

Startup intention of university students in the economic sector in Hanoi using structural equation modeling

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Abstract:

Purpose - This article investigates the startup intention of 316 students in six universities in the economic sector, which are at the top in terms of training scale and number of training disciplines in Hanoi, Vietnam.

Design/methodology/approach - The study considered the groups of external factors that have impacts on startups in addition to two of the three directed factors of the Theory of Planned Behavior (TPB), which are higher education programs and financial support from the university. The study was conducted by utilizing quantitative research to measure the structural relationship among various proposed latent variables using the partial least squares method. SmartPLS 3.0 software was applied to analyze and verify the gathered data, and the proposed hypothesis model.

Findings - The findings reveal that the startup intention questionnaire was found to be a valid instrument for measuring the startup intention of university students in the economic sector in Ha Noi. The result of path analysis indicates that all these variables have a positive effect on startup intention. Additionally, the direct effect of attitude toward the act to startup, perceived feasibility, higher education program, financial support, and startup intention has a significant positive effect on strategy alignment. These results help policymakers build the appropriate educational environment to foster students' startup and develop a startup ecosystem.

Implications - Overall, this study implies that many factors can influence students' startup intentions. Policymakers can use the results to build the appropriate educational environment to foster students' startups and develop a startup ecosystem.

Originality/value - This paper is the first empirical study that critically investigates the startup intention of students in the top six universities in the economic sector.

Keywords - Economic sector, financial support, higher education, startup intention, structural equation modeling, student.

Paper type - Research paper.

1. Introduction

In Vietnam, promoting startups is considered an objective and, at the same time, a means to realize three strategic breakthroughs, including institutions, infrastructure, and human resources (Do, 2021b). Startups are receiving special attention from government organizations, mass organizations, political and social organizations, development organizations, professional associations, and universities, especially in

the context of rapid technological and economic change (Do, 2021a). On July 30th, 2017, the Prime Minister issued Decision No. 1665/QD-TTg approving the project “Supporting students and students to startup by 2025” with the goal of promoting students to startups and equip students with knowledge and skills of startups during their study; create a favorable environment to support students to form and realize ideas and start-up projects, contributing to creating jobs for students after graduation. On February 9, 2021, the Prime Minister issued Decision No. 188/QD-TTg, amending and supplementing a number of articles of the Prime Minister’s Decision No. 844/QD-TTg dated May 18, 2016 of the Prime Minister on approving the Project to support the National Startup Ecosystem until 2025.

The report “A Startup Picture in Vietnam 2019”, published by the Australian Government’s Trade and Investment Agency (Austrade), shows that Vietnam is ranked 3rd in Southeast Asia in terms of the number of startups. However, according to statistics in Vietnam, 90% of startups often fail within the first one to two years. Meanwhile, the research results of 27 startups that successfully raised capital to the Series A round and 56 founders in Vietnam conducted by iPrice Group in collaboration with investment fund 500 Startups have shown that engineering is the most popular sector of founders. The majority of startups founders come from technical universities such as Hanoi National University (technology sector), Ho Chi Minh City University of Technology, and Hanoi University of Science and Technology. This situation has posed the need to have complete and comprehensive studies on startups among students of economics universities in Vietnam.

Structural Equation Modeling (SEM) is an analytical model suitable for research that contains latent variables measured through observed variables that reflect causality. It is also suitable for small sample sizes and data that are not normally distributed (Hair *et al.*, 2016). This model has overcome the disadvantages of approaches based on multiple regression, logistic regression, and analysis of variance, as well as cluster analysis and multi-directional measurement. SEM is the preferred research method for researchers when their research objective is to develop theory and explain the variation of the dependent variable. This method allows researchers to incorporate unobserved variables that are indirectly measured by the observed variables.

