A Little Transparency Goes a Long Way: TILT Enhances Student Perceptions of an Interdisciplinary Research Symposium

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Transparency in learning and teaching (TILT) has been a growing topic of interest in higher education. This study aimed to examine how a simple TILT manipulation could impact a well-established, popular, interdisciplinary semester-long research symposium that involves scores of undergraduates. TILTing the instructions for this symposium had a significant effect on all three TILT components (i.e., purpose, task, and criteria). Underclassmen benefited equally to upperclassmen in terms of understanding the importance and ways to be successful. Furthermore, although both majors and nonmajors benefited from the TILTed instructions, students studying a course outside their major benefited significantly more than students taking a course within their own program of study.

International education influencer Sir Ken Robinson famously said, "The task of education is not to teach subjects: it is to teach students" (Robinson, 2001, p.267). A century of research has confirmed the importance of a student-focused class design (e.g., Curti, 1935; Martin, 1962; Harlan, 1983; Baeten et al., 2010; Giroux, 2014). Countless pedagogical approaches have been developed to create student-centered learning environments (e.g. Struyven et al., 2006; Wilson & Fowler, 2005). The emergence of various teaching methods has been influenced by constructivist learning theory, which characterizes learning as an "active process in which learners construct coherent and organized knowledge" (Mayer, 2004, p. 14). This learning theory has led to the development of several teaching models, such as problem-based learning (Dochy, et al., 2003), project-based learning (Dekeyser & Baert, 1999), minimal guidance approach (Kirschner et al., 2006), students' behavioral activity during learning (Mayer, 2004), student-activating teaching methods (Struyven et al., 2006), the 5E (Bybee, 2019), open-ended learning environments (Hannafin et al., 1997), and cooperative learning (Slavin, 1995).

However, these efforts have not always produced the indented outcome and perhaps highlight the difficulty of creating a student-centered educational approach (Marton & Säljö, 1997). In fact, there is significant disagreement about what student-centered learning truly entails (Lea et al., 2003). Furthermore, students frequently misjudge the connection between their educational experiences and actual learning (Authors et al., 2022). For instance, there is ample evidence indicating that students often prefer passive lectures when perceived as a fluent, well-organized presentation, as opposed to classes that require active engagement in applying new concepts (Carpenter et al., 2020; Deslauriers et al., 2019; Finn & Tauber, 2015). Additionally, students tend to rely on familiar but less effective study strategies, such as highlighting text or re-reading, rather than employing empirically supported techniques like retrieval practice (Dunlosky et al., 2013). Consequently, students may underestimate the value of challenges that demand additional effort but may result in more effective learning outcomes (Bjork & Bjork, 2011).

In recent years, there has been a growing emphasis on promoting transparent design in educational settings as a way to focus on student-centered learning. Perhaps the most notable example of this is the American Association of Colleges and Universities (AAC&U) initiative for Transparency in Learning and Teaching (TILT), as outlined by Winkelmes et al., 2019. Through the adoption of transparent design, instructors can motivate students to actively engage in what might be perceived as "busy work," including frequent small assessments and more challenging assignments, as integral components of a comprehensive and effective education. Winkelmes et al. (2019) highlight that transparently communicating assignment details to students can have an important impact on a diverse set of students. Notably, the advantages of employing transparent design are particularly pronounced for first-generation students, underrepresented minorities, and individuals from low-income backgrounds (Winkelmes et al., 2016). The TILT initiative encourages the development of clear documentation of the purpose, task, and expected criteria so students can review expectations for coursework (Winkelmes, 2013). Assignments are presented in a transparent format by highlighting the relevance of the assignment, providing students with clearly outlined criteria, and encouraging students to self-evaluate how their work matches the provided examples. While TILT focuses on transparency, it does not mean that students are told exactly what to do. Instead, students are asked to connect their assignments to real-world experiences and use critical thinking skills to self-assess and determine if they have met the criteria outlined. Students report an increase in their understanding of assignments as well as critical thinking skills when using the TILT model (Winkelmes et al., 2016). Furthermore, students have reported substantial advantages in discussions of learning objectives as well as the benefits of collaborating with their peers (Winkelmes, 2013). A range of studies have found TILTing assignments and projects benefit college students in terms of academic confidence, a sense of belonging, metacognitive awareness of learning, persistence, engagement, and work quality (Boye & Tapp, 2019; Remler, 2023; Calkins & Winkelmes, 2018; Copeland et al., 2018; Gianoutsos & Winkelmes, 2016; Howard et al., 2019; Kang et al., 2016; Magruder et al., 2019; Musselman et al., 2016; Ou, 2018; Porshnev et al., 2021; Winkelmes et al., 2016).

