Using ITP Metrics as a Peer Feedback Tool in University-level Agricultural Coursework

Trent Wells
Southern Arkansas University
MSC 9418, Agriculture (AGR) 208
Magnolia, AR 71753
ktwells@saumag.edu

Mark S. Hainline
Iowa State University
223A Curtiss Hall
Ames, IA 50011
mhainlin@iastate.edu

Kevin W. Sanders
Iowa State University
227 Curtiss Hall
Ames, IA 50011
kws@iastate.edu

OP McCubbins
Texas A&M University
2116 TAMU, 242 AGLS
College Station, TX 77843
opmcc@tamu.edu

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Introduction

Flipped classrooms have become more commonplace in higher education in recent years (O'Flaherty & Phillips, 2015). By design, flipped classrooms require students to spend time outside of class preparing for complex, engaging activities during course meetings. This prior preparation can include using an assortment of approaches, including viewing videos, reading through print materials, and so forth (O'Flaherty & Phillips, 2015). As an example of a flipped classroom design, team-based learning (TBL) is intended to harness the knowledge and abilities of individuals within teams of five to seven students each to accomplish increasingly complex tasks within a specified number of course modules, usually five to seven within a semester-long course (Michaelsen, Knight, & Fink, 2004).

Teams are typically formed through a transparent, instructor-led process at the beginning of a course and remain together throughout the entire course to allow for cohesion among team members to build over the long-term (Michaelsen et al., 2004). As an instructional strategy distinctly different in philosophy than the small group activity approaches often used in many university-level courses, TBL-administered coursework encompasses specific phases within each course module, which are: (1) preparation for engagement in application exercises, (2) the completion of application exercises that increase in complexity and scope, and (3) a final module content assessment that addresses knowledge and skills developed throughout the module (Michaelsen et al., 2004). These phases begin anew at the start of each course module.

Throughout the duration of a TBL-administered course, peer feedback activities are employed at different points throughout the semester to provide team members with the opportunity to provide critical, anonymous feedback to all students within a particular team, including themselves. This feedback is of critical importance within the framework of a TBL-administered course and is intended to help determine the credit individual students should each receive for their contributions to the achievements of the team as a whole (Michaelsen et al., 2004). Moreover, as expressed by Michaelsen et al. (2004), "[t]he students, not the teacher, have the best knowledge of the quantity and quality of each member's contribution to the work of the group" (p. 18). A peer feedback tool that can be easily used by students is vital to gaining information for the continuous development of individual team members and the whole team.

How it Works

TBL has previously been identified as a useful, practical approach within university-level agricultural coursework (McCubbins, Paulsen, & Anderson, 2016, 2018). McCubbins et al. (2016, 2018) noted agricultural students typically viewed the TBL approach favorably and recommended the use of TBL in university-level agricultural coursework should be further examined. In accordance with this recommendation, TBL was employed as the instructional strategy within two agricultural mechanics courses at Southern Arkansas University (SAU) during the Fall 2019 semester. One of these courses was focused on developing knowledge and skills related to welding and metalworking (e.g., shielded metal arc welding [SMAW], plasma cutting, etc.) while the other course was concentrated on developing knowledge and skills related

to agricultural power systems (e.g., servicing small gas engines, wiring agricultural structures for electricity, etc.). Each course's respective content was designed to serve as a rigorous context for applications of the entire scope of the TBL design.

Considering the design of TBL-administered courses, the course instructor, who taught both courses and was also the lead author of the present abstract, sought to identify a suitable instrument for conducting both a mid-semester and end-of-semester peer feedback activity in each course effectively and at no cost to SAU. Jamieson and Shaw (2018) indicated the Individual and Team Performance (ITP) Metrics instrument can serve as a free, suitable, easy-to-use instrument for both quantitative and qualitative peer feedback. Thus, this instrument was deemed appropriate and was selected for use in both courses.

The course instructor established an ITP Metrics account and created all the peer feedback activities used in both courses. The creation of each peer feedback activity involved: (1) selecting the specific multi-part questionnaire to be used (i.e., Peer Feedback and Team Dynamics), (2) uploading a participant list complete with each student's first and last names, e-mail address, and group number, (3) entering details about the assessment (i.e., whether to enable written feedback and whether to allow the automatic release of feedback / scores to students), and (4) scheduling assessment times and dates.

Students were allotted one week outside of class to complete each peer feedback activity and were sent reminder e-mails about the activity every few days. It should be noted students provided feedback for each team member and for the whole team during each peer feedback activity and the course instructor could, in real time, monitor each peer feedback activity. At the conclusion of each peer feedback activity, all raw data were used to calculate scores for each student. The ITP Metrics tool also generated specific feedback for each team member and whole team within two separate PDF documents. To facilitate student review of feedback, the course instructor e-mailed these PDF documents to each respective student individually. Students were encouraged to reach out to the course instructor when needed.

Implications

Students typically responded positively and appropriately when providing feedback about their peers and the entire team. As suggested by Michaelsen et al. (2004), the course instructor actively monitored the peer feedback processes for each course and advised students to maintain professionalism and courtesy when evaluating their team members and whole teams. Students anecdotally noted the mid-semester and end-of-semester peer feedback activities each took approximately 20 minutes to complete.

Future Plans, Advice to Others, & Costs

ITP Metrics will continue to be used in these two courses and will be expanded into other courses. We recommend other course instructors consider adopting this peer feedback tool in their coursework when appropriate, regardless of whether or not a course is taught using TBL. Because the ITP Metrics tool was available free of charge, the primary investment was approximately 30 minutes to set up all four peer feedback activities within the courses.

References

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