What Is Formative Assessment?

The goal of formative assessment is to monitor student learning. More specifically, formative assessments:

1. help students identify their strengths and weaknesses and target areas that need work
2. help faculty recognize where students are struggling and address problems immediately.

Formative assessment can be thought of as a cycle of communication between a professor and students. Our model of the Formative Assessment Cycle includes,

- **TARGET** of communicating learning goals
- **MEASUREMENT** of student understanding
- **FEEDBACK** to and from students and instructors
- **ADJUSTMENT** of teaching and learning to meet students’ needs.

We created a preliminary sketch of four ideal types of teachers based on the professors we studied.

### Ideal Types

**Figure 1**: The main elements of the cycle are the four squares. The barriers that get in the way of formative assessment are on the octagons in the center. Attitudes and principles that drive or detract from the cycle are represented by the arrows along the side.

**Figure 2**: Preliminary types based on two dichotomies—Personal vs. Whole Class & Pre-Planned vs. Emergent. The four possible ideal types are shown in the corners of the graph.

**Two Initial Dichotomies**

- **Pre-planned**- knows ahead of time where the course is headed at any moment
- **Emergent**- bases teaching choices on what the students need in the moment
- **Personal**- notices the situation of each individual in the class
- **Whole-class**- keeps the big-picture of how the class as a whole is progressing

**Figure 3**: The results of factor analysis led us to determine a few dichotomies based off of how well the codes in the left-hand column tended to occur together. Each of the four columns above is labeled as a separate dichotomy; two of which are new.

**Factor Analysis**

A statistical program called SPSS was used to perform factor analysis on our data. This allowed us to take an objective approach to determining other possible ideal types.

**Methods**

Data collection
- Classroom observations
- Artifact collection
- Professor interviews
- Student interviews

Analysis
- Emergent, thematic coding
- Factor analysis

**Two Additional Dichotomies**

- **Accountable vs. Trusting**
- **Strategic vs. Diligent**

**Figure 4**: Each square in this chart represents an ideal type using the 4 dichotomies found through factor analysis. The letters stand for one side of the dichotomy. For example, an instructor who follows under TWPS would have the following qualities: Trusting, Whole-Class, Pre-Planned, and Strategic.

**Future Work**

Our final goal is to develop a survey to help teachers figure out which ideal types they identify with. Our future work consists of:

- Developing pilot questions from our data
- Testing the validity of our survey through
  - Administration of pilot questions
  - Factor analysis
  - Revision and repeat

**Acknowledgements**

Thank you to God for this opportunity that He gave us, Professor Fynewever for his guidance, Dr. Julie Yonker for her help with factor analysis, Dr. and Mrs. Wiers for funding through the Dirkse Fellowship, NSF for funding, Calvin College for providing resources, Monica Turner, Katie VanderHeide, Isaac Bokma, Luke Breezes, and Simon Veldkamp for their previous work on this project, and the professors and students who participated in this study.