

LINKING ENTREPRENEURIAL ORIENTATION AND USE OF TECHNOLOGY THROUGH SOCIAL NETWORKING MEDIA: A STUDY OF UNIVERSITY STUDENTS

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ABSTRACT

This research looks at both the Entrepreneurial Orientation of university students in the U.S. and the relationship between EO and the use of Social Networking media. Also assessed was the students' view of the technological complexity of SN media. Business students at a regional university were surveyed using a modified EO instrument and a measure of usefulness and ease of use of technology for Social Networking media. A factor analysis of the EO items resulted in three of the dimensions of EO: innovativeness, risk-taking and autonomy. Hypothesized relationships between EO and perceived technological complexity were tested with mixed results.

INTRODUCTION

The advance of the use of social networking systems is rapid and compelling. People are continually connected to each other on their blackberries, i-phones, net books and computers. People are texting, talking, e-mailing and in general communicating through electronic non-face-to-face methods at an accelerating pace. The 18 to 24 year old age group is a predominant user of these communication methods. At the same time the pursuit of entrepreneurial ventures continues to grow, as do the educational programs that address this growth. Therefore, this research is directed toward addressing these areas of growth and the interconnection between entrepreneurial orientation and the use of social networking media.

There are two major components to this research. First, we apply the four basic entrepreneurial orientation (EO) dimensions developed by Lumpkin and Dess (1996) to an assessment of university students. Although entrepreneurial orientation has been assessed for university students internationally (Gurol and Astan, 2006; Levinburg and Schwarz, 2008; Raposo, Paco and Ferreira, 2008), there has never been a thorough assessment and validation of the EO construct to college students in the United States. Since EO has been found to be an important causal factor in various empirical studies, it is of interest to develop a validated measure for this often-studied group. Since we were working on developing a measurement instrument for student EO, it seemed a natural step to do some preliminary analysis of these measures and their relationship to actual use of the SN systems.

The second component to this research is to explore the relationship between EO and the use of Social Networking media. Social Networking media are web-based means for people to share information in an online community with approved followers. There have been significant increases in the use of Social Networking (SN) media such as Facebook, MySpace, LinkedIn and Twitter for both business and personal reasons in the past couple of years. It has been used to increase business presence on the web,

to allow for announcements to selected followers, both business and personal, and to promote new ideas and products. The uses and frequency of Social Networking will be compared to the EO of the users and to their view of its usefulness and ease of use.

THEORY DEVELOPMENT AND HYPOTHESES

Entrepreneurial Orientation

Entrepreneurial orientation is defined as a set of behaviors that are classified as to innovativeness, willingness to take risks, proactiveness, competitive aggressiveness and autonomy seeking (Lumpkin and Dess, 1996). It has been prolifically studied under many contexts. Researchers have found that in general the EO construct including these five dimensions can be considered collectively (Lumpkin, Cogliser and Schneider, 2009) or separately, (Lumpkin and Dess, 1996; Lumpkin and Dess 2001; Wang, 2008). This construct has been used as a method of assessing how entrepreneurial an organization or individual may be. The EO construct is often measured as a single dimension concept when examining entrepreneurial firms (Covin and Slevin, 1989; Wiklund and Shepard, 2003). This research is a step toward answering the following question: Can these traits be measured by an adaptation of the Lumpkin and Dess (1996) measures?

Social Networking

The use of technological advancements to enhance performance has also been researched extensively in the entrepreneurial field as well as with traditional firms. The most recent technological advancements have been in the proliferation of information available in wireless technologies. Web-based information is used to obtain both business and personal information in the immediate seconds after something new has occurred. Specifically, Social Networking media such as Facebook, MySpace, and Twitter are used to transfer immediate information to users via Blackberries, I-phones and laptops. Businesses use these for communication, advertising and transaction activities, as well as to show their expertise and legitimacy. Students, also use these systems for legitimacy as well as for socializing.