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CONCEPTUAL FRAMEWORK: TRANSPARENCY IN TEACHING AND LEARNING FRAMEWORK

This study utilized the TILT framework (Winkelmes et al., 2019) as the conceptual framework for this study (Winkelmes et al., 2019). TILT emphasizes three key elements to enhance teaching transparency:

1. **Purpose**: Clearly articulate the purpose of assignments and learning activities. This involves explicitly stating the goals, objectives, and intended outcomes of a particular task. When students understand why they are doing an assignment and how it aligns with the broader learning objectives, it can enhance their motivation and engagement.
2. **Task**: Provide clear instructions and expectations for tasks. Break down assignments into manageable steps and outline the criteria for success. Clearly communicate the specific actions or steps students need to take to complete the assignment successfully. This element helps students understand the requirements and expectations, reducing ambiguity and potential misunderstandings.
3. **Criteria**: Explicitly state the criteria by which assignments will be evaluated. Clearly define the standards or benchmarks against which student work will be assessed. When students have a clear understanding of how their work will be graded, they can better focus their efforts and align their work with the desired outcomes. This transparency in evaluation criteria fosters a sense of fairness and allows students to self-assess their progress.

The conceptual framework of TILT guided all aspects of our study. Specifically, the TILT framework was used to create the digitally accessible document (Appendix A) that served as the difference between the treatment and the control group in this study. The research questions were also guided by the TILT framework as we investigated the different aspects of TILT and its impact on different groups of students.

SHAPE Symposium Background

The SHAPE Symposium was designed to create a space to share student scholarship that varied in terms of developmental research stages from students with diverse backgrounds in a range of social science disciplines. It is an event that has taken place at Grand View University since 2015. It typically involves approximately 100-150 undergraduates per semester. These students can include everyone from first-semester freshman nonmajors to graduating seniors presenting their final thesis for their major. The disciplines include students taking courses in Psychology, Education, Social Work, Human Services, Sociology, or Nursing. Over a semester, they build a research poster with one of three goals in mind. The first category of scholarship is a literature review of a chosen topic. The second category is applying a theory students have studied in class to address a societal problem. The third scholarship category is collecting data for an original research project designed and directed by themselves. In other words, students may review the most recent research on cyberbullying, they may apply an educational theory to minimize cyberbullying, or they may collect data on cyberbullying themselves to report on their poster. Though the approach varies between classes, the overall goal of developing a research poster is the same for every participant in the SHAPE Symposium. For example, Introductory Psychology students develop a literature review research poster, while nursing students enrolled in Scholarship for Professional Practice apply a theoretical framework to solve a problem, and students in the Social Work Research Project class collect data to analyze and report. Despite the diversity of research goals and developmental stages in the research process, all participating students present their research poster to other students as well as a series of judges who examine their work and oral presentation in a single evening at the symposium.

According to a recent analysis of the effectiveness of this interdisciplinary project, student feedback accumulated to an average of 4.62/5.00 for five targeted feedback questions across more than a thousand students over the course of a five-year period (Sudak-Allison, et al., 2023). Another way of thinking about it is that students rate this research symposium as being 92.4% effective. Based on the reactions of students who participated in the symposium, the faculty members involved had such a high level of confidence that this learning experience was valuable for students (Sudak-Allison et al., 2023). In fact, several members of this committee expressed reservations that simply adding TILTed instructions would have any measurable impact due to the symposium's high success rate and popularity. With all of this in mind, the following research questions and hypotheses were developed:

Research Questions

This study aims to better understand how a well-established popular research symposium may lead to improved student experiences by simply outlining these three TILT components in a digitally accessible document (see Appendix A). Specifically, this study sought to answer the following research questions.

