Mentoring and Facilitation in Entrepreneurship Education: Beliefs and Practices

Ben Lutz*, Cory Hixson, Marie C. Paretti, Alex Epstein and Jack Lesko

Abstract: Mentoring student teams is critical to entrepreneurship education, but the nature of that mentoring is often ill-defined, with little robust understanding of effective practices. To bridge this gap, this paper presents a qualitative study of mentoring practices in an entrepreneurship start-up class. By combining classroom observations with semi-structured interviews with mentors and students, the data provide a triangulated view of mentoring behaviors and their salience within an entrepreneurship learning environment. Two frameworks guided data collection: problem-based learning and mentoring in capstone design courses. The results of this study describe six mentoring practices (coaching, pushing for explanation, protection, rapport, acceptance/conformation, and role modeling) and explore how students value and respond to those practices.

1. Entrepreneurship Education: Lean Launch Pad and the Work of Mentors

Business schools have incorporated entrepreneurship education for decades, but recently the number and quality of such efforts have increased across the whole university, including within engineering programs. These efforts include majors, minors, specialized courses, clubs/social organizations, and living-learning communities (Besterfield-Sacre, Ozaltin, Shartrand, Shuman, & Weilerstein, 2011; Shartrand, Weilerstein, Besterfield-Sacre, & Golding, 2010). The National Center for Engineering Pathways to Innovation (EPICENTER), funded by the National Science Foundation (NSF), is among the most prominent of these programs, and its focus on supporting entrepreneurship education in engineering throughout the nation points to the pervasiveness of this issue (Gilmartin, Shartrand, Chen, Estrada, & Sheppard, 2014). Similarly, the I-Corps program, also established by the National Science Foundation, seeks to promote a culture of innovation among science, technology, engineering, and mathematics (STEM) researchers nationally. Moreover, efforts to expand entrepreneurship education are not only driven by academic and government institutions; private foundations such as the Ewing Marion Kauffman Foundation, the Kern Entrepreneurship Education Network (KEEN) and Venture Well (formerly the National Collegiate Inventors and Innovators Alliance or NCIIA) are all working to support a culture of entrepreneurship in higher education.

While approaches to entrepreneurship education vary, a growing trend emphasizes experiential learning in mentored environments; that is, students actively engage in entrepreneurship activities under the guidance of experienced entrepreneurs. The Lean LaunchPad model, used by both I-Corps and EPICENTER, exemplifies this approach. Developed by Steve Blank and based on industry practice and experiential education (Blank, 2013, May 2013; Blank & Dorf, 2012). The Lean LaunchPad approach teaches teams of participants to explore the market and business model surrounding a potential start-up idea. A “search” or learning process is used to develop a business model and, ideally for participants, a successful business start-up. Key in this approach is extensive
mentoring by experienced educators, entrepreneurs, venture capitalists, and other industry and entrepreneurship professionals. As young entrepreneurs move through the search process, these mentors serve as an ongoing sounding board, helping students make sense of their findings, revise their understanding of the market opportunities, and iteratively revise their search process as they work towards a viable product.

To date, however, few studies in entrepreneurship education have explored mentor practices and how those practices support student learning. To address that gap, this paper presents the findings from a case study of a semester-long entrepreneurship course at a large mid-Atlantic university designed to characterize mentor behaviors in entrepreneurship education. This article builds on work previously presented by the authors at the NCIIA Open 2014 conference (Lutz, Hixson, Paretti, Epstein, & Lesko, 2014). By triangulating data from classroom observations, mentor interviews, and student interviews, we address the following research question: What are the salient mentoring practices in the context of entrepreneurship education?

2. Literature Review and Analytical Frameworks: Mentoring Practices in Entrepreneurship and Education

Although detailed work on mentoring in entrepreneurship is limited, the work that does exist highlights its importance. Sullivan (2000), for example, highlights three core sources of learning: “past experience... learning from ‘colleagues’... and self-learning...” (p. 163); mentoring relationships, though perhaps most obviously linked to “learning from colleagues,” in fact can address all three by offering vicarious past experiences for participants to draw on and by providing guidance for reflecting on personal experiences. Mentoring has also been shown to support cognitive and affective learning through knowledge transfer, competency development, and other developmental areas such as “self-image, self-efficacy, and resilience” (St-Jean & Audet, 2012, p. 136).