This article studies the startup intentions of university students in the economic sector in Hanoi. The following section is a literature review on startup intention. Then, the article presents the results of empirical research on startup intention at six economics universities in Hanoi that rank first in terms of training scale and a number of training disciplines, which are National Economics University, Academy of Finance, Banking Academy, Thuongmai University, Foreign Trade University, and University of Economics and Business - Vietnam National University, Hanoi. Finally, the article provides conclusions and recommendations for university administrators of universities in the economic sector in Vietnam.

2. Theoretical background and literature review

Ajzen (1991) has demonstrated that one of the important factors affecting individual behavior is the intention of the individual, which has also been demonstrated in a number of studies in the field of startups (Krueger Jr and Brazeal, 1994; Krueger Jr *et al.*, 2000). A strong intention will always lead to an effort to a startup, although a startup

may be fast or slow due to environmental conditions. Therefore, a startup intention has the ability to predict future startups behaviors accurately. Research on a startup intention can reflect a startup behavior. According to the theory of planned behavior, behavior that requires planning can be predicted by the intention to adopt the behavior (Miller *et al.*, 2009). The theory of planned behavior includes three components that predict behavioral intentions:

- Attitudes towards behavioral performance: This construct (similar to longevity) exploits the perception of individual desires in shaping behavior. As a test of structural validity, this attitude depends on expectations and beliefs about the individual's impact on outcomes caused by the behavior. Shapero and Sokol (1982) drew from a focus group, experts, and organizational patterns critical outcomes of behaviors. After that, they measured the outcome of the audiences and the probability of occurrence. The results of a quick scan of past work on a startup intention have shown important findings on personal wealth, stress, autonomy, and public interest (Shapero and Sokol, 1982).

- Social norms perceived: The second major construct from The Theory of Planned Behavior (TPB) explores the perceptions of what important people in a respondent's life think about performing a specific behavior. The strength of the motivation with function to judge these normative beliefs which adhere to them and to test the structural validity of these subjective social norms need to depend on the expected support of others. Nevertheless, subjects with high intrinsic control (Ajzen, 1987) or a strong propensity to act (Bagozzi *et al.*, 1992) will be less predictive of intention in social norms. By experience, identifying the most important social influences (e.g., parents, significant other, friends), including any "role" or "mentor," is necessary. The study of entrepreneurs' personal networks often focuses on information and resource flows. Few studies have addressed the social norms and values provided by network members (Shapero and Sokol, 1982).

- Cognitive behavioral control and self-perceived effectiveness: The addition of a third predictive component is cognitive behavioral control, which has made a significant advancement over widespread intention models. Bandura's (1986) view of self-perceived effectiveness, the perceived ability to perform a goal behavior, is overlapped with perceived behavioral control (Ajzen, 1987). As an allocation of individual control in a specific situation, self-efficacy is conceptually and experimentally connected with attribution theory, which has been successfully applied to initiating association new ventures (Meyer *et al.*, 1993). The high self-efficacy attribute becomes the "learning experience," not the individual "failure" (Bandura, 1986; Seligman, 1990). Bandura (1986) notes that the mechanisms that influence performance assessments include 'issue mastery' (hands-on experience), indirect learning, and physiological or emotional arousal.

The Theory of Planned Behavior in contemporary studies shows that the stability of the factor "attitude towards the act to a startup" and "perceived behavioral control" positively affects "a startup intention." In contrast, the relationship between "subjective norm" and "a startup intention" did not give the same results. In addition, students are also influenced by many external factors, especially from the university where they are studying every day. Thus, re-examining the relationship of these factors has an important role in confirming the validity and generalization of the theory. Up to the present time, studies have applied the Theory of Planned Behavior, which is largely