1. **To what extent does adding TILTed Instructions to a well-established term research symposium have any impact on students' perception of PURPOSE?**
2. **To what extent does adding TILTed Instructions to a well-established term research symposium have any impact on students' perception of TASK?**
3. **To what extent does adding TILTed Instructions to a well-established term research symposium have any impact on students' perception of CRITERIA?**
4. **To what extent, if at all, does TILT impact underclassmen differently than upperclassmen?**
5. **To what extent, if at all, does TILT impact majors differently than nonmajors??**

Hypotheses

Recent findings suggest an affirmation for Research Questions 1-3 (Howard et al., 2019; Magruder et al., 2019; Ou, 2018; Remler, 2023; Winkelmes et al., 2019; Porshnev et al., 2021). Although Questions 4 and 5 are not clearly reported in the literature, there is reason to believe students with less experience or content

knowledge are more likely to benefit from TILTing this project than others (Winkelmes et al., 2016). Therefore, we expect to find that adding TILTed instructions to a well-established research symposium like SHAPE will have a measurable impact on all five research questions and positively impact all levels of students.

METHODS

Participants

There was a total of 176 undergraduate students from Grand View University, a small liberal arts private college in the Midwest, who completed the SHAPE feedback form. The spring semester (control condition) typically has fewer students participate in the SHAPE Symposium than the fall semester (experimental condition) due to course sequencing, and this was true in this study, too. In total, there were 75 participants in the control group (spring semester) and 101 in the experimental group (fall semester).

Materials

SHAPE has historically had a five-question feedback survey which is the same tool used for the analysis in Sudak-Allison et al. (2023). The goal was to change as little as possible from the original symposium design to minimize any confounding variables. Therefore, a new feedback form that closely resembled the previous feedback form was created to better assess TILT criteria, which required the development of five TILT-focused questions. Subjects rated the five questions on a Likert scale from 1 (lowest) to 5 (highest). This format matches the original feedback form. Below are the feedback questions that were used in both conditions for this study, as well as the TILT components they were designed to address:

1. PURPOSE - I understood how creating my poster and presenting it at the SHAPE Symposium connected to the learning outcomes of my course.
2. PURPOSE - I understood how the SHAPE project helps build professional skills that may be useful to me five years from now.
3. TASK - I understood what the task was and how to do it.
4. CRITERIA - I understood the criteria to be successful in this project.
5. CRITERIA - I was given examples of what successful or exemplary projects would look like.

Procedure

This study utilized a between-subjects design where the control group (spring semester) received the TILTed feedback form with no additional TILTed SHAPE instructions. In contrast, the experimental group (fall semester) received the TILTed feedback form and the TILTed SHAPE instructions. The TILTed SHAPE instructions that were created for the experimental group can be found in Appendix A. These instructions were discussed in class and sent out to each student through email. In total, the TILTed SHAPE Instructions took approximately three to seven additional minutes of class time. Therefore, the difference in time investment for the experimental condition was minimal relative to the entire course and work time associated with preparing for SHAPE. Feedback forms were collected on the evening of the SHAPE event, just prior to the announcement of the awards.

Limitations

This study has a range of limitations, including the fact that the TASK component only had one point of measurement, while both PURPOSE and CRITERIA had two points of measurement on the feedback form. Therefore, it may have been better to separate Q3 into two separate questions for consistency and to discriminate between any noise in the data, as was seen between Q4 and Q5. However, when Q4 and Q5 were combined, the overall analysis of CRITERIA was statistically significant. Therefore, it may have been better to separate Q3 into two separate questions both for consistency as well as to discriminate between any noise in the data, as was seen between Q4 and Q5. With that said, no specific circumstance arose where a more nuanced understanding was needed for the TASK component. The only possible exception to this would be the analyses looking at individual differences between students (underclassmen vs. upperclassmen; nonmajors vs. majors) where TASK was not statistically significant in any of those analyses. However, the p-values for those analyses were not close to significance, so it is not clear how this would have benefited that analysis.

Another limitation of this study and a concern of those involved in the project has always been the issue of ceiling effects. A ceiling effect refers to measurements unable to produce further differentiation because a majority of participants have already reached the maximum possible score in their evaluation. This may pose a challenge to the research in terms of accurately measuring the effectiveness of the TILT procedure. One solution to this limitation would be to increase the size of the five-point Likert scale used to evaluate participants to a seven-point scale. Increasing the size of the scale will also address the analysis challenges that come with using a five-point Likert scale for evaluation. A larger scale allows participants to evaluate their experience with less constraint to the limited options and may detect more subtle differences in attitude, opinion, and behavior toward their experiences that can be observed during data analysis. According to Lewis (1993), 7-point scales demonstrate a stronger correlation with observed significance levels compared to 5-point scales. Additionally, Finstad (2010) asserted that seven-point scales are more indicative of respondents' genuine subjective evaluations of usability questionnaire items than five-point options. Diefenbach et al. (1993) reported that the best overall rating scale was the seven-point item scale, which has a higher level of face validity for respondents.