While such work provides useful frameworks for understanding entrepreneurial mentoring in professional contexts, little if any work to date considers these practices in educational environments. For the present study, then, we turn to two closely related frameworks: mentoring practices in capstone design education developed by Pembridge (2011; Pembridge & Paretti, 2011) and problem-based learning (PBL) facilitation practices identified by Hmelo-Silver and Barrows (2006). Together these frameworks provide a useful lens for understanding what mentors do as they interact with students. Importantly, the two frameworks operate at different levels: Pembridge’s model describes functions and practices that operate at a macro level across a course to support students’ career and psychosocial development, while Hmelo-Silver and Barrow’s model provides a micro-level way to describe what facilitators say and do in the course of individual coaching sessions with PBL teams.

2.1 Capstone Design Mentoring

Pembridge’s (2011) model of mentoring in engineering capstone design courses, developed from reflective interviews with faculty, provides a useful lens to explore the practices at work in entrepreneurship education. Capstone courses, like most Lean LaunchPad experiences, focus on student teams undertaking open-ended, real-world projects; both settings are designed to synthesize students’ prior knowledge in a major design experience and to prepare students for professional practice (e.g., the pragmatics of client needs, constraints, and specifications).

Based on Kram’s (1985) model of mentoring in business settings, Pembridge’s model, shown in Table 1, operationalizes those practices for capstone design environments, redefining the major functions and identifying context-specific practices.
As Table 1 suggests, these functions address distinct dimensions of student development: career and psychosocial. Career development functions focus on the skills and networks students need to be effective in their work. Mentors share discipline-specific knowledge and facilitate interactions with other professionals in the field. At the same time, mentors also seek to protect students from failures, including both project failures and—critical in an educational context—failures to learn. Psychosocial-development functions, in contrast, focus on personal development and address beliefs and attitudes, with an emphasis on the relationship between mentor and student. Mentors model their own behaviors and values, help students develop confidence in their work, provide strategies for negotiating personal and interpersonal challenges, and create a sense of approachability and comfort. By providing emotional support and encouragement throughout a project, mentors develop students’ confidence and promote a sense of accomplishment about the work they are doing.
2.2 Facilitation Practices in PBL

While Pembridge’s model addresses the macro level, the Hmelo-Silver and Barrows (2006) model of facilitation practices in problem-based learning (PBL) environments provides a useful lens for analyzing micro-level behaviors enacted in the dialogue between mentors and students. As in entrepreneurial ventures, PBL involves students solving ill-structured, authentic problems under realistic conditions and constraints with the guidance of a mentor. Students are responsible for identifying what they know about the problem, what they need to know, and how they are going to learn about it. PBL is particularly relevant to entrepreneurship education because, as a pedagogical approach, it addresses broader transferable skills associated with solving ill-structured problems (e.g., self-directed learning, collaboration, and a flexible knowledge-base (C. E. Hmelo-Silver, 2004)) that are essential for successful entrepreneurs. Hmelo-Silver and Barrow (2006) identified ten core practices that PBL facilitators use to support learning, listed in Table 2.

**Table 2. Facilitation Practices in Problem-Based Learning (Hmelo-Silver, C. & Barrows, 2006)**

<table>
<thead>
<tr>
<th>Practice</th>
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</thead>
<tbody>
<tr>
<td>Open-ended/metacognitive questioning</td>
</tr>
<tr>
<td>Pushing for explanation</td>
</tr>
<tr>
<td>Revoicing</td>
</tr>
<tr>
<td>Summarizing</td>
</tr>
<tr>
<td>Generate/evaluate hypotheses</td>
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<tr>
<td>Map between symptom and hypotheses</td>
</tr>
<tr>
<td>Check consensus that the whiteboard [used to capture ideas] reflects discussion</td>
</tr>
<tr>
<td>Cleaning up the board</td>
</tr>
<tr>
<td>Creating learning issues</td>
</tr>
<tr>
<td>Encourage construction of visual representation</td>
</tr>
</tbody>
</table>

In particular, generate/evaluate hypotheses, map between symptom and hypotheses, check consensus, and clean up the board were generalized beyond the scientific inquiry model to address design/development and reflect a broader array of classroom environments (i.e., not all mentor/team interactions involve a physical white board). In many respects, the practices in Table 2 reflect specific behaviors associated with the coaching function of Pembridge’s model, and help identify what mentors say and do as they work with student entrepreneurs.

