

Plan for a SoTL Project

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Research Question

What are you curious about?

What would you like to know about strategies that might hinder and/or help students to learn, in your course?

Do you want to know if an activity, assignment, or teaching strategy “works?”

Do you have a question about how to help your students learn a particular skill?

I would like to explore the following research questions:

What is the comparative effectiveness and student learning outcomes of flipped classrooms versus traditional lecture-based classes across various subject areas? Do they help students retain more information? Additionally, what are the perceptions of students and instructors regarding the flipped classroom approach, including its impact on student engagement, motivation, and overall learning experience?

Identify challenge/outcome related to learning that is related to your question.

Describe the learning in a way that suggests how you might measure it using either qualitative or quantitative methods.

To measure the effectiveness of learning in flipped classrooms versus traditional lecture-based classes, both qualitative and quantitative methods can be employed:

Quantitative methods might involve assessing student performance through standardized tests, quizzes, or exams administered both before and after the instructional period.

Comparing pre- and post-test scores between flipped and traditional classes could provide quantitative data on learning gains. Additionally, tracking metrics such as grades, retention rates, and completion rates could offer insights into overall academic achievement.

Qualitative methods could involve gathering student feedback through surveys, interviews, or focus groups to explore their experiences, perceptions, and attitudes towards the learning environment. Questions could focus on aspects like engagement, motivation, satisfaction, and perceived effectiveness of instructional methods. Similarly, qualitative analysis of instructor perspectives through interviews or reflective journals could provide insights into

their observations of student learning, challenges faced, and perceived benefits of each instructional approach.

By combining both quantitative and qualitative methods, researchers can gain a comprehensive understanding of the learning outcomes and experiences associated with flipped classrooms compared to traditional lecture-based classes.

Describe the instructional activity, assignment, or teaching strategy that will promote student learning on the outcome you identified.

SoTL projects might investigate the impact of a modification to an existing strategy or assignment. Describe how the new approach differs from the old approach and why this modification might change student learning on this outcome.

In a flipped classroom, students are exposed to instructional content (such as lecture videos, readings, or multimedia materials) outside of class, typically as homework assignments. Class time is then dedicated to active learning activities, discussions, problem-solving exercises, and collaborative projects where students can apply, analyze, and synthesize the information they learned independently. The teacher serves as a facilitator, guiding students through their understanding of the material and addressing any questions or misconceptions that arise during class.

This modification can lead to changes in student learning outcomes for several reasons:

- **Increased Engagement:** Flipped classrooms often foster greater student engagement because learners have more active roles in their learning process. By interacting with the material before class, students arrive prepared to engage deeply with the content during in-person sessions.
- **Personalized Pace:** Students can consume pre-recorded lectures or other instructional materials at their own pace, pausing, rewinding, or replaying content as needed to enhance comprehension. This flexibility accommodates diverse learning styles and allows students to proceed at a pace that suits their individual needs.
- **Application of Knowledge:** In traditional lecture-based classes, students may passively absorb information without fully understanding how to apply it in real-world contexts. Flipped classrooms provide opportunities for students to engage in hands-on activities, problem-solving tasks, and discussions during class, which promote deeper understanding and application of concepts.

- **Immediate Feedback:** During in-person class sessions in flipped classrooms, students have direct access to the instructor and peers for immediate feedback and clarification. This timely feedback loop can help students address misconceptions, reinforce learning, and make connections between different concepts more effectively.
- **Collaborative Learning:** Flipped classrooms often emphasize collaborative learning experiences, where students work together to solve problems, discuss ideas, and share perspectives. This collaborative environment fosters critical thinking skills, communication abilities, and teamwork, which are essential competencies for success in academic and professional settings.

Describe the evidence that would persuade an external audience that the new or modified teaching strategy improves student learning on the targeted learning outcome.