RESULTS

Confirmatory Analyses for Experimental Manipulation

Data from questions that examined the same TILT component were combined into a single variable (see Figure 1 below). Independent t-tests were used to compare the experimental and control groups' ratings. Additionally, both Cohen's *d* and Hedge's *g* were used to examine effect size. Hedge's *g* was included because it also weighs the value of the sample size in its calculation. Q1 and Q2 were both designed to measure the PURPOSE component of TILT. When these data sets were combined, there was a significant difference, $t(349) = 3.68$, $p = <.001$, $d = 0.410$, $g = 0.424$, between the experimental group ($m = 4.770$, $sd = 0.434$) and control group ($m = 4.533$, $sd = 0.692$). Likewise, there was a statistically significant difference, $t(349) = 2.82$, $p = 0.005$, $d = 0.310$, $g = 0.314$,

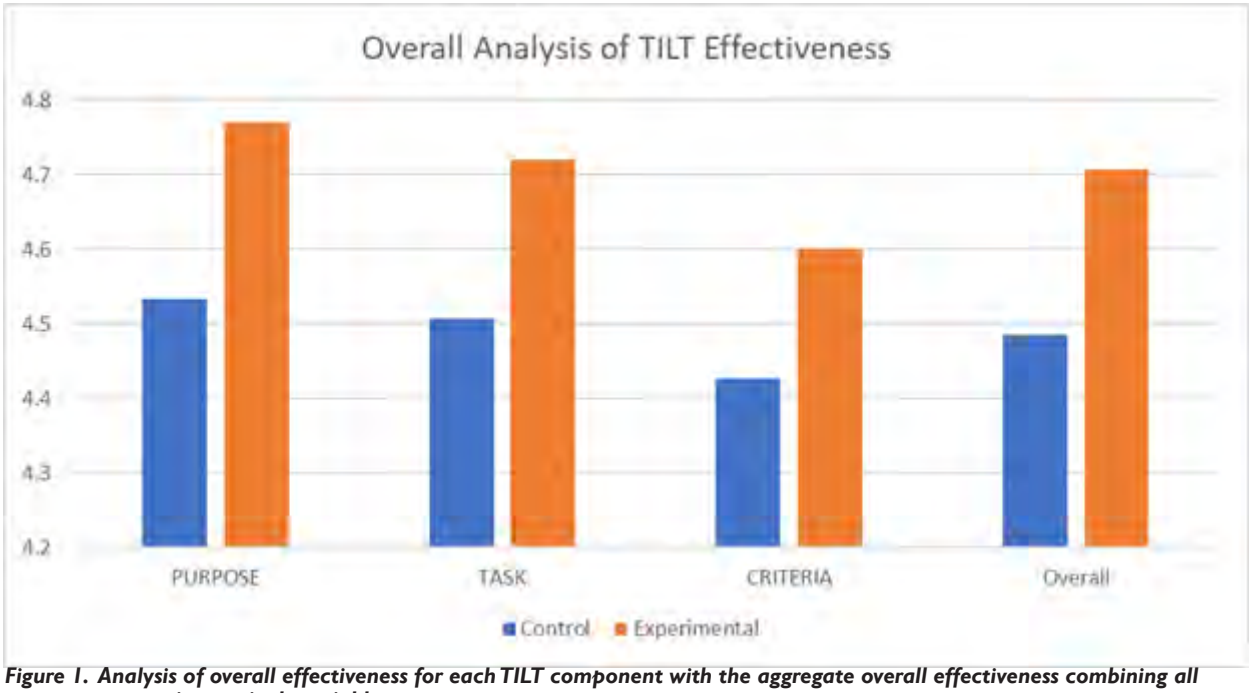

Figure 1. Analysis of overall effectiveness for each TILT component with the aggregate overall effectiveness combining all survey responses into a single variable.

between the experimental group (m = 4.460, sd = 0.602) and the control group (m = 4.427, sd = 0.747) for the measurement of CRITERIA. As a final overall analysis, Q1-Q5 were combined to examine the overall effect of TILT, which revealed a statistically significant difference between the experimental (m = 4.708, sd = 05.28) and control group (m = 4.485, sd = 0.731) across all five questions, $t(873) = 5.00$, $p < .001$, $d = 0.350$, $g = 0.358$. To examine the nuances with more granularity, individual t-tests were used to analyze each question on the feedback form.