3. Methods

To explore mentoring practices in entrepreneurship education, this paper presents a case study (Yin, 2014) of a semester-long course conducted at a large mid-Atlantic institution. The course was team-taught by four instructors, three of whom had start-up experience. One was simultaneously working as a faculty member and start-up co-founder; another had previous start-up experience but was currently working as a faculty member leading an interdisciplinary technology-focused research initiative; the third was serving as a regional leader in start-up and economic development. The fourth instructor, despite having no formal start-up experience, had experience using the Lean LaunchPad approach and had a strong foundation in learning theories and the entrepreneurship education literature. In addition, other experienced start-up mentors from the community moved in and out of the course and engaged with student teams.
The course met weekly for three hours throughout the semester (15 weeks). Course time shifted back and forth between informal presentations, in which each team presented their progress to the whole class for review and feedback, and working sessions, in which the teams met individually with one of several mentors. Mentors typically rotated from group to group during a single class (i.e., a mentor might spend 20 minutes with group A, then move to group B for another 15 minutes, and so on). Students were also encouraged to seek out additional mentors who could help them succeed, and the instructors created multiple opportunities to facilitate such connections, including two mandatory mentor mixers/socials and “start-up events” within the local community. Data collection included observation of all class meetings, interviews with mentors, and interviews with students. All procedures were governed by Virginia Tech’s Institutional Review Board (IRB# 13-077).

3.1 Participants

The course consisted of 25 students (24 men, one woman), four instructor-mentors, and six additional mentors. Enrollment in the course involved a selection process: teams of students who had an idea for a start-up completed a formal application and were interviewed by the instructional team prior to acceptance. Eight teams were accepted. Student participants ranged from undergraduate sophomores to doctoral students and represented various majors and departments such as industrial systems, computer science, and business; however, most were engineers at the senior or graduate level. Mentors brought varied entrepreneurial experience that enabled them to effectively support student development.

3.2 Observations

Whole-class presentations and discussions, as well as conversations between individual teams and their mentors were observed each week; data was collected via extensive field notes. The observation protocols used the Pembridge and Hmelo-Silver and Barrows frameworks as sensitizing concepts, but the field notes attempted to capture as fully as possible all course events and discussions (including verbatim conversations). Observations were conducted by two of the authors until agreement was reached on the content observed; all subsequent observations were conducted by the first author to ensure consistency in the data. The observer(s) captured whole-class discussions as they happened, then moved about the room to observe individual mentor/team discussions. When possible, the observers(s) located groups that had just begun a discussion to help capture context, but the class presentations as well as the knowledge gathered from being in class each week also provided additional context. To ensure that the mentor/team observations were representative, the researcher(s) observed as many different combinations of teams and mentors as possible over the 15-week semester such that the data provided rich observations of all four primary mentors interacting with different teams at each point in the process. The observer(s) captured dialogue (verbatim as much as possible) as well as gestures, body language, and setting. The primary observer was present each week for the full three hours and became immersed in the course, creating an environment in which the students appeared to feel comfortable speaking freely; that is, no noticeable changes in group dynamics occurred when the observer joined a group. This observation data provided the foundation for the development of interview protocols for both the students and mentors.

3.3 Interviews

In the 13th week of the course, emails were sent to all students and mentors inviting them to participate in interviews about their experience. Four students and three mentors were interviewed. All student participants were engineering students; one mentor was an engineering graduate student, one was an external mentor, and the third was an engineering faculty member. Individual semi-
structured interviews were conducted with both students and mentors. The interview protocols were developed based on the mentoring and PBL frameworks as well as the in-class observations and analysis. Student interviews explored interactions with mentors, how those interactions affected learning and project work, and the extent to which the advice or knowledge participants gained from their mentors was perceived as useful for their careers. Mentor interviews focused on intended student learning goals and how those goals were accomplished within the context of the course. The use of semi-structured interviews provided common data surrounding the central themes of the protocol, but also allowed the interviewer to explore specific or unanticipated topics more deeply (Patton, 2002; Yin, 2014). All interviews were audio-recorded and transcribed verbatim. For the full interview protocol, see the Appendix.