carried out in developed countries where individuals' startup intention is often based on needs, interests, and income enhancement (Devonish *et al.*, 2010). Research by Liñán and Chen (2006) confirms that the influence of factors on a startup intention is different in different cultures, different living environments, and different social classes. This shows that it is not possible to homogenize research results across different territories. It is necessary to have studies to test the elements of the Theory of Planned Behavior specifically for Vietnam (Liñán and Chen, 2006). Agreeing with the above point of view, the research by Zhang and Yang (2006) stated that although the factors in the model explain about 50% of the intention variable, the level of impact of each factor varies across different contexts where research takes place. Research by Koe (2016) confirms that adding other possible variables to the model can bring higher accuracy in predicting intention because the action propensity does not depend solely on the variables of the individual's perception of a startup behavior or the opinions of those around. In fact, the Theory of Planned Behavior explains only 30% to 50% of startup intentions (Liñán and Chen, 2006; Kolvareid, 2016). Even the "father" of the Theory of Planned Behavior, Ajzen advises researchers to consider adding possible variables to the research model. Therefore, contemporary researchers tend to apply the three prefixes of The Theory of Planned Behavior to consider startup intentions and, at the same time, add some other influencing variables to the model with the desire to bring results in a more accurate assessment of intent that is more relevant to the research context. Therefore, the research model in this study also considers the groups of external factors that have an impact on startups in addition to the three direct factors of the Theory of Planned Behavior: higher education program and financial support from the university.

- Higher education program: Higher education programs are the training programs of universities, and this is a prominent factor affecting the decision-making process of students (Bechard and Toulouse, 1998). According to Cooper *et al.* (1994), education is everything, including knowledge, skills, problem-solving, discipline, motivation, and self-confidence. Other research also mentioned that achieving a high level of education positively affects the probability of engaging in startups (Cooper *et al.*, 1994; Bates, 1995; Carr, 1996; Delmar and Davidsson, 2000). Therefore, education is a factor that affects a startup intention. Regarding education, most studies point to a positive effect on self-employment, at least for lower-than-intermediate education (Robinson and Sexton, 1994; Reynolds, 1997). Bates (1995), who controlled for industry differences and considered the role of education, has a positive relationship with self-employment. It can be seen that in some circumstances, especially in some knowledge-intensive companies, education has a positive effect on self-employment.

- Financial support resources: Shane (1996) argues that startups are associated with social wealth. According to many studies, financial resources are seen as a component of the demand for goods and services. Some researchers concur that wealth and higher incomes can create demand for goods and services and thus encourage startups (Westhead and Moyes, 1992; Davidsson, 1995; Reynolds, 1994). Overall, most studies find a statistically significant positive relationship between financing and new startups. According to Kibler *et al.* (2017), regional social legitimacy influences the relationships between individual entrepreneurial beliefs, intentions, and start-up behavior and how the socio-economic characteristics of the region condition the interaction effects.

3. Methodology

3.1. Research design

This study was carried out by means of survey research, which adopted some measures from previous research to develop the questionnaire. All the measures were based on Ajzen's (1991) theory of planned behavior and considered more factors in higher education programs (Cooper *et al.*, 1994; Bates, 1995; Carr, 1996; Delmar and Davidsson, 2000) and financial support (Westhead and Moyes, 1992; Reynolds, 1994; Truong *et al.*, 2022) for startups intention. Next, the authors distributed the questionnaire to 10 experts in a startup and senior lecturers in economics and business administration for revision. Based on their suggestions, the authors made minor modifications to the questionnaire. Afterward, the authors revised and finalized the questionnaires for collecting data (Appendix 1).

3.2. Sample and data collection

According to Circular No. 24/2017/TT-BGDDT dated October 10th, 2017 of the Ministry of Education and Training, stipulating the list of level IV education and training at the university level, universities in the economics sector are defined as universities with a training program in 25 training disciplines under the "Economics - Management - Administration" sector. The study has identified six universities in the economic sector in Hanoi, Vietnam, which are at the top in terms of training scale and number of training disciplines, and include National Economics University, Academy of Finance, Banking Academy, Thuongmai University, Foreign Trade University, and VNU University of Economics and Business. The study sent the questionnaire to 360 students from six universities in the economic sector in Hanoi, Vietnam. We assured the participants that their responses would remain confidential and that the researchers would use them for this research study. Out of the total 360 questionnaires, 338 were returned, and 22 were incomplete. Among 338 valid questionnaires, 22 of these were excluded from the study, and 316 were used to analyze the collected data. The total response rate was 87.8%.

