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Collaborative Assessment Tool (CAT) – Assessing scientific practices in introductory physics

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An important learning goal of Projects and Practices in Physics (P³), the transformed introductory mechanics course at Michigan State University, is the development of scientific practices. The design team, as part of the P³ course construction, made clear attempts to assess learning goals that can often be perceived as being a part of the hidden curriculum or considered difficult to assess (e.g., learning to work productively in a group) by developing a collaborative assessment tool (CAT). The CAT is a formative assessment tool that provides students with a numerical grade for how they participated in their learning group on a weekly basis while also providing feedback in the form of written commentary and suggestions on how they might improve at a particular collaborative practice. In this presentation, we demonstrate the CAT tool from two perspectives: 1) how the CAT tool is used within the P³ context and 2) how the formative feedback has affected changes in student interactions in class. We will present the case studies of 3 students who had differing reactions to the feedback they received. We will explore the role the feedback had in their interactions over a four-week period from an in-class perspective and a reflected perspective through interviews and observations. The analysis will also be presented from a tutor and group perspective, which will highlight the affordances the CAT can have in creating a productive learning group. The research on the CAT shows promise in encouraging growth in students' collaborative skills, but this research is still in its infancy and needs to be expanded to include different contexts.