3.4 Analysis

Data analysis consisted of a priori coding of all observation field notes and interview transcripts, using the codes listed in Tables 1 and 2. The researchers also remained alert for behaviors not captured by the two frameworks, but the two frameworks appeared adequate to capture all behaviors identified through both observation and interviews. To ensure reliability across researchers, the initial round of coding was reviewed and discussed by the research team until consensus was reached regarding the definitions of each code. The definitions of Pembridge’s codes were used verbatim (Table 1), but the definitions of several of Hmelo-Silver and Barrow’s codes were modified or adapted to reflect the context. For example, “cleaning up the board” was initially intended to mean, quite literally, cleaning off a whiteboard. However, the reason for cleaning the whiteboard was to focus the team and eliminate some impractical solutions or paths. Consequently, the language used in some of the operational definitions was slightly modified to be more contextually appropriate while still preserving the overall meaning of the codes. The final PBL codes used for analysis are listed in Table 3. Codes in which the language was modified are indicated with the original code also listed below.

Following consensus, two members of the research team coded the same subset of transcripts in order to achieve inter-coder agreement across both frameworks. The remaining data was then analyzed by the same two members of the research team.

Note that codes were not necessarily unique to each segment; any single passage in the data sets analyzed could have been assigned multiple codes because the codes frequently intersect both within a single framework as well as across frameworks. For example, a mentor may be coaching a student while simultaneously role modeling his or her own way of addressing an issue. Similarly, a mentor may push for explanation in order to protect students from failing. We note that a full discussion of these intersections is beyond the scope of this paper.
Table 3. Final Definitions for Facilitation Practices in Problem-Based Learning

<table>
<thead>
<tr>
<th>Facilitation Practice</th>
<th>Operational Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open-ended/meta cognitive questioning</td>
<td>Open-ended or reflective questions designed to help students identify what they know and what they need to know</td>
</tr>
<tr>
<td>Pushing for explanation</td>
<td>Questions or comments designed to help students clarify both their reasoning and the gaps in their knowledge</td>
</tr>
<tr>
<td>Revoicing</td>
<td>Comments that restate individual students’ ideas; can serve to ensure that all voices on the team are heard as well as to highlight ideas the team should pursue</td>
</tr>
<tr>
<td>Summarizing</td>
<td>Comments that bring together the key points of a discussion; can help ensure the entire team has the same understanding; support synthesis</td>
</tr>
<tr>
<td>Generate/evaluate hypotheses</td>
<td>Comments or questions designed to help students articulate and test their ideas</td>
</tr>
<tr>
<td>Map between issue and potential solution* (Map between symptom and hypotheses)</td>
<td>Comments or questions that push students to explain their causal reasoning or elaborate causal mechanisms</td>
</tr>
<tr>
<td>Check that notes reflect student progress* (Check consensus that the whiteboard reflects discussion)</td>
<td>Reviewing or monitoring what students are writing down to ensure that they keep track of important ideas and decisions</td>
</tr>
<tr>
<td>Eliminate impractical solutions* (Cleaning up the board)</td>
<td>Comments or questions that help the team make decisions and move forward and maintain focus on viable options</td>
</tr>
<tr>
<td>Creating learning issues</td>
<td>Comments or questions designed to help students see the limits of their knowledge and ideas as opportunities to learn</td>
</tr>
<tr>
<td>Encourage construction of visual representation</td>
<td>Asking students to write, draw, or otherwise represent what they know</td>
</tr>
</tbody>
</table>

4. Results

As noted above, the Pembridge and Hmelo-Silver and Barrows frameworks were sufficient to capture all mentoring behaviors observed in class and described by interview participants. Moreover, all practices and behaviors appeared in the data set.

To identify the most salient codes for this case study, the researchers considered both the frequency of each code across the three data sources (observations, faculty interviews, student interviews) and the relative importance of the behaviors as described in the interviews in particular. Table 4 shows the percentage of coded segments in each group and across the full data set.

