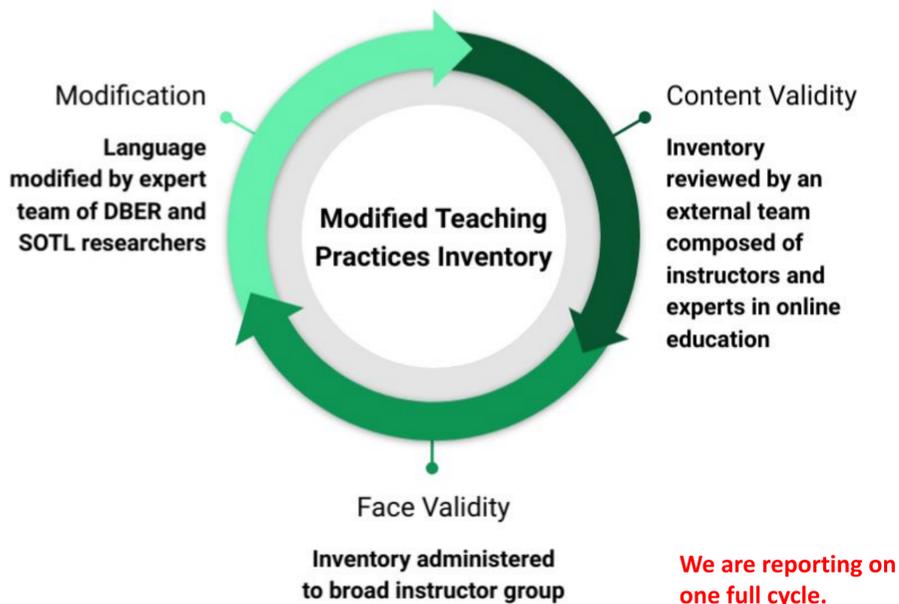




Abstract

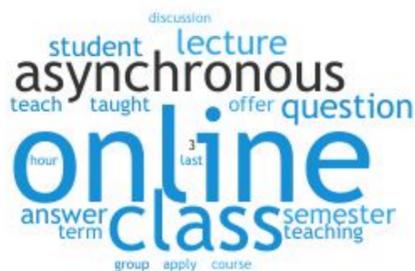
The **Teaching Practices Inventory (TPI)** was modified to be **valid for both face-to-face and online course modalities**. The original TPI was found to lack face validity based on responses collected from 90 instructors teaching general education science, mathematics, and social science courses primarily online at a midwestern research university during the anthropogenic disaster of the coronavirus pandemic (COVID-19). Several TPI items were **rewritten by** a team composed of **discipline-based education researchers** in the sciences and social sciences and education researchers. Further refinement and final **content validity** was established through **external review by experts** in online education and a diverse group of instructors. The resulting survey was administered to 92 instructors representing 12 departments and teaching via a variety of modalities (online, hybrid, and face-to-face), **establishing face validity** across modalities and disciplines. **Concurrent validity** was established via alignment of modified TPI items to items from the **Online SUNY Course Quality Review (OSCQR)** rubric. The resulting inventory provides a generalized self-report on the prevalence of high-impact practices valid for science, mathematics, and social science courses whether offered online, face-to-face, or a hybrid of the two.

Methodology



TPI Not Valid for Online Courses

- TPI sent to 204 participants and completed by 90, Fall 2020.
- 35% in-person, 4% hybrid, 23% remote (synchronous online), and 38% asynchronous online.
- **8 non-respondents** communicated that they did not complete due to **lack of validity** for their online course.
- Word cloud of top 20 words used in open-ended responses show **"online"** and **"asynchronous"** as top responses.
- **21 of 29 open-ended comments** referred to survey's or question's **lack of validity** to online courses.



"This [response] is based on past semesters, as this semester's courses were offered completely online, asynchronous"

"The class was online only so some answers do not reflect how [I] teach. Example: pause for questions"

"None of these applies because I teach a totally on-line course."

"My class is taught exclusively online for the last 5 years, therefore most of these questions do not apply to the specific circumstances since everything is asynchronous."

