Transforming team-based learning in hybrid courses at Central Michigan University

Using
- Team Based Learning
- Group Member Evaluation

<table>
<thead>
<tr>
<th>COURSE FORMAT</th>
<th>CLASS SIZE</th>
<th>LMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hybrid</td>
<td>72</td>
<td>Blackboard</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DOMAIN</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>Undergraduate</td>
</tr>
</tbody>
</table>

Background

About the institution
Central Michigan University (CMU) is one of the nation's 100 largest public universities, offering more than 300 academic programs (65 fully online) at the undergraduate, master's, specialist and doctoral levels.

About the instructor
Dr. Michelle Steinhilb is an Associate Professor of Biology at Central Michigan University in Mount Pleasant, Michigan. She teaches undergraduate courses in genetics, biotechnology, neuroscience, and cancer biology.

Course objectives
Students engage in a 6-step team-based learning activity to develop collaboration, problem solving, and peer learning.

BLOOM’S TAXONOMY

- Creating
- Evaluating
- Analyzing
- Applying
- Understanding
- Remembering

The learning activities, according to Bloom’s Taxonomy, were mainly at the level of:
- Understanding different domain subjects
- Applying the learned knowledge to solve a problem
- Analyzing own and peers' work for adherence to a rubric
- Evaluating group members' contribution
The challenge

Over the past semester, Dr. Stein hilb has taken an innovative approach to her 200 level Biology course of 72 students in response to the pandemic outbreak.

Hybrid learning was adopted to ensure students’ flexibility in class attendance while maintaining safety against COVID. That is, students can choose to either join on-campus lessons or online interactive sessions via Microsoft teams.

Before COVID, Dr. Stein hilb used iclicker to issue individual multiple choice questions to check students’ understanding of the content, and Scratch off cards for the team quiz. This process was quite clunky and time-consuming, judging the need to download data from Iclicker then upload them to Blackboard, and how much it costs printing out the scratch off cards.

Apparently, it is impossible to adopt the same tools and approaches in the hybrid classroom. And “That’s where FeedbackFruits made a big difference.”

The solution

Dr. Stein hilb decided to use Team Based Learning and Group Member Evaluation to implement and optimize her 6-step team-based learning (TBL) activity.

The Team Based Learning tool was used to optimize the iRAT and tRAT step, thanks to its intuitive user interface and multifunctionalities. The instructor very much enjoyed the ‘Add attachment’ feature, which allowed her to include images, documents, or videos to clarify the questions or answer choices. ‘Configurable grading’ was also enabled to assign grade weighting of the iRAT and tRAT stage.

To support the Peer Evaluation stage, the Group Member Evaluation tool was chosen. Using the tool, Dr. Stein hilb issued a self/group assessment rubric consisting of 2 criteria questions, each rated according to 5 rating scales.

An overview of the TBL activity design can be found in the next page.

“

What I love about the tool is it is very easy. When you log in, you already see the iRAT and tRAT layout. All you have to do is to click start and create the questions.”

Dr. Michelle Stein hilb
Associate Professor, Central Michigan University
The set-up

**Step 1: Individual Prep Work**
Students were provided with guided notes, prompts, and activities to further understand the assigned study materials.

**Step 2 and 3: iRAT and tRAT**
Students worked individually then in groups to answer a quiz of 5 multiple choice questions.

**Step 4: Clarification session**
The instructor highlighted and clarified the misunderstandings, miscommunication, and knowledge gaps as shown in the quiz’ performance.

**Step 5: Application exercise**
The instructor assigned a group project in which students collaborated to complete an Activity sheet.

**Step 6: Peer evaluation**
Students assessed their team members’ by answering two questions on contribution to the team quiz and the activity sheet.

The outcomes

Access to detailed student analytics is considered one of the biggest benefits when using FeedbackFruits’ tools, according to Dr. Steinhilb.

“One of the things that I love is that it (Group Member Evaluation) generates a tremendous amount of data. Maybe too much data. But I love the data.”

Besides in-depth analytics, the grading function also received great praise from Dr. Steinhilb, as all the scores were automatically synced from the tool onto the Blackboard gradebook. This saved the instructor plenty of time from the clunky, manual task of “Downloading excel sheet then uploading again”.

Not only were the tools well received by the instructor, but the students also gave positive responses. Dr. Steinhilb distributed a student survey by the end of the semester to ask if Group Member Evaluation helped students improve their teamwork/participation. 60% of the learners either agreed or strongly agreed, acknowledging that the tool really benefited groups that struggle with working together.

*The use case is based on the interactive session delivered by Dr. Michelle Steinhilb and Marnie Roestel at the inspirED 2022.*

---

"Yes, definitely. I’m really planning to spend some time this semester learning about even more tools... I got zero negative comments from students about the Tool Suite, so I’m excited to embrace it."

Dr. Michelle Steinhilb
Associate Professor, Central Michigan University