

Assessing Social Media Use in Entrepreneurship Education: The Role of Crowdsourcing in Advancing Innovation Quality and Student Satisfaction

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Abstract

Digital Natives, individuals who grew up with the Internet and digital technologies, are increasingly disenchanted with the traditional “sage on the stage” lecture format. Additionally, they demand relevance and realism in the education experience. This study examines the effectiveness of crowdsourcing as a pedagogical tool in entrepreneurship education. It employs Quirky.com, a commercial crowdsourcing site, to introduce a real world product commercialization experience to the classroom. Sixty nine students used Design Thinking and rapid prototyping methods to develop and field-test product prototypes. Their innovations were subsequently submitted to Quirky.com for commercial evaluation. The theory of planned behavior was used to test the relationship between perceived behavioral control (PBC), innovation quality, and student satisfaction with the course. Innovation quality was measured by evaluations from Quirky.com experts while satisfaction was measured with a questionnaire. Results indicate that high PBC led to high student satisfaction with the experience but not innovation quality.

Keywords: Entrepreneurship education, creativity, crowdsourcing, Design Thinking

1. Introduction

Higher education faces interesting challenges arising from digital nativism-immersion in the culture of computers, the Internet, and Web 2.0 technologies-among Millennials. Spitzer (2012) asserts that exposure to a digitally rich environment has rewired students’ neural architecture to the extent that they think, act, process information, and learn differently from previous generations. Oblinger (2003) suggests that these new traits create a disconnect between students’ expectations in the classroom and the experience that is actually delivered in universities. Today, many students exhibit low tolerance for the classic “sage on the stage” lecture format; have short attention spans; engage in multitasking behaviors; prefer electronic over face-to-face communication; and desire hands-on, self-directed learning (Palfrey & Gasser, 2008; Prensky, 2010; Lean et al, 2014). The resulting student disenchantment and disengagement and prompt a search for new ways to make the classroom experience relevant and compelling.

Widespread use of technologies such as YouTube, Facebook, Wikipedia, and blogs among students has spawned considerable interest in employing social media to increase student engagement and promote participatory learning (McLoughlin & Lee, 2010; Selwyn, 2010). Social media use in education has, however, been uneven and no widely accepted practices have been developed (Kaplan & Haenlein, 2010). This exploratory paper examines crowdsourcing as a tool in entrepreneurship education. It employs a product development exercise, conducted on the crowdsourcing site Quirky.com, to measure the quality of ideas generated and student satisfaction with the experience.

The remainder of this paper is organized as follows. Section two discusses the appeal of social media and digital natives' learning preferences. The section three discusses the theory of planned behavior which provides the theoretical foundation this study. Section four outlines the sample of entrepreneurship students used in the study and analytic methods. Sections five and six discuss the study's results and presents conclusions respectively.

2. Social Media and Digital Native Learning Preferences

Social media is a broad ranging collection of technologies that allow users to share knowledge (Wikipedia); inhabit virtual worlds (Farmville); engage in social networking (Facebook); produce, distribute, and consume multimedia (Vimeo); game virtually (Second Life); and share perspectives on particular topics (blogs). This list is by no means comprehensive because constantly advancing technology causes developers to invent new features for niche markets or highly specialized users. Kickstarter and Indiegogo, for example, were created to allow entrepreneurs to fund ideas. This study employs Joosten's (2012) description of social media as any technology that enables communication, collaboration, and community building.

Digital natives exhibit specific preferences in an educational experience. They seek quick and easy access to information (Oblinger & Oblinger, 2005; Tapscott & Williams, 2010); prefer immediate feedback (Dunlap & Lowenthal, 2011; Junco, 2012); often eschew face-to-face communication in favor of electronic means (Junco, 2012; Sim & Hew, 2010); and seek an element of play and serendipity (Aragon, et al, 2009; Carroll et al, 2009). Virtually all of these preferences are satisfied by various forms of social media. Search engines such as Google and Wikis satisfy the need for quick and easy access to information. Facebook and other social networking sites offer virtually immediate feedback in the form of "likes". Twitter, texting, and Instant Messaging facilitate asynchronous text and multimedia communication that eliminate the need for face-to-face contact. A variety of online games such as League of Legends and World of Warcraft offer surprise and serendipity (Statista, 2014).

3. Theoretical Foundation

The theory of planned behavior (TPB) asserts that human behavior is rational, planned, and takes into consideration the likely consequences of the proposed behavior. It suggests that the likelihood of performing a behavior hinges on a subject's personal beliefs concerning his/her ability to perform said behavior and the perception that the behavior is within his/her control. TPB posits that intention to take action relies on three factors: attitudes towards the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991; Ajzen & Fishbein, 2000).

Attitudes toward the behavior, composed of behavioral beliefs and positive or negative evaluations of the behavior, pertain to an individual's subjective evaluation of the action. Personal attitudes encompass beliefs about the desirability or undesirability of an action which in turn influences the propensity to act. Subjective norms are concerned with an individual's perceptions of social conventions and social pressures to perform the behavior. Therefore, an individual's assessment of people's opinions concerning the behavior will impact the willingness to perform that behavior. Perceived behavioral control relates to the ease or difficulty of taking action. It is composed of an individual's level of confidence in the ability to successfully perform a behavior and the extent to which he/she is in control of the behavior. This study examines the impact of perceived behavioral control on student satisfaction with a crowdsourcing exercise and the quality of resulting ideas.

