A Tool for Leveraging Feedback in Teaching and Learning

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EXTENDED ABSTRACT

Introduction

Peer feedback and instructor feedback can play a vital role in students’ learning experience. TEAMMATES (Rajapakse, 2011) is an online system that we built for managing peer feedback in team project courses. After a few successful trials in our own courses, we made TEAMMATES available as a free online service for others in early 2012 (available at http://teammatesOnline.info). During its first year in the public domain, the TEAMMATES user base grew beyond 2000, spanning more than 20 universities. This reasonably high adoption rate suggests that there is a significant demand for feedback management tool support unfulfilled by current learning management systems (LMSs). On the other hand, the TEAMMATES user retention rate was comparatively low: more than half of instructors who showed interest in adopting TEAMMATES did not continue because they did not find all the features they wanted. This indicates that there is a significant demand for more features. In particular, many users were looking for the ability to manage other types of feedback beyond TEAMMATES current scope of peer feedback in team projects. In response, we are now in the process of evolving TEAMMATES towards a more general tool for managing feedback among instructors and students. We expect TEAMMATES to complement current LMSs in use, rather than try to replace them.

The purpose of this abstract is to share our vision for TEAMMATES with interested educators and seek feedback on what they want to see in the future of this product. Given next are some salient features of the target product. Some of these features are already available while others are currently under development.

Formative First, Summative Second

We believe that early, frequent, and incremental feedback provided in a non-threatening environment can play an effective formative role in students’ personal development. Such feedback can help students to recognize and rectify gaps between peer/instructor expectations and their own performance. TEAMMATES was designed with that in mind. While TEAMMATES can be used for both formative and summative purposes, it tries to emphasize the formative purpose more, in the following ways.

- It makes it easy to hold early and frequent feedback sessions. Setting up an additional session can be done in a few minutes and the feedback collected can be published to students at the click of a button.
- It tries to reduce the students’ overhead of providing feedback. For example, the default setting is optimized to collect just enough feedback for the feedback recipient to answer these important questions: 1. How does my contribution compare with team expectations? 2. What am I doing right? 3. What can I do better?
TEAMMATES documentation and examples encourage instructors to hold early and frequent feedback sessions. For example, the sample data an instructor sees when he/she starts using TEAMMATES shows a scenario of a class having multiple feedback sessions.

**Instructor-centric and Student-centric**

One very useful kind of student feedback is the feedback we can get from students who have since graduated. For example, it would be quite useful to know which of the things we taught turned out to be more useful in their work life. Unfortunately, most instructors do not have an easy way to contact past students. Most LMSs operate in an institute-centric way in that the student record is purged when the student leaves the institute. In contrast, TEAMMATES services are provided directly to the instructors and students and designed in a user-centric way:

- For instructors, it provides a way to manage feedback in their courses, for both current and past students. For example, it is even possible to get feedback from past students.
- For students, it provides a way to manage feedback they received from and gave to peers and instructors. For example, we hope to allow students to use peer feedback received in the past in the form of an online ‘resume’.

**Optimized Yet Configurable**

Tool support for managing feedback does not necessarily generate useful feedback. The tool itself should try to enhance the quality of feedback. For example, one of the TEAMMATES features (currently under development) analyses student feedback at the point of submission and automatically prompts students to improve the quality of the feedback where necessary. For example, if a student estimated the contribution from a student as ‘low’ and yet did not provide any substantial qualitative comments, the system prompts the student to elaborate more.

![Figure 1: Example caption/title for figure](image-url)

Given that TEAMMATES started as a peer feedback system for team projects, it is currently well-optimized for that form of feedback. We are currently in the process of implementing other forms of feedback as illustrated in Figure 1. Here are the feedback options currently available in TEAMMATES (the item numbers in the list refer to the numbers in the diagram):

1. Self reflections. E.g., A description of how the student contributed to a team project.
2. Feedback to team members.
3. Feedback from student to/about the own team. E.g. Comments on team dynamics.
Here are examples of feedback modes currently not available in TEAMMATES:
(5) Feedback between individual students e.g., audience feedback about student presentations.
(8) Feedback between teams. E.g. A team’s opinion about the work done by another team.
(9) Feedback from a team to an instructor. E.g., A team’s feedback to tutor who supervised them.

These feedback sessions will be fully configurable in that the instructor can set his/her own questions with the desired giver type, recipient type, and the visibility level for each question. Here is an example for a hypothetical feedback session scheduled after a round of team project presentations:

Question: What is the strongest aspect of the team’s presentation?
Feedback route: from each student, one response per team (the route number 6 in Figure 1).
Visibility: Shown to the receiving team anonymously.

Evolving to Match Emerging User Needs

When designing a new system, it is difficult to predict all user needs at the beginning because user needs evolve over time. Furthermore, providing all desired features from the very beginning is not practical because of the resource-constrained nature of software projects in an academic environment. Therefore, we adopted an iterative and incremental model for building TEAMMATES: we add features incrementally and refine them iteratively, based on emerging user needs and user responses to existing features. This model of product development is very similar to how Facebook and Google build their online products (they too upgrade the product frequently, sometimes several times a day, while it is being used by users). TEAMMATES releases a new version every week.

Conclusion

TEAMMATES is an online service for managing various forms of feedback among instructors and students. This abstract touched on some of its salient features and its current direction. TEAMMATES aims to evolve continuously to match changing user needs. Therefore, we hope that the readers interested in TEAMMTES services will start using it and help shape its future direction by giving their own feedback about TEAMMATES.

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References