Modification

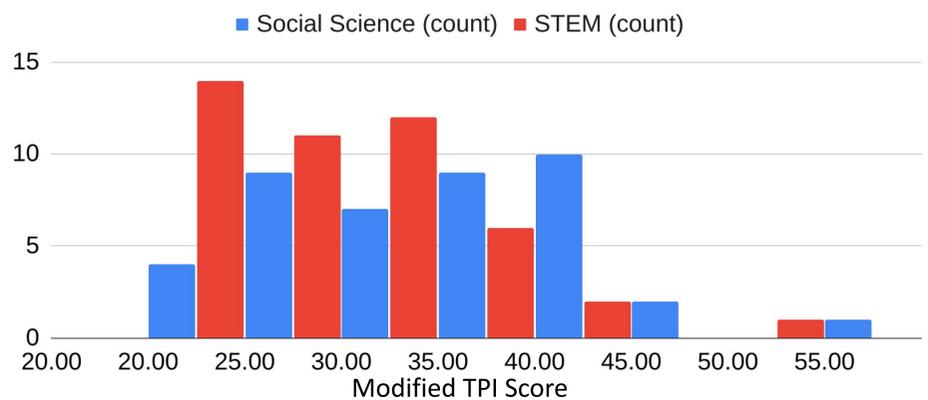
Unmodified TPI	Modified TPI
"pause to ask for questions"	"ask for questions (in lectures, embedded prompts in videos/readings, posted discussion boards, or through other means)"
"have small group discussions or problem solving"	"have group student-student discussions or problem solving (includes online discussion boards)"
"Fraction of typical class period you spend lecturing/talking to whole class"	"What fraction of a typical class or online equivalent did students spend listening to lectures directly or through video?"
"If a student response method is used to collect responses from all students IN REAL TIME IN CLASS, what method is used?"	"A student response method is any means used to collect responses from all students in real time either during class (e.g. clickers, online polls, online chat) or embedded in the middle of readings or videos."

Sample of modifications.

- TPI items were modified to be **inclusive of similar/equivalent HIPs in online courses**, specifically asynchronous.
- Items **not scored** in original TPI **were removed**, as were the items concerning TAs. All items modified to be single or multiple select.
- Modified TPI consists of 19 prompts with 63 possible points.
- **Full survey:** <https://www.creatingscientists.com/research/impact>

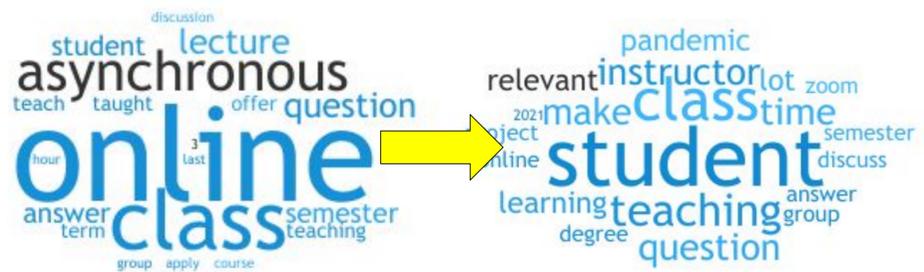
Face Validity

- Distributed to 218 instructors, $N = 92$ responses, Spring 2021.
- 12 departments (sciences, mathematics, and social sciences)



Unmodified TPI (Fall 2020)

Modified TPI (Spring 2021)



- Significant shift in top 20 words used in open-ended responses.
- **ZERO** communications from non-respondents concerning validity.
- **ZERO** open-ended comments referring to validity for online.

Convergent Validity

Modified TPI Structure

1. Course Info & Materials
2. Assignments & Exams
3. Feedback
4. Features & Activities
5. Innovation
6. Collaboration

OSCQR Structure

1. Overview & Information
2. Assessment & Feedback
3. Interaction
4. Content & Activities
5. Technology & Tools
6. Design & Layout

- **Strong alignment** with the OSCQR rubric was found.
- **Divergence** found in areas where OSCQR assesses **specifics for online instruction**, such as technology/tools and online course design and layout.
- Future: online course review using OSCQR compared to modified-TPI self-reports.