

StandUp: Engaging Professionals to Coach Design Projects

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Abstract: To investigate how we might expand learning environments to include professionals to coach students enacting disciplinary practices, we created StandUp, a socially-shared regulation of learning (SSRL) system. We implemented StandUp in an undergraduate design program with 3 student teams and 5 volunteer professionals. We captured 12 online coaching interactions that significantly changed project trajectories. This suggests SSRL designs can encourage online coaching that influences project trajectories.

Introduction

Educational researchers have long imagined how learning environments might better connect to disciplinary practice, such as engaging volunteer professionals with disciplinary expertise in classrooms (Brown & Campione, 1994). Online systems might connect students and professionals who can only rarely meet face-to-face. We implement *StandUp*, a system created to connect student design teams with professional designers who coach the teams off- and online. Design education uses project-based learning in which students work in teams to create products or services in response to a problem experienced by real-world stakeholders. Specifically, we examine if online coaching supports student design project trajectories.

Prior work shows it is unlikely professionals and students will sustain online coaching interactions independently (Rees Lewis et al., 2015): (a) students do not communicate their thinking clearly online (communication barrier), (b) students are not motivated to communicate with professionals because they did not see communicating online as immediately useful to their project (motivation barrier), and consequently (c) professionals do not have enough information about team activities and thinking to coach (awareness barrier).

The design argument for StandUp draws on SSRL (Järvelä & Hadwin, 2013). To encourage online coaching from professionals we propose SSRL systems (Järvelä & Hadwin, 2013) should include (a) a regular SSRL script in which students make daily and weekly project goals, report project progress, and surface obstacles; (b) questions prompts and textboxes to help teams to surface and record goals, progress, and obstacles on a feed (figure 1a); and (c) automated emails prompting coaches to leave online comments on the feed (Rees Lewis et al., 2017). In previous work we showed StandUp could increase both student communication to coaches online, and subsequent online coaching (Rees Lewis et al., 2017). However, research has not explored whether these online coaching interactions influenced student project trajectories. So, we ask *can coaching through online SSRL systems impact student design team project trajectories?*

Methods

We implemented *StandUp* in a 6-week full-time (40hrs/week) extra-curricular (no credit/grades) US university design program. Each of the 3 teams of 4 undergraduates were paired with 1-2 unpaid design professionals who coached the team. Professionals had 2 hour face-to-face meetings with the teams a week, and also agreed to communicate online for 2-hours/week. Teams worked with clients and other stakeholders on improving: access to healthy food, newly diagnosed diabetics lifestyle adjustments, or refugee transitions. Participants were 12 US undergraduates, and 5 professionals with between 5-34 years of relevant professional experience.

We interviewed students and professionals, collecting log data of StandUp use, and in-person field observations. We conducted 18 semi-structured interviews with students (20-36 minutes) and 6 semi-structured interviews with professionals (20-75 minutes), in which we asked questions about the project, and use of StandUp. We collected the log-data in the form of student and coach posts. In total there were 63 online coaching comments. We also collected field notes from 30-60 minutes of classroom observations each day.

To see if online coaching impacted team project trajectories, we first conducted inductive coding (Miles, Huberman, & Saldaña, 2013) to identify each section in student transcripts to find references of online coaching informing team trajectories. We defined project trajectories as changes in (a) project goals, (b) ways to achieve a goals, and (c) teamwork processes (e.g. meetings). Once we found a reference to changes in project trajectory in student interviews, we would then locate the online coaching comment students referenced, and checked if the professionals coaching the team also referenced this change. Finally, we would check if there were any references in the field notes to this change in trajectory. That is, we would only count an instance of a change in trajectory if we could find evidence in interviews with students, professionals, and in field notes.

Findings

Our analysis found 12 changes in project trajectories from online coaching comments across the 3 teams. We found 4 instances of teams changing their goals about what to investigate or build, 5 instances of changing how to enact a plan for a given goal, and 3 changes in work processes. This is an increase over the previous year in which teams did not use StandUp, online coaching did not occur, and thus had no impact on project trajectories.

The following example illustrates a team changing goals in response to an online coaching comment. The team was working on supporting the transition of newly arrived refugees. The team posted on a Friday about learning about their client's relationship with landlords of refugees, an interview with a refugee case worker, and an idea about designing "social support networks" for refugees (figure 1a). Two hours later, the professional posted suggesting carrying out more synthesis of user interviews with refugees (Figure 1b).

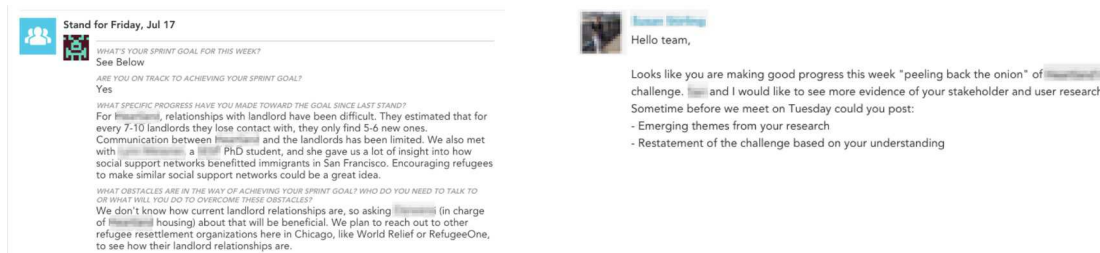


Figure 1a (left). StandUp report from a student design team that elicited online coaching.

Figure 1b (right). The online coaching in turn lead to a team changing their goals.

In an interview the professionals explained that she wrote the comment (figure 1b) because she was concerned the team was focusing on the wrong user (landlords) and solutions for an unnamed problem (social support networks), without understanding the needs of their primary user (refugees) ("Nobody paused to say what are the deeper insights for the stakeholders [refugees]"). In interviews, three students noted that upon reading the comment (figure 1b) they shifted to synthesizing existing refugee interviews. Field notes showed on the four days after the coaching comment the team worked on listing the findings from refugee interviews.

The other 3 instances of teams changing goals also saw changes in team activity across multiple days. Other instances involved (1) another example of conducting synthesis to focus on primary user needs, (2) changing the type of users and goals during user testing, and (3) conducting testing rather than user research. There were also 5 instances of professionals' comments changing how students enacted their plans to complete their goals. There were (1) 2 instances involving changing how to conduct solution testing, (2) 1 instance of changing how to brainstorm, and (3) 2 instances involving taking up specific methods of synthesizing user research. Finally, there were three instances of professionals' comments on work processes leading to changes in teamwork. These were (1) regularly timing how long activities took to monitor efficiency, (2) changing their work patterns, and (3) conducting group reflection meetings to improve teamwork practices.

This work shows that SSRL tools (Järvelä & Hadwin, 2013) can influence project trajectories; StandUp supported professionals' influence on student practices, despite barriers to volunteer professionals coaching teams (Rees Lewis et al., 2015). This work suggests that if we want to encourage online coaching comments from volunteer professional that supports students project trajectories, we should use: SSRL technologies (Järvelä & Hadwin, 2013) that support students to discuss and summarize their goals, activities, and obstacles into a written report which is emailed to the professional. This work contributes to our knowledge of how to engage professionals online to supporting students enacting disciplinary practices (Brown & Campione, 1994).

References

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