There was a statistically significant difference in response ratings for Question 1 (Q1) regarding their understanding of how the project related back to learning objectives for the course, $t(174) = 2.77$, $p = 0.007$, $d = 0.436$, $g = 0.451$. As predicted, the experimental group (m = 4.700, sd = 0.461) gave higher ratings for Q1 than the control group (m = 4.427, sd = 0.756). In addition, there was a statistically significant difference for Question 2 (Q2), $t(174) = 2.49$, $p = 0.014$, $d = 0.391$, $g = 0.403$, which was also designed to measure PURPOSE. In contrast, this question focused on building skills for future applications. Like Q1, the experimental group (m = 4.840, sd = 0.395) gave higher ratings than the control group (m = 4.640, sd = 0.607).

Question 3 (Q3) also reached statistical significance, $t(174) = 2.04$, $p = 0.043$, $d = 0.319$, $g = 0.328$, and was in the same predicted direction with the experimental group giving higher ratings of satisfaction (m = 4.720, sd = 0.533) to Q3 than the control group (m = 4.507, sd = 0.778). Question 3 was designed to measure the TASK component of the TILT manipulation, while Question 4 (Q4) was designed to measure how well students understood the CRITERIA of the project and was also statistically significant, $t(174) = 2.09$, $p = 0.038$, $d = 0.325$, $g = 0.333$. Following the same predicted pattern as Q1-3, the experimental group gave higher ratings (m = 4.570, sd = 0.640) than the control group (m = 4.338, sd = 0.781) to Q4. Lastly, Question 5 (Q5) was developed to specifically measure students' confidence in access to successful examples for the CRITERIA component of TILT. This question was the only one not to reach statistical significance, $t(174) = 1.93$, $p = 0.056$, $d = 0.300$, $g = 0.301$, but still followed the exact same pattern as Q1-Q4 with the experimental group (m = 4.710, sd = 0.556) than the control group (m = 4.520, sd = 0.704).

Analysis of Differences Between Underclassmen and Upperclassmen

Two-way ANOVAs were used to examine any possible differences between freshmen and sophomores (i.e., underclassmen) and juniors and seniors (i.e., upperclassmen). A 2 (classmen: upperclassmen vs underclassmen) x 2(condition: control vs experimental) ANOVA revealed a statistically significant main effect for condition, $F(1, 346) = 10.70$, $p = 0.001$, and classmen, $F(1, 346) = 4.75$, $p = 0.030$ for the PURPOSE component. The PURPOSE interaction between condition and classmen was not statistically significant, $F(1, 346) = 0.40$, $p = 0.526$. A t-test was used to examine the classmen main effect further, $t(174) = -2.50$, $p = 0.014$, which showed upperclassmen gave higher ratings overall (m = 4.756, sd = 0.412) compared to underclassmen (m = 4.576, sd = 0.526) regardless of condition. Like PURPOSE, a nearly statistically significant main effect of condition for TASK was found, $F(1, 171) = 3.81$, $p = 0.053$, though it did not quite cross the threshold using this statistical analysis. In contrast, the classmen variable was clearly not significant, $F(1, 346) = 0.33$, $p = 0.567$. The TASK interaction between condition and classmen was also not statistically significant, $F(1, 174) = 1.52$, $p = 0.219$. And finally, under and upperclassmen showed a significant main effect for condition, $F(1, 346) = 5.24$, $p = 0.023$, and classmen, $F(1, 346) = 6.09$, $p = 0.014$, for the CRITERIA component. However, the CRITERIA interaction between condition and classmen was not statistically significant, $F(1, 346) = 0.78$, $p = 0.379$. A t-test analysis again showed upperclassmen gave higher ratings overall (m = 4.661, sd = 0.455) for the CRITERIA questions than underclassmen (m = 4.435, 0.635), regardless of condition. Examining these analyses on the whole, it seems upperclassmen may have better understood both the TASK and CRITERIA than underclassmen, regardless of condition.