In this application of the use of Social Networking media it seems to be a logical extension that one's entrepreneurial orientation may be related to one's perceptions of technology usefulness and ease of use, and ultimately how frequently the Social Networking platforms are used and what they are used for. Perhaps an entrepreneurial dimension that is strong on innovativeness might be a reflection of open-mindedness for new applications, including social networks, deeming them easy to use (Venkatesh and Bala, 2008). Due to the logical relationships that are represented by social networks as technology to accomplish a task, it is logical that technology perception may play an important role. The concepts of usefulness and ease of use of technology have evolved from the original research on the technology acceptance model by Davis (1989). The technology acceptance model shows that the perceptions of technology and its perceived ease of use and usefulness have a significant impact on its use and ultimately on performance. There has been an extensive amount of research on these variables that has evolved out of the Theory of Reasoned Acceptance whereby users accept or reject the use of information technology based on its perceived ease of use and usefulness (Saade, 2007; Venkatesh and Bala, 2008; Malhotra, Heine and Grover, 2001). While some preliminary research has been conducted (Ross et al, 2009) there has been no academic examination of the use of these systems by college students regarding their perceptions of the usefulness and ease of use or the reasons for their use. There has been some research however that examines the link between EO and technology. A recent study by Renko, Carsrud and Brannback (2009) indicated a significant relationship between technological capability and product innovativeness. As pointed out by Rauch, et al. (2009) in their meta-analysis of EO and performance,

high tech firms have a stronger entrepreneurial orientation than non-high tech. This leads to the following hypothesis:

H1a: Students with higher EO will have a stronger usefulness score for the use of SN systems than students with a lower EO score.

This also leads to a similar hypothesis for ease of use:

H2a: Students with a higher EO score will have a stronger ease of use score for SN systems than students with a lower EO score.

METHODOLOGY

To establish and validate the measures and test the hypotheses presented, the methodologies will be discussed after a brief description of the sample is given.

The Sample

The respondents were comprised of 97 junior and senior level students with Business majors. They were taken from required business core courses and represent all of the majors offered in the College of Business. It was felt that this would be a cross-section of students with differing skills and interests to provide sufficient variety in respondent interests. There were 90 useable responses out of 97.

Development of Measures

Our measures development involved designing the questions in three areas, Entrepreneurial Orientation, technology ease of use and usefulness, and actual use measures for SN media. The EO measures were modified from the validated measures by Lumpkin, Cogliser, and Schneider (2009). The questions were modified by changing the 'my firm' and 'managers of my firm' references to 'I' and the 'business opportunities' to 'opportunities' and so on. Any references to business goals were changed to classroom goals or class team goals and references to business objectives were generalized to class achievement objectives. (See Appendix for the survey.) There was a q-sort conducted that validated the convergent and discriminant validity of the items and any items with multiple classifications were modified or dropped from the variable measures. The factor analysis to validate the EO measures is discussed as part of the discussion of results since it is one of the primary purposes of this research.

The technology measures were adopted from the validated measures for ease of use and usefulness used by Malhotra, Lane and Grover (2001). A q-sort was conducted on these with acceptable results for validity on all items. The questions on the actual uses of SN technology were developed from knowledge of the technology by the authors and by pretesting the questions with a sample of students.

DISCUSSION OF RESULTS

The multiple items for measurement of Entrepreneurial Orientation (EO) were factor analyzed with direct oblimin rotation to determine the convergent and discriminant validity of the measure. Three distinct factors emerged from the analysis, accounting for over 68% of the total variance: Innovativeness, Risk-taking, and Autonomy (see Table 2). Items proposed to measure Proactiveness did not load on the same factor and only weakly loaded any of the other factors. The remaining items loaded well on their hypothesized factors with only a few exceptions which resulted in the removal of one or two items for each of the dimensions of EO (See Table 3). The Cronbach alphas for remaining

items measuring Innovativeness, Risk-taking, and Autonomy were .807, .736, and .460 respectively. Although the Cronbach alpha for Autonomy was low, we continued to use the factor due to the developmental nature of the first phase of this research.

The multiple items of technological complexity were also factor analyzed with a varimax rotation. Two items, which loaded on a separate and fourth factor, were deleted from the measures. Remaining measures of Usefulness, Ease of Use, and Sophistication accounted for almost 63% of the total variance with Cronbach alphas of .854, .822, and .831 respectively.