It is important to note here that the distribution of codes across the total set is heavily skewed by the over-representation of observation data, which account for 76% of the total coded segments (45 hours of observation data in contrast to four hours of student interviews and three hours of mentor interviews, with different types of data represented—i.e., direct observation versus reflective perception). As a result, while Table 4 provided an initial guide to salience, the final selection was also guided by the context of the interviews as both students and instructors talked about their interactions. The research team reviewed these findings together in detail to reach final consensus on salience.
### Table 4. Distribution of Codes Across Data Sources

<table>
<thead>
<tr>
<th>Code</th>
<th>Student Interviews</th>
<th>Observations</th>
<th>Faculty Interviews</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of coded segments</td>
<td>187</td>
<td>1169</td>
<td>177</td>
<td>1533</td>
</tr>
<tr>
<td>Coaching</td>
<td>21%</td>
<td>28%</td>
<td>18%</td>
<td>26%</td>
</tr>
<tr>
<td>Rapport</td>
<td>18%</td>
<td>9%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Acceptance/Confirmation</td>
<td>7%</td>
<td>10%</td>
<td>3%</td>
<td>9%</td>
</tr>
<tr>
<td>Protection</td>
<td>12%</td>
<td>6%</td>
<td>12%</td>
<td>8%</td>
</tr>
<tr>
<td>Pushing for Explanation</td>
<td>2%</td>
<td>9%</td>
<td>5%</td>
<td>7%</td>
</tr>
<tr>
<td>Role Modeling</td>
<td>12%</td>
<td>4%</td>
<td>9%</td>
<td>6%</td>
</tr>
<tr>
<td>Challenging Assignments</td>
<td>3%</td>
<td>5%</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Open-ended/Metacognitive Questioning</td>
<td>1%</td>
<td>6%</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td>Employability/Sponsorship</td>
<td>2%</td>
<td>4%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Creating learning issues</td>
<td>2%</td>
<td>3%</td>
<td>8%</td>
<td>3%</td>
</tr>
<tr>
<td>Generate/Evaluate Hypotheses</td>
<td>4%</td>
<td>2%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>Exposure/Visibility</td>
<td>4%</td>
<td>2%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>Encourage construction of visual representation</td>
<td>0%</td>
<td>3%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Map between issue and potential solution*</td>
<td>3%</td>
<td>2%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>Summarizing</td>
<td>1%</td>
<td>2%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>Revoicing</td>
<td>2%</td>
<td>2%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>Counseling</td>
<td>2%</td>
<td>1%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Eliminating impractical solutions*</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Check that notes reflect student progression*</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Across both frameworks and all three data sets, six codes emerged as highly salient based on the frequency with which they appeared across all three sources of data: 1) coaching, 2) pushing for explanation, 3) protection, 4) rapport, 5) acceptance and confirmation, and 6) role modeling. The first three practices directly address student learning as mentors seek strategies to help students develop the necessary skills to succeed. The next two, rapport and acceptance and confirmation, address relationship building to create a mentor-student dynamic that supports learning. Role modeling then bridges the two groups by both providing a concrete vision of what the students are seeking to learn and establishing the mentor’s credibility in a way that enables students to learn from their experiences. The following sections describe each code in more detail, with illustrative examples from the data.

#### 4.1 Coaching

Coaching, as defined in Table 1, is the process by which mentors help students develop specific technical and professional skills needed to address the project at hand. As described by Pembridge (2011), coaching can take a variety of forms, from direct instruction to questioning to directing students to resources. In this case, mentors regularly moved back and forth across these strategies, as suggested by the following exchange:
Students – Do you have any suggestions? We really want to set this up on Mother’s Day. We have been looking at renting a [device] but…. Do you have any suggestions? Do we try and bring an investor on board?
Mentor – You will get 4 different answers, because there is not a right answer.
Students – Well what do you think?
Mentor – Well you can do a lot of things. You can bring in family members, you can get an angel [investor], like one of us that walk around. You know what else you guys could do? Could you Indiegogo this?
Students – Well they want you to be able to create a product.
Mentor – The hell you’re going to have to go through is the barrier that you are going to have.
What I would do is to begin to explore those elements of IP… I would certainly do a provisional [patent], it costs next to nothing.
Students – With the provisional, would we need a lawyer?
Mentor – You would have to ask [other mentor]. (B. Lutz, field notes, April 17, 2013)

Here, the students are asking for specific directions, but the mentor offers multiple suggestions to consider first before then modeling his own behavior (“what I would do…”). Such exchanges recur throughout the course, with mentors employing various strategies to help students explore possible directions and make strong decisions.