Analysis of Differences Between Majors and Nonmajors

Two-way ANOVAs were used to examine any possible differences between the perceptions of majors and nonmajors for each condition. A 2 (major: majors vs nonmajors) x 2(condition: control vs experimental) ANOVA revealed a statistically significant main effect for condition, $F(1, 346) = 15.20$, $p < 0.001$, and major, $F(1, 346) = 11.45$, $p = 0.001$ for the PURPOSE component. The PURPOSE interaction between condition and classmen was also statistically significant, $F(1, 346) = 4.19$, $p = 0.042$. Figure 2 illustrates the interaction with nonmajors benefiting more from the experimental manipulation than majors. A t-test was used to examine the general main effect of majors, $t(174) = 2.30$, $p = 0.023$, which showed majors gave higher ratings overall (m = 4.760, sd = 0.397) compared to underclassmen (m = 4.600, sd = 0.522) regardless of condition.

Like PURPOSE, a statistically significant main effect of condition was found for the TASK component, $F(1, 171) = 4.93$, $p = 0.028$. However, the major variable was not significant, $F(1, 346) = 1.07$, $p = 0.302$. The interaction between condition and major was also not statistically significant for TASK, $F(1, 174) = 0.87$, $p = 0.354$. And lastly, a significant main effect for CRITERIA was observed across both conditions, $F(1, 346) = 8.41$, $p = 0.004$, and major, $F(1, 346) = 7.80$, $p = 0.006$. However, the interaction between condition and major was not statistically significant, $F(1, 346) = 2.34$, $p = 0.128$, for the CRITERIA component. A t-test analysis again showed majors gave higher ratings overall (m = 4.647, sd = 0.505) for the CRITERIA questions than nonmajors (m = 4.480, 0.590), regardless of condition. Taking all of these analyses together, majors and nonmajors both benefited from the added TILTed instructions, with nonmajors benefiting significantly more.

DISCUSSION

This study aimed to examine the impact a small TILT adaptation could have on the students' self-reported experience of a well-established and popular term research symposium that involved a relatively large number of students studying a diverse set of topics. Results indicate that even a slight TILT manipulation can have a measurable and meaningful effect on all three components of the TILT pedagogy (i.e., PURPOSE, TASK, and CRITERIA). Examining each question individually, four of the five survey questions reached statistical significance except for Q5 ($p = 0.056$), which focused on whether students believed they were given adequate examples to follow as they designed their own research poster. This study supports the positive impact of TILT on students' reported understanding of the purpose, task, and criteria of an assessment (Howard et al., 2019; Magruder et al., 2019; Ou, 2018; Remler, 2023; Winkelmes et al., 2019; Porshnev et al., 2021). However, our study indicates even a minor TILTing of the criteria can result in statistically significant differences. Specifically, the treatment group received three to seven minutes of class time to review the TILTed criteria for the project, yet resulted in increased scores across all TILT categories. Therefore, this study indicates that a small investment of instructor time in TILTing assignments could be well spent.

A deeper analysis into understanding the importance of these findings included examining differences between underclassmen and upperclassmen. The TILT manipulation for this specific activity seemed to benefit underclassmen and upperclassmen equally, despite upperclassmen giving significantly higher ratings regardless of condition in both the PURPOSE and CRITERIA components but not the TASK component where no statistical differences were observed between under and upperclassmen ratings.

