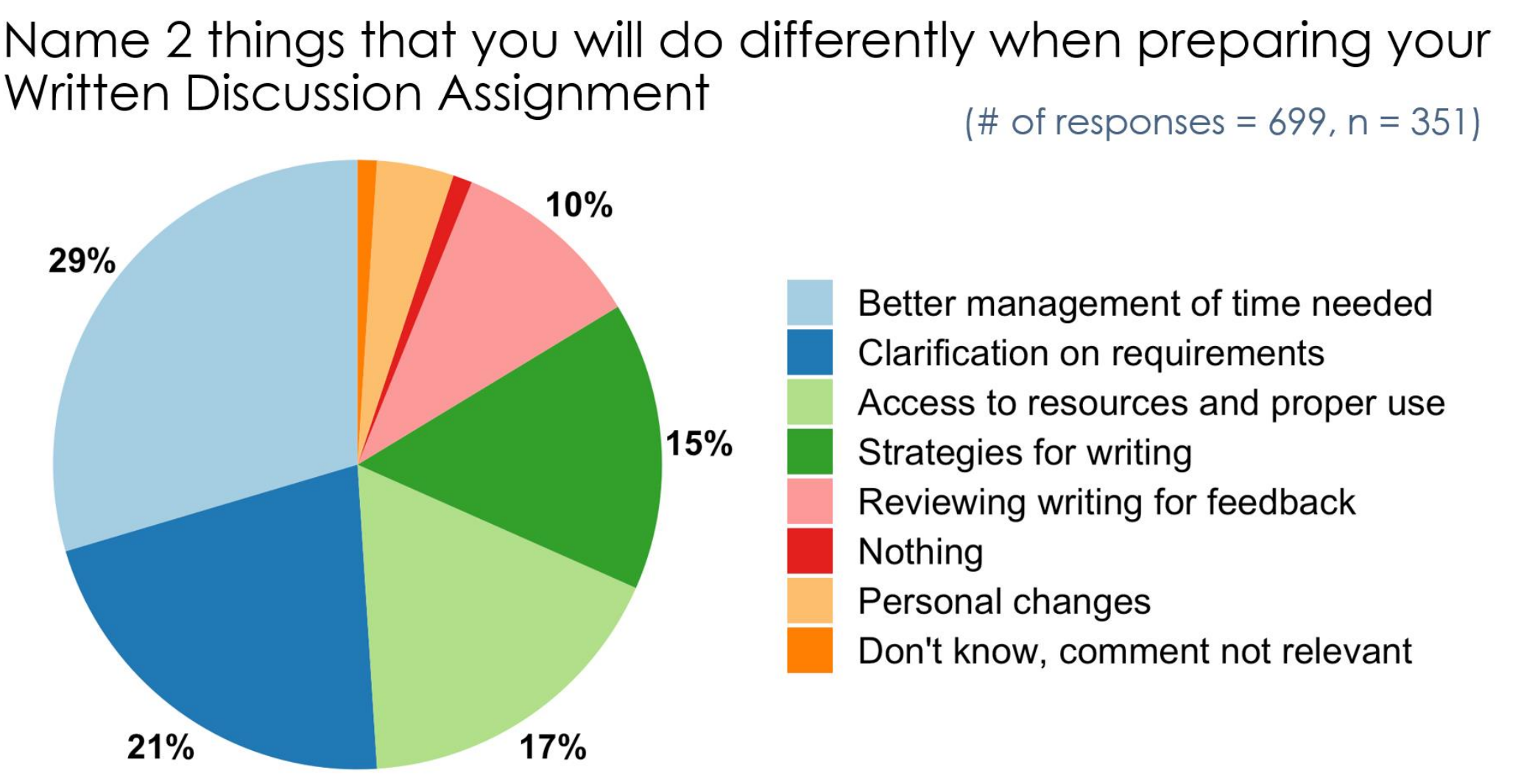
Student Emotions

Students reported feeling mostly stressed, anxious and overwhelmed before starting the assignment, and reported increased frustration and confusion while preparing the assignment.



Plans to Change

When asked what they will do differently for the next writing assignment, the most common responses referred to better time management and getting clarity on requirements of the task.