4. Empirical result

Chin and Newsted (1999) demonstrated that PLS-SEM is suitable for research where (a) the theoretical model is not in any frame and is new, and (b) the model has various variables and complex structural paths. It is an analytical model suitable for research that contains latent variables that are measured through observed variables reflecting causes and small sample sizes where data are not in a normal distribution (Hair *et al.*, 2016). This model overcomes the disadvantages of approaches that are based on multiple regression, logistic regression, variance analysis, cluster analysis, and multi-directional measurement. PLS-SEM is the preferred research method for researchers when their research goal is to develop a theory and explain the change of the dependent variable. This method allows researchers to combine unobserved variables that are measured indirectly by observed variables. In addition, this method also calculates the measurement error in the observed variables. In this investigation, we utilized the PLS-SEM using Smart PLS 3.0 software (Hair *et al.*, 2016; Chin *et al.*, 2003; Duarte and Raposo, 2010; Ringle *et al.*, 2005).

We used partial least squares structural equation modeling (PLS-SEM) to achieve major objectives. According to Henseler *et al.* (2009), PLS-SEM is based on two main steps, namely measurement model assessment and structural model assessment. Henseler *et al.* (2009) described these steps (Figure 1).

4.1. Measurement model assessment

Confirmatory factor analysis (CFA) is most commonly used in social sciences research. It is a special form of factor analysis that is used to test whether measures of a construct are consistent with a researcher's understanding of the nature of that construct (or factor). The data fit a hypothesized measurement model when all the items have factor loadings above 0.5 (Hair *et al.*, 2010).

Figure 2 and Table 1 show that all the items have factor loadings above 0.5, which means the data fit a hypothesized measurement model. Table 2 and Table 3 show the measurement model. In Table 2, all the constructs have composite reliability above 0.7. As Hair *et al.* (2010) suggested, the average variance extracted (AVE) is also higher than 0.5, which proves convergent validity. Furthermore, the authors used the heterotrait-monotrait ratio to test the discriminant validity (Table 3). While examining the heterotrait-monotrait ratio, all the values should be less than 0.9.