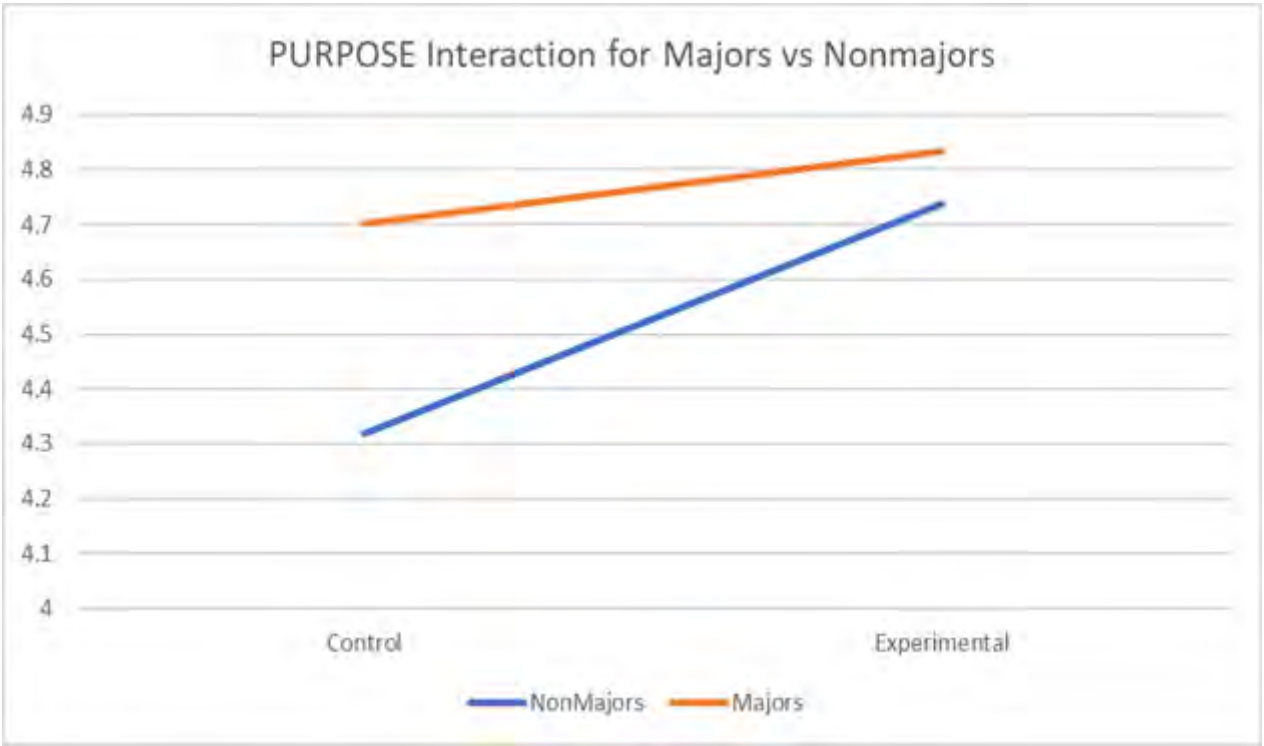

Figure 2. The interaction of Majors and Nonmajors across the two conditions shows the experimental manipulation was significantly more impactful for nonmajors than for majors.

Similarly, majors tended to give higher ratings to both PURPOSE and TASK, but not the CRITERIA component. However, in contrast to the findings regarding under and upperclassmen, nonmajors benefited significantly more than majors for both PURPOSE and TASK in the TILTed condition but not for CRITERIA. One reason that nonmajors might benefit more is that they may not have as much prior knowledge to draw from compared to the majors (Ambrose et al., 2010). Being transparent might help students with less experience understand the task more clearly, thereby putting effort into learning rather than understanding the task itself.

Overall, the results largely support the idea that adding an easy-to-administer TILT manipulation that may only cost 5-10 minutes over the entire course can have a measurable impact on a wide range of students. It seems to help underclassmen and upperclassmen alike. And though it seems to be helpful to both majors and nonmajors it may have a greater impact for nonmajors or students taking a course outside their comfort zone.

It should be noted that all the faculty involved in the SHAPE Symposium already felt they were "transparent" in giving instructions. To quote one of the authors as this project was being discussed, "Aren't we doing this already?" However, as the data reveals, TILTing the project may be highly effective even if instructors already express confidence in their own transparent teaching. As evidence of this, one possible reason the second CRITERIA component (Q5) did not reach significance in an individual assessment is that there was already a common practice for SHAPE professors to share past posters with students. This was being done in all classes prior to the TILT manipulation. However, the TILTed SHAPE Instructions put all of the information students needed into a single space that they could easily refer back to.

CONCLUSION

In all, the study provides compelling evidence that the TILT framework may be useful for several reasons. First, it is easy to implement by taking material an instructor may already have and organizing it into a single educational space (e.g., document, email, learning management system) that students can refer back to at their convenience. Second, these findings show that TILT is a low-cost, high-impact strategy that enhances projects that are already well-established and highly regarded by both students and instructors. Third, students who may need more clarity due to an unfamiliarity with a discipline's framework (i.e., nonmajors) seem to garner exceptional benefit from this transparency. The findings reported here are in alignment with other studies that have observed substantial benefits when making minimal adjustments (e.g., Kaur, 2021). Future research should examine the impact of transparent instructional design on diverse sets of students' learning materials, both inside and outside majors.

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Appendix A: TILTed Instructions provided to students in the experimental condition

WHY IS THIS IMPORTANT?

SHAPE is one of the largest co-curricular undergraduate scholarly events at Grand View. SHAPE includes projects from Social Work, Human Services, Psychology, Education, Sociology and Nursing. Though these disciplines all have different aims, one goal unites us that we share at the SHAPE Symposium: **to explore evidence-based solutions to improve the lives of people in every community.**

Another aspect that makes SHAPE unique is that it includes both majors and nonmajors studying all these different disciplines. It includes freshman, sophomore, juniors, and seniors. And it brings together a large range of faculty, staff, and community members collectively working to improve research and understanding in these fields.