Correlations of the EO dimensions of Innovativeness, Risk-taking, and Autonomy and the Ease of Use and Usefulness variables resulted in several significant relationships between variables suggesting that constructs are related

ANALYSIS AND RESULTS

The following presents a discussion of each of the hypotheses:

H1a: Students with higher EO will have a stronger usefulness score for the use of SN media than students with a lower EO score. Because this study is exploring differences based on EO, the individual dimensions of EO (Innovativeness, Risk-taking, and Autonomy) were split into high and low groups based on the median score for each. This is consistent with previous research that looked at different groups of entrepreneurs (Smart and Conant, 1994; Runyan, Droge, and Swinney, 2008). Independent t-tests were run to test the difference in means for perceived Usefulness by high and low groups of the EO dimensions (see Table 6). T- testing is effective for preliminary research when there is not a large sample size and is used by researchers in the developmental phase (Gurol and Atsan, 2006; Renko, Carsrud and Brannback, 2009). There was no significant difference between high and low groups on the dimensions of Risk-taking and Autonomy. However, high and low Innovativeness groups showed significant differences in Usefulness. As expected, those with high Innovativeness found Social Networking media more useful, supporting this hypothesis.

H2a: Students with a higher EO score will have a stronger Ease of Use score for SN media than students with a lower EO score. As before, the individual dimensions of EO (Innovativeness, Risk-taking, and Autonomy) were split into high and low groups based on the median score for each. Independent t-tests were run to test the difference in means for perceived Ease of Use by high and low groups of the EO dimensions. There was no significant difference between high and low groups on the dimensions of Risk-taking and Autonomy. However, high and low Innovativeness groups showed significant differences in Ease of Use. (See Table 6.) As expected, those with high Innovativeness found Social Networking media easier to use. Also shown was that those with higher innovativeness had been using the Social Networking service (i.e., Facebook) significantly longer than those with lower innovativeness.

CONCLUSIONS AND RECOMMENDATIONS

This research represents exploration into new areas and has provided some interesting results. Addressing the first goal of the research, developing EO measures for students has led to some findings that differ from the norm for EO investigations. The dimensions of EO may be somewhat different in college students since students may have not been actively involved in a business. Proactiveness in particular was not a prevalent dimension that demonstrated discriminant validity. Therefore, further investigation is required to understand how students in this 20-24 years old age group might not be developed in the proactivity dimension of Entrepreneurial Orientation. Innovativeness is the one dimension that stands out as measureable and distinctive for the relationships explored. Studying EO as a uni-dimensional construct does not make sense at this point in the research since the separate factors are yet to be fully defined for the student target group.

Returning to the question originally posed: *Can these traits be measured by an adaptation of the Lumpkin and Dess (1996) measures?* Students do appear to exhibit three of the traits of EO as measured by an adaptation of the Lumpkin and Dess (1996) measures.

With regard to the Ease of Use and Usefulness technology dimensions, more innovative students seem to be the ones who value the SN platform more for its usefulness. They also are not intimidated by it, find it easy to use, and have used it longer. This research provides an important beginning to understanding students' entrepreneurial orientation, at a relatively young age of development. When we understand what the dimensions of student entrepreneurial orientation are, we will better be able to determine the best ways of providing entrepreneurship education that meets their needs. It will also help to better understand the methods college age students might use to develop their entrepreneurial ventures.

The understanding of how EO dimensions relate to the acceptance of SN media will also be valuable in assessing methods that young entrepreneurs might use to communicate effectively, depending on their EO score. Additionally, this research may provide the foundation for understanding the use of Social Networking media by entrepreneurs in general.

As suggested by Rauch, Wiklund, Lumpkin and Frese (2009) in their meta-analysis of EO, "it is time to open up EO research to new ideas and to further examine the role of moderators" (p. 781). Ease of Use and Usefulness technology dimensions may just be two of the moderators to which Rauch and co-authors refer. At the very least, these variables are worth further investigation.

This research contributes to the field of entrepreneurship research in two ways. First, the examination of the entrepreneurial orientation of students is important to preparing academic programs and examining the nature of our future business leaders. This provides a first step in a measurement instrument for university student entrepreneurial orientation. Second, this research also looks at technology use and usefulness through social networking media and how entrepreneurial orientation affects this relationship. Relationships between entrepreneurial orientation, perceptions of technology complexity and the impact of gender on effective use of social networking media are areas that have yet to be fully explored.

REFERENCES

A full set of references is available from the authors on request