4.2 Pushing for Explanation

The process of “pushing for explanation” emerged in the data as a dominant strategy, with mentors routinely asking “why?” or “how do you know that?” as students presented claims and ideas. The following conversation, captured from the observational field notes, illustrates this dynamic as the mentor pushes for explanation from a student who was struggling to understand customer discovery:

Student – Well I would imagine…
Mentor – Well that’s the thing. I don’t want you to imagine. I want you to find out these things... Now you have this guy’s name, have you talked to him?
Student – No.
Mentor – Okay! You need to talk to him! I understand you want to focus on [a specific detail of the product] and yeah that makes sense, but what I want you to understand is how they [stakeholders] make decisions.
Student – They don’t! They just get a shipment [of product]!
Mentor – How do they do it?
Student – First in, first out.
Mentor – How do you even know? How does this person say that…?
Student – I don’t know. I haven’t spoken with him.
Mentor – Go talk to this person. Don’t try to sell, try to understand… What’s important? Is it the quality of the [product] that he gets? Does he ever see it? If he has to manage the distribution, how does he do it? Is there a process where they go through and decide? What’s the process? I can’t imagine that there isn’t a process… How does he make decisions about how much [product] to ask for?
Student – Well a lot of it is farming… I feel like his job is very similar.
Mentor – I don’t want you to feel! I want you to ask! (B. Lutz, field notes, April 17, 2013)
Here, the mentor is asking questions that explore what the student knows, rather than what the student “imagines” or “feels,” to expose gaps in the underlying rationale and knowledge base that the student has not fully considered.

This strategy is fundamental in the Lean LaunchPad methodology and may be particularly important in entrepreneurship education because novice entrepreneurs often make claims that seem logical and are grounded in their own beliefs and experiences, but may not be supported by any empirical evidence. Novices “fall in love” with their idea and thus may fail to test that idea against the needs, interests, and experience of their intended market. In start-up development, many variables affect the decisions and future directions of the project, and some of those variables can go unnoticed if the right questions are not posed. By pushing for explanation, mentors highlight the need to explore additional factors necessary for effective entrepreneurial decisions and help students bridge the gap between what they know and what they need to learn.

4.3 Protection

The final practice linked directly to student development, and particularly important in classroom settings, is protection. While protecting novice entrepreneurs from project failures is likely common across both professional and workplace settings, the focus on learning may be unique to education because course mentors are focused on the student, rather than product development. To afford such protections, mentors monitor team progress, supply resources, ensure accountability, and make themselves available. The excerpt below from a mentor interview illuminates the ways in which understanding and intervening in the team dynamics was clearly linked to averting a foreseeable failure:

There was another example where communication, hands down, was pretty much nonexistent, right? … I also was not confident that one of the team members, that anything this person told me was truthful or really was acted on at all.

So when I interacted in that scenario, it was very much from an evaluate, filter, explore, what’s, what portion of what this person is telling me is legitimate and what portion do I really need to press on and say, hold on, ‘are-you-really-doing-that-or-are-you-just-telling-me-you’re-doing-that-because-you-don’t-want-to-tell-me-that-you-haven’t-done-that’ kind of a situation? (Mentor 1, interview, May 29, 2013)

The mentor here was clearly attentive to the team dynamics, holding individual team members accountable for being honest about the situation. The mentor could sense that something was going wrong, and by checking in early and often, the mentor helped the team take corrective action and avert the failure.

4.4 Rapport

As noted earlier, rapport indirectly supports learning by creating a climate in which students are willing and able to learn from their mentors. Mentors in the case study consistently worked to create an environment where students became comfortable approaching the mentor. This “rapport” emerged from interactions inside and outside of the classroom through conversations, jokes, advice, and opportunities for mentors to get to know students personally. One mentor described the process as follows:

As a career shift, I shifted into small businesses in my 30s and never looked back. And I’m glad I did. And with that, you do develop good personal relationships, and you get some of that same buzz in this course as a mentor. So absolutely, and in fact, I had a couple of students come to my house … That told me that people saw value in me as a mentor, and the folks that came to
me, when they talked about their ideas, which were separate from what they were doing in class, the energy, the passion, the speed of thought was there. (Mentor 2, interview, July 17, 2013)

Here the mentor talks about building personal relationships with students in the same way he would in a workplace. He had become someone that the students could approach for advice in a more relaxed setting. Student interviews consistently highlighted the effectiveness of such strategies:

…he’s one of those people I could talk to. He was very open to talking about things. And that I think comes from, you know, possibly his younger age, you know, he’s engaging, and he tends to be a pretty positive person. But I feel like he’s a little bit more real. (Student 2, interview, May 9, 2013)

As the quote demonstrates, students felt very comfortable talking with a particular mentor, citing openness and authenticity as important aspects of their relationship.