But, perhaps, most importantly is that the skills needed to be successful in SHAPE are the exact same skills that will help you be successful in your career:

- **Communication** - SHAPE requires advanced oral and written communication about complex topics.
- **Project Management Skills** - SHAPE is a large project with multiple facets that have to be seen through multiple stages of development.
- **Motivation/Enthusiasm** - Tapping into your intrinsic motivation is key to being successful at SHAPE and in your career.
- **Adaptability & Readiness to Learn** - The idea behind SHAPE is for you to master a topic and be able to present the information as an emerging content-expert.
- **Problem-Solving Skills** - The purpose of research is to create bridges between problems and solutions.

WHAT DO I DO?

Your job is to share research on a topic within the field of the class you are taking. You will present your findings with other students, staff, faculty, and community members. You will develop a (36"x 48") research poster that will be printed out at the Bookstore. In addition, you will need to prepare a 5-8 minute oral presentation to walk through the poster with your attendees. Here are the steps:

1. Collect research from scholarly or reliable sources
2. Organize your research information and process into sub-sections.
    a. Example 1:
        i. Background
        ii. Problem
        iii. Solutions
    b. Example 2:
        i. Literature Review
        ii. Methods
        iii. Results
        iv. Discussion
3. Brainstorm creative ways to illustrate the compelling message you plan to share. For example, you can:
    a. Add pictures
    b. Add graphs/charts
    c. Connect to true or fictional stories
4. Build your poster in PowerPoint, Google Slides, or similar format.
    a. Be sure to set the dimensions to "36x48"
    b. You can use templates from website like this: https://www.posternerd.com/sciposters-templates
    c. While designing your poster, keep in mind people are drawn to interesting pictures, good colors schemes, and well-organized charts of data

HOW DO I KNOW IF I HAVE BEEN SUCCESSFUL?

A well-designed research poster will be visually appealing and easy to read, and it will clearly convey the key points of your research. Here are some tips on how to create a good research poster:

- **Choose a clear and concise title -** The title of your poster should be no more than 15 words long and should accurately reflect the main topic of your research.
- **Include your contact information -** Make sure to include your name, affiliation, and contact information on your poster so that people can get in touch with you.
- **Use clear and concise language. -** The text on your poster should be easy to read and understand. Use short sentences and paragraphs, and avoid jargon.
- **Use visuals to illustrate your findings. -** Charts, graphs, and images can help to make your research more visually appealing and easier to understand.
- **Use consistent formatting -** Your poster should have a consistent design and layout. Use the same fonts, colors, and sizes throughout your poster.
- **Use a poster template -** There are many free poster templates available online. Using a template can help you to create a professional-looking poster without having to start from scratch.
- **Get feedback from others** - Ask peers, friends, and family members to review your poster before you finalize it. They can give you feedback on the clarity of your message, the design of your poster, and the overall effectiveness of your research.

Here is a link to some past SHAPE poster winners: <[link to directory in a shared drive]>

FREQUENTLY ASKED QUESTIONS

- **How big should the poster be?** Most do a horizontal 36"H x 48"W. That is the standard for most research posters. However, you can do a vertical poster with the same dimensions.
- **What size should the font be?** Usually, no less than 24 point font and no more than 50 point font. This does not include titles, headings, footnotes, captions, etc. which could be larger or smaller than the fonts stated above.
- **How much is the poster?** - Typically it costs between $20-$30. Let your professor know if you are not able afford this so they can help you find a solution.
- **How do I print my poster?** - The Bookstore (or Campus Services). You can send it directly to [contact person] at: [contact email address]. You are encourage to save it in a PDF format before sending it to him.
- **When should I send my poster to the Bookstore?** By Friday or Monday at the earliest.
- **What should I wear?** - Business or business casual is appropriate for these kinds of professional settings. For gentlemen a tie is suitable, but not required.
- **How long should the presentation be?** Between 5-8 minutes is typically fair. More than about 10 minutes and you will lose your visitor's attention. And under 5 minutes makes it appear that you are not competent on your chosen topic.
- **Can I use notecards?** - Absolutely! Just make sure you use them to guide you and not be 100% reliant on them.
- **Can I invite my family or friends?** Of course! Invite anyone you would like to come visit your posters and other posters.