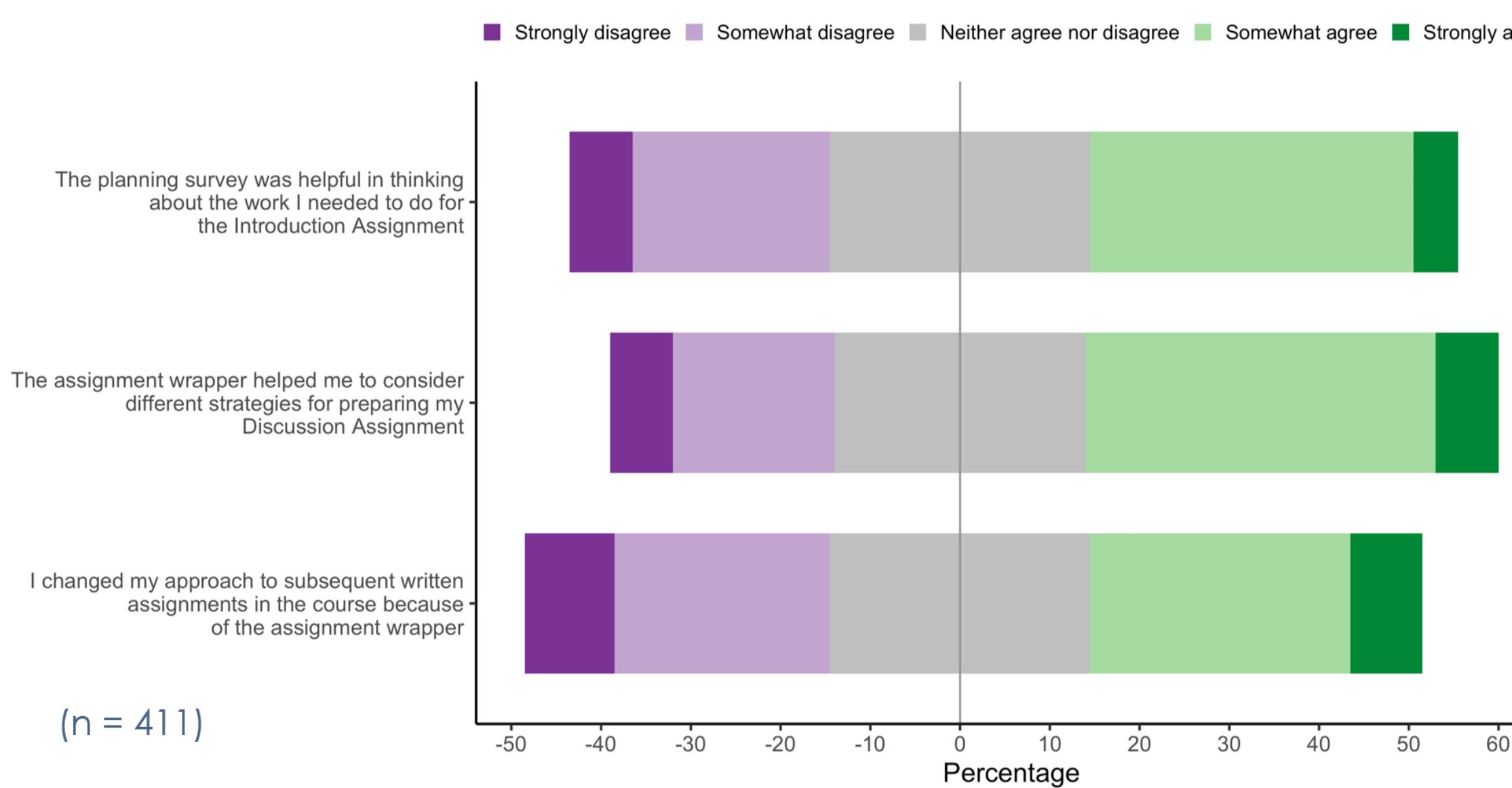


Impact on Grades

- Students that completed the wrapper survey received **5.2% higher** Discussion grades than students that did not complete the wrapper ($F = 25.92$; $p < 0.0001$).
- Students that completed all 3 surveys received **6.0% higher** final grades than students that did not complete all 3 surveys ($F = 71.24$; $p < 0.0001$).

Student Opinions and Benefits of Wrappers

~40-45% of students reported that the surveys were helpful for their learning process, and ~35% of students indicated that the assignment wrapper helped them realize the need to modify their approach to subsequent writing assignment.



Implications

- Assignment wrappers can trigger some students to think about their approach to a writing task and initiate the monitoring of emotions that can influence their ability to choose appropriate strategies and behaviours.
- They are easily implemented even in large undergraduate classes.

Select References

Butler, D. L., Schnellert, L., & Perry, N. E. (2017). *Developing self-regulating learners*. Don Mills, ON: Pearson.

Hadwin, A. F., Davis, S. K., Bakhtiar, A., & Winne, P. H. (2019). Academic challenges as opportunities to learn to self-regulate learning. In H. Askill-Williams & J. Orrell (Eds.), *Problem solving for teaching and learning*. New York, NY: Routledge.

Lovett, M. C. (2013). Make exams worth more than the grade: Using exam wrappers to promote metacognition. In *Using reflection and metacognition to improve student learning*. (eds. Kaplan, et al.) Stylus Publishing. Sterling, Virginia.

Zimmerman, B. J., & Moylan, A. R. (2009). Where metacognition and motivation intersect (pp. 299-316). *Handbook of metacognition*. New York: Routledge.

Acknowledgements

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