Describe the evidence you would need to collect to answer questions about the impact or value of this teaching strategy. How would you convince others that this approach is better than other approaches? What comparisons should you make? Examine students; skill before and after the assignment? Compare students who complete the learning activity to another group of students – what comparisons would be meaningful?

To convince others that the flipped classroom approach is better than other approaches, it's essential to make meaningful comparisons and present compelling evidence. Some comparisons to consider include:

- **Learning Outcomes:** Compare learning outcomes, such as knowledge retention, critical thinking skills, problem-solving abilities, and application of concepts, between students in flipped classrooms and those in traditional lecture-based classes.
- **Engagement and Participation:** Evaluate levels of student engagement, participation, and interest in the learning process between the two instructional approaches. Assess factors such as attendance rates, completion of pre-class assignments, and active participation during class activities.
- **Student Satisfaction:** Examine student satisfaction with the instructional approach by analyzing feedback surveys, focus group discussions, or individual interviews. Highlight aspects that contribute to students' positive experiences, such as increased autonomy, personalized learning opportunities, and collaborative learning environments.

- Long-Term Learning Effects: Consider the long-term impact of the instructional approach on students' retention of knowledge and transfer of skills to real-world contexts. Follow-up assessments or surveys conducted after some time has passed can provide insights into the durability of learning outcomes.

How and where would you publish, present, or disseminate this work?

Publishing, presenting, and disseminating research on the impact of flipped classrooms can be done through various channels to reach different audiences and contribute to the broader academic community. Here are some strategies for publication, presentation, and dissemination:

- Academic Journals
- Conference Presentations
- Professional Associations
- Educational Websites and Blogs
- Social Media
- Workshops and Webinars
- Open Access Repositories

Adapted from: C. J. Stanny, E. M. El-Sheikh, & H-M. Chung (2009) ***Getting Started with a SoTL Project***

Center for University Teaching, Learning, and Assessment <http://uwf.edu/cutla/>

Considerations for any ethical concerns with this research:

There are several ethical considerations that researchers should keep in mind when conducting research on the impact of flipped classrooms or any educational intervention. Some key ethical considerations include:

- Informed Consent: Researchers must obtain informed consent from participants, including both students and instructors, before collecting any data. This involves

providing clear information about the purpose of the study, potential risks and benefits, confidentiality measures, and participants' rights to withdraw from the study at any time.

- Confidentiality and Anonymity: Researchers should ensure the confidentiality of participants' data by securely storing and anonymizing sensitive information. Data should be reported in a way that prevents individual participants from being identified, particularly when sharing findings publicly.
- Minimization of Harm: Researchers should take measures to minimize any potential harm to participants, including ensuring that participation in the study does not negatively impact students' academic performance or well-being. Additionally, researchers should be mindful of power dynamics within educational settings and avoid placing undue pressure on participants to participate in the study.
- Fair Treatment and Equity: Researchers should strive to ensure fair treatment and equitable access to educational opportunities for all participants, regardless of demographic characteristics or other factors. This includes considering the potential impact of the flipped classroom approach on students from diverse backgrounds and ensuring that the intervention is inclusive and accessible to all learners.
- Conflict of Interest: Researchers should disclose any potential conflicts of interest that may influence the design, conduct, or interpretation of the research findings. This includes any financial or professional affiliations that could bias the study outcomes.
- Respect for Participants' Autonomy: Researchers should respect participants' autonomy and decision-making authority throughout the research process. This includes providing opportunities for participants to ask questions, voice concerns, and withdraw from the study if they wish to do so.
- Transparent Reporting: Researchers should adhere to principles of transparency and integrity in reporting their findings, including accurately representing the methods, results, and conclusions of the study. Any limitations or potential biases should be acknowledged, and efforts to mitigate these limitations should be transparently communicated.

By carefully considering these ethical considerations and adhering to ethical guidelines and standards, researchers can conduct research on the impact of flipped classrooms in a manner that protects the rights and well-being of participants and upholds principles of integrity and respect in the research process.