Perceived behavioral control (PBC) has been widely used and validated in entrepreneurship research. (Cassar, 2006; Engle et al, 2010; Kautonen et al, 2011; Lee et al, 2011). Engle et al (2010), utilizing 1,748 questionnaires from respondents in twelve countries, successfully predicted the intention to create an entrepreneurial venture. LePoutre et al's, (2010) study of 3,130 Belgian students revealed that greater confidence in engaging in entrepreneurial behavior led to higher performance in entrepreneurial activities. Enhanced self-efficacy resulting from high PBC is likely to lead to high quality outcomes and high satisfaction (Gardner & Pierce, 1998). This leads to the following hypotheses:

H1a: High perceived behavioral control is positively related to idea quality.

H1b: High perceived behavioral control is positively related to a subject's satisfaction.

4. Sample and Methods

The sample consists of 69 students from two undergraduate sections of an entrepreneurship class taught in the spring of 2014. The first section contained 38 students while the second section contained 31. All students were taught to identify customer needs with the "points of pain" protocol (Keogh, 2013). The Design Thinking method (Brown, 2014) was used to create product prototypes, test them with potential customers, use the resulting feedback to refine the concepts, and retest the product. An important element of PBC is the extent to which a subject believes he/she is in control of the intended behavior. In order to create a condition of high PBC each section was given substantial autonomy.

Students were directed to create product concepts that fit their personal interests and values in order to tap their intrinsic motivation and domain expertise. A highly scripted template describing the steps associated with prototype creation and customer interviews was provided to reduce ambiguity and anxiety surrounding the exercise. This was supplemented with two Stanford Design School videos demonstrating the Design Thinking process. Students were instructed to be creative in their application of the material.

Both sections cycled through two prototype development cycles to assure familiarity with the process. Ideas were then submitted to Quirky.com for evaluation. The company is a crowdsourcing site allied with General Electric that encourages inventors to submit ideas for evaluation and possible commercialization. Inventors post their ideas and for 30 days receive feedback from the Quirky community. Ideas chosen for commercial development are manufactured by Quirky and sold on its website, Amazon.com, Target, Wal-Mart, Radio Shack, Best Buy, and Home Depot. Profits from product sales are split between the inventor and the Quirky community.

Francis et al's (2004) methodology was used to create a survey with questions based on items from previous research. A seven point scale was constructed with 1=Strongly Disagree to 7=Strongly Agree. Perceived behavioral control was measured by questions that tapped perseverance (Brand et al, 2004), entrepreneurial self-efficacy (McGee et al, 2009) and entrepreneurial creativity (Zampetakis & Moustakis, 2006). These items were reliable with a Cronbach's alpha of .79. Task satisfaction was measured with a single item from Hmieleski and Corbett, (2008). Idea quality was measured through content analysis of feedback provided by Quirky.com evaluators and assigned a numerical score. The author, another researcher, and a graduate assistant coded the comments. Inter-rater reliability was Kappa = 0.81 ($p < 0.001$).

5. Results

Table 1 presents a correlation matrix of variables. The correlation between idea quality and PBC was not statistically significant. Consequently, H1a: High perceived behavioral control is positively related to idea quality, was not supported. This disappointing result may be explained as follows. The high level of autonomy and significant support given to students fostered the belief that they could successfully execute the behavior. Nevertheless, strong belief in one's ability to perform a task is a necessary but not sufficient condition for success. Ample expertise and adequate skills are also required. It is therefore likely that student ideas did not reflect the level of competence expected by evaluators in the Quirky.com community. The correlation between PBC and satisfaction was statistically significant. Thus H1B: High perceived behavioral control is positively related to a subject's satisfaction was supported.

6. Conclusion

The primary purpose of this study was to evaluate crowdsourcing's effectiveness as a tool in entrepreneurship education. We believe it is valuable because unlike traditional classroom instruction which typically does not encourage students to launch products, crowdsourcing offers a low risk, low cost way to do so. High satisfaction and sustained engagement in the classroom were also positive outcomes given current difficulties in holding student interest. Students were excited at the prospect of launching a successful product and although no product ideas were selected for commercialization several students indicated that they would continue submitting ideas to the site.

This study suffers the limitation of generalizability because a small convenience sample of undergraduate student was used. Future extensions of the study should employ a much larger sample. In addition, the effect of reward structure should be considered. A course grade is a contingent reward. In other words if a student performs at specific levels he/she will receive a corresponding alphabetic grade. Gagné and Deci (2005) discovered that use of contingency rewards reduced the outcomes associated with tasks requiring cognitive flexibility, creativity, and critical thinking.

Table 1. Correlation matrix of variables.

	Idea Quality	Satisfaction	PBC
Idea Quality	1	0.38*	0.14
Satisfaction		1	0.26**
PBC			1

** $P \leq .01$, * $P \leq .05$

7. References

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