4.5 Acceptance and Confirmation

Where rapport serves to ensure that mentors are approachable and available to students, acceptance and confirmation serve to provide students with “a sense of accomplishment” while also encouraging “personal ownership and responsibility” (Pembridge, 2011) for both their learning and entrepreneurial projects. Most often, acceptance and confirmation took the form of mentors highlighting exceptional work students had done and showing genuine interest in the projects. This acceptance and confirmation gave students the motivation needed to persist with their projects despite setbacks. Often in entrepreneurial endeavors, work can become exhausting and students may question their commitment to move forward in their projects, but as one student explained, the interest and excitement from the mentors provided an important support in the face of those difficulties:

[The mentor’s] excited about the idea and that’s helpful, when you’re excited about the idea, too, but after, [working on the project development] for four and a half hours and you’re exhausted, you’re [chuckles], it’s good to remember other people are excited about the idea, too. (Student 3, interview, May 13, 2013)

Successful entrepreneurship can often involve long hours and a lot of sacrifice, and students benefit from feeling like they are accomplishing meaningful goals throughout the process. When the projects become overwhelming and team progress seems to slow, validation from mentors becomes a powerful way to keep students engaged and on track.

4.6 Role Modeling

Role modeling operates in a liminal space between direct and indirect learning support to impact the ways students make decisions inside and outside the classroom. Role modeling includes both modeling professional behaviors and approaches to entrepreneurship and expressing personal and professional values more broadly. Mentors frequently provided examples from their own experiences to help students understand the process of starting companies. Shown below is an example of a mentor providing feedback based on his own individual experiences with the particular product.

…there’s something interesting though, those two statements, I’m still struggling with the latter premise… You said this other stuff which I love… They wanna know this, they wanna know that… [sic]I feel like there’s something more there. As I tell everyone “I’m an n of 1, take it with a grain of salt” but that first piece you really grabbed me. There is a [consumer base] and I am one of them. That’s my market and I know, I look at those little labels, and I know there’s a lot of people like me… see if there’s something ethnographically in your interviews… and then finally after that you can get to the [product feature] component. (B. Lutz, field notes, March 6, 2013)
In addition, mentors typically provide the rationale for their decisions to help students understand not just the mechanics of what to do, but why certain responses are appropriate and what factors might affect those responses.

Students in the case study clearly identified this role modeling as valuable, as illustrated by a student who was having trouble with teammates showing up late for meetings or missing them altogether:

…he [Mentor 2] recommended that I go by the process, when you take these actions, it makes me feel like you are disrespecting my time, it makes me feel, and just, so I could fill in the blanks, in terms of just explaining how the action makes me feel instead of accusing anybody of being lazy or, you know, instead of doing any labeling, just kind of much more pegging it from cause and effect of the action and the result, the resulted effect….So that was really helpful. And you know, he also shared some of his personal experiences, like when he gets in arguments with his wife, how he has learned through that interaction how to kind of argue better with better outcomes, and he was sharing that with me, so it was nice that he had that personal experience. (Student 2, interview, May 9, 2013)

Notably, the student first describes the mentor providing direct coaching, but then describes the ways in which this coaching was followed by role modeling based on the mentor’s personal life. The personal experience served two goals: it supported rapport and it provided credibility. Because the advice was followed by an example from personal experiences, the student perceived that advice as more genuine and realistic.

5. Discussion and Conclusions

Analysis of the case study data using existing frameworks for working with student teams highlighted six practices that were salient for the case under consideration, which relied heavily on the Lean LaunchPad model. Given that the functions and behaviors identified here also map to broader models of mentoring seen in project-based courses, however, we hypothesize that the behaviors would also be salient in entrepreneurship courses relying on other start-up development models.

