Investigating the Impact of the Lean Launch Curriculum for Engineering Entrepreneurship Students

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Introduction

The role of entrepreneurship in engineering education has undergone a substantial transformation over the last several years. Engineering entrepreneurship has evolved from the traditional business school model, focusing on business skills, and business plans, to include cultivating an entrepreneurial mindset to enhance students' professional formation. The recent widespread adoption of the Lean Launch Curriculum and Business Model Canvas has finally provided engineering programs with a straightforward, common curriculum and pedagogical approaches that warrant further examination. The purpose of this study is to examine the impact of the Lean Launch curriculum and pedagogy on undergraduate engineering students with regard to self-efficacy, behavior and knowledge.

Research Question

What is the influence of the Lean Launch Curriculum on engineering students' educational outcomes with respect to measures of affect, behavior, and cognition?

Methods

Students in an engineering entrepreneurship course completed pre and post-surveys. Open-ended questions within the survey allowed the researchers to probe students' understanding of the customer discovery process. Student responses to the following questions were analyzed:

1. You have been tasked with evaluating whether or not this app should be brought to market by the company. Describe who you would speak to. Why would you want to speak to these people? How would you make contact with them?

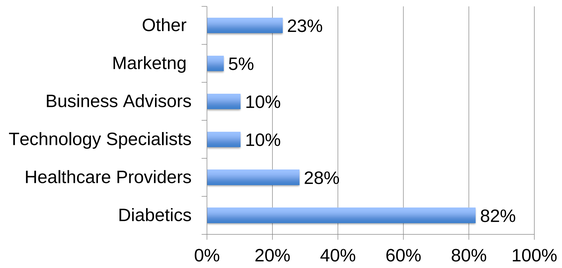
1. An elderly woman is having trouble managing her diabetes. Describe at least five steps you would take to determine if this cellphone app would be a potential solution for her problem.

1. In speaking with potential users you discover that the majority of diabetic patients are over the age of 60. Describe how this might influence your company's next steps with the app.

Who?

Pre-survey data suggests that the majority of engineering students (82%) recognize the importance of consulting their target audience (diabetics) to determine the viability of a new product.

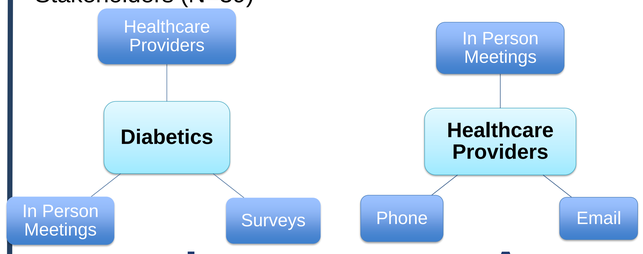
Figure 1: Stakeholders that Student Respondents (N=39)



How?

In the pre-survey, engineering students indicated that they would most likely contact diabetics through healthcare providers (doctors, medical facilities etc.), in person meetings, or surveys. Healthcare providers were most likely to be contacted in person, by phone, or by email.

Figure 2: Examples of Strategies to Contact Potential Stakeholders (N=39)



Why?

In the pre-survey, engineering students indicated that getting feedback from potential customers (diabetics and healthcare providers) was essential prior to launching a new venture. Also, students desired to consult business and app development experts to inform their decision making.

Table 1: Respondent Reasons for Contacting Stakeholders (N=39)

Stakeholder	Reason to Contact
Diabetics	Gather Feedback from Target Audience
Healthcare Providers	Gather Feedback and Seek Medical Professional Expertise
Business Advisors	Ask for Business Advice
Technology Specialists	Determine the Feasibility Application

Next Steps?

Engineering students were primarily concerned with the potential customer's access to a smartphone in determining whether or not the app was a realistic solution for an elderly person with diabetes.

Table 2: Top 5 Steps Respondents would Take to Determine if the Product is a Viable Solution (N=38)

Top 5 Steps
1. Ask if diabetic has a cell phone
2. Determine her current diabetes management system
3. Assess her comfort with technology
4. Demonstrate/Explain the App
5. Ask about the usefulness of the app for the diabetic

Influence of Additional Information?

Comparing the results from the pre and post-surveys, it appears that after taking the engineering entrepreneurship course students recognized the importance of testing the utility of the app with the new target demographic prior to bringing the product to market.

Figure 3: Pre-Survey Responses to Change in Customer Demographic (N=38)

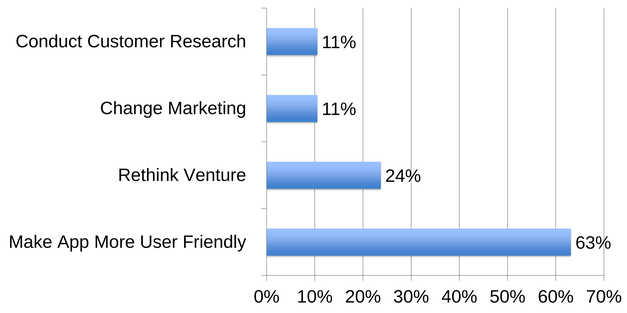
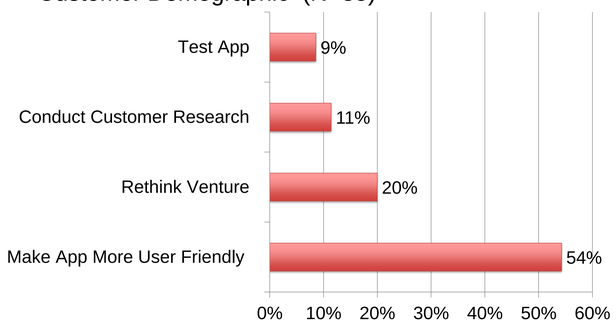


Figure 4: Post-Survey Responses to Change in Customer Demographic (N=35)



Preliminary Findings

- The preliminary analysis of the pre-survey data suggests that engineering students possess a clear awareness of who product stakeholders might be and reasons for contacting them. However, students seem to be less certain regarding how to make connections with potential customers beyond attempting to make contact in person, by phone, and email.

- Comparing the pre and post-survey data concerning students' responses to learning about a change in their customer demographic, it appears that after taking the entrepreneurship course engineering students would engage in further information gathering and testing of the application prior to changing their marketing strategy.

- Before and after the entrepreneurship course, the majority of engineering students indicated that they would likely make adjustments to the app to accommodate the needs of their new customer demographic.

Project Next Steps

- Complete the analysis of the pre and post-survey data

- Compare student responses across cohorts (College of Engineering, School of Music, and School of Public Health)

- Examine the qualitative results in relation to the quantitative results

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