Across the case, six practices emerged as salient based on the intersection of direct observation and participant reflection. Coaching, broadly defined, encompasses the multiple ways in which educators direct and guide students’ project work. Pushing for explanation provides a specific verbal strategy designed to encourage students to ground their decisions in empirical evidence, present a clear chain of reasoning, and identify gaps in their knowledge that need to be filled via continued search and exploration strategies. Protection includes mentors’ intentions to prevent not only project failures, but failures to learn the kinds of skills, behaviors, and attitudes that can transfer beyond the immediate course project to subsequent entrepreneurship endeavors. Rapport creates a climate in which students feel comfortable approaching mentors to ask for advice and direction. Acceptance and confirmation provide encouragement as students navigate the inevitable setbacks and direction changes that accompany the customer discovery process. Role modeling helps students envision the practices they are learning in action via their mentors’ own practices and helps develop the mentors’ credibility based on past experiences of both success and failure. These practices occur almost simultaneously as mentors move from coaching students through a process to sharing their own experiences using the process, from protecting students from project failure to providing support and encouragement for their current direction, from joking to create a stronger rapport to pushing students hard to explain their decisions.

While “coaching” offers the broadest description of what mentors do as they guide student teams through a process like Lean LaunchPad, the more specific practices for both direct instruction and
indirect relationship building are equally, if not more, important in creating an educational climate in which students are able to learn successfully. As the mentoring models developed by Kram, Pembridge, St-Jean, and others suggest, these interpersonal dynamics are critical; entrepreneurship education, like most project-based teaching and learning, is not solely a matter of experts transmitting effective practices to students. Instead, those experts develop meaningful relationships with students that support an array of both personal and professional learning goals. As entrepreneurship education in the US continues to expand, program developers need to ensure that mentors understand the full range of responsibilities and have the necessary tools and strategies to fulfill them. Future work will look to define learning outcomes and identify how these mentoring practices impact student learning in entrepreneurship classroom environments.

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References


Interview Protocol - Students
Introduction: As I mentioned when we reviewed the informed consent, what I’m really interested in today is your experience with the people/person who mentored your team.
1. Is there one mentor that you’d say was your primary mentor? (If not, start with the mentor he/she interacted with most often or found most helpful.)
2. Please describe your interactions with that person.
   Prompts:
   • Can you provide some examples of the things you’re describing?
   • Are there any examples or experiences that really stand out in your interactions?
   • How did those interactions affect your work on the project? Your learning?
   • When I observed your team meeting with [mentor], I noticed [behaviors associated with mentoring in the literature – e.g., asking a lot of questions, talking about his/her own experience, coaching]. Was that something he/she did often? How did that influence your project? Your learning?
3. How often did you interact with your mentor outside of class? What were those interactions like?
4. What other mentors did you interact with? Describe those interactions (one at a time).
5. How would you describe the strengths or advantages of each of the mentors you interacted with?
6. What things did you learn from your mentor that you think will be most helpful as you move into your career?
7. Was there any kind of mentoring or guidance that didn’t get that you wish you had?
8. Is there anything else you’d like me to know about your experiences with your mentors as I try to understand “good teaching” in this kind of class environment?

Interview Protocol - Mentors
Introduction: As you know, our focus in this project is trying to understand how mentors approach working with student project teams, so we’ve got a couple of questions we’d like to ask you about this past spring’s class.
1. What were your goals for the students you were working with in this course?
Prompts:
   • What did you want them to learn?
   • What did you want them to accomplish?
   • How were those two things (learning and accomplishments) related?
   • How did you see the course connecting to their professional careers/life after graduation?
2. How would you describe your role and your interactions with the students?

Prompt for specific examples of things they talk about (e.g., coaching them, asking lots of questions, trying to make them think).

Other prompts:
- What kind of guidance or direction did you try to provide? How did you balance telling them what to do and letting them finding their own way?
- Did you interact with them outside class? If so, what were those interactions like?
- How did you bring your experiences into the process of mentoring?
- Additional prompts based on specific interactions observed during the course?

3. Was this your first experience mentoring student teams?

- If yes, what did you learn?
- If no, how was this like/unlike your past experiences?

4. Is there anything else you want us to know about mentoring student teams and what happened this spring that you think would be helpful?