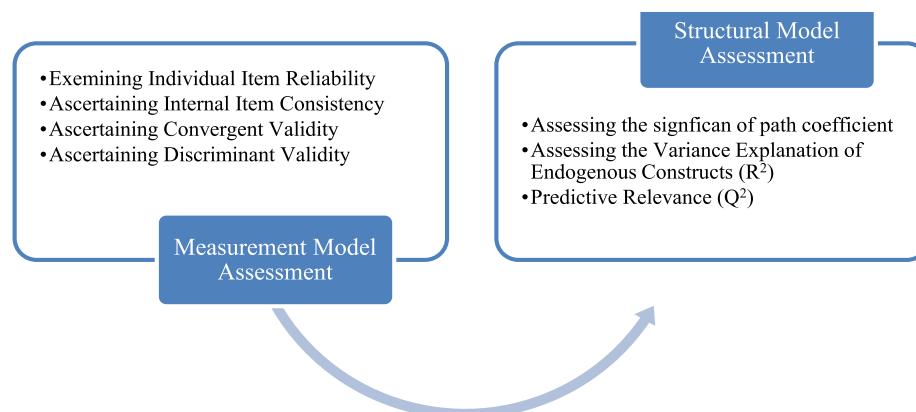


Figure 1.
PLS-SEM steps

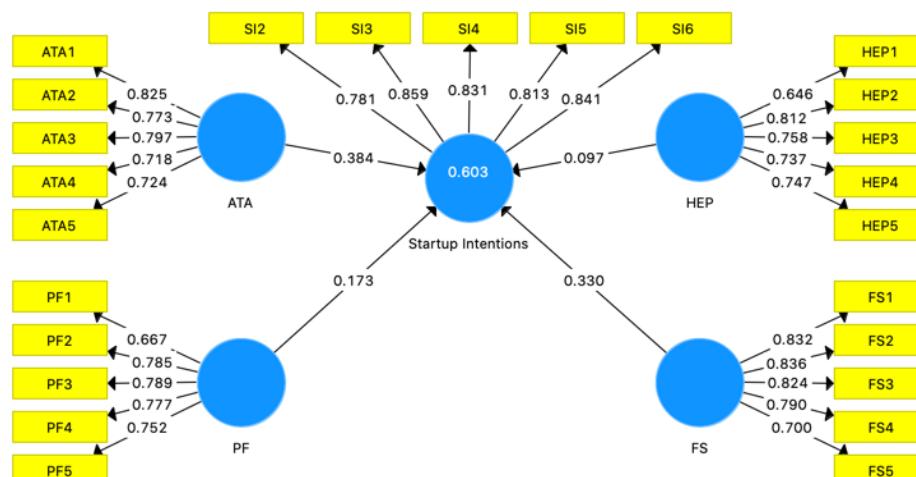


Figure 2.
Confirmatory factor analysis

JED
Volume 26
Special Issue
Number 1
2024
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	Variables Item	ATA	FS	HEP	PF	Startup Intentions
	ATA1	0.825				
	ATA2	0.773				
	ATA3	0.797				
	ATA4	0.718				
	ATA5	0.724				
	FS1		0.832			
	FS2		0.836			
	FS3		0.824			
	FS4		0.790			
	FS5		0.700			
	HEP1			0.646		
	HEP2			0.812		
	HEP3			0.758		
	HEP4			0.737		
	HEP5			0.747		
	PF1				0.667	
	PF2				0.785	
	PF3				0.789	
	PF4				0.777	
	PF5				0.752	
	SI2					0.781
	SI3					0.859
	SI4					0.831
	SI5					0.813
	SI6					0.841

Table 1.
Factor loadings

Note: ATA = Attitude toward the act to a Startup, PF = Perceived Feasibility, HEP = Higher Education Program, FS = Financial Support, SI = Startup Intentions.

Table 2.
Construct reliability
and validity

Variable	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
ATA	0.826	0.827	0.878	0.591
FS	0.856	0.864	0.897	0.637
HEP	0.794	0.799	0.859	0.550
PF	0.811	0.814	0.869	0.571
Startup Intentions	0.883	0.884	0.914	0.682

Note: ATA = Attitude toward the act to a Startup, PF = Perceived Feasibility, HEP = Higher Education Program, FS = Financial Support, SI = Startup Intentions.

Table 3.
Discriminant validity

Variable	ATA	FS	HEP	PF	Startup Intentions
ATA	0.769				
FS	0.544	0.798			
HEP	0.403	0.518	0.742		
PF	0.415	0.382	0.219	0.755	
Startup Intentions	0.675	0.655	0.460	0.480	0.826

Note: ATA = Attitude toward the act to a Startup, PF = Perceived Feasibility, HEP = Higher Education Program, FS = Financial Support, SI = Startup Intentions.

Table 4.
Direct hypotheses

4.2. Structural model assessment

In this procedure, the study utilized the bootstrapping technique with the help of PLS to examine the beta value and t-value. Table 4 highlights the direct hypotheses.

Relationship	β	Standard Deviation (STDEV)	T Statistics ($ O/STDEV $)	P Values	Hypotheses
ATA \rightarrow Startup Intentions	0.384	0.051	7.601	0.000	Supported
FS \rightarrow Startup Intentions	0.330	0.058	5.717	0.000	Supported
HEP \rightarrow Startup Intentions	0.097	0.047	2.056	0.040	Supported
PF \rightarrow Startup Intentions	0.173	0.041	4.265	0.000	Supported

Note: ATA = Attitude toward the act to Startup, PF = Perceived Feasibility, HEP = Higher Education Program, FS = Financial Support, SI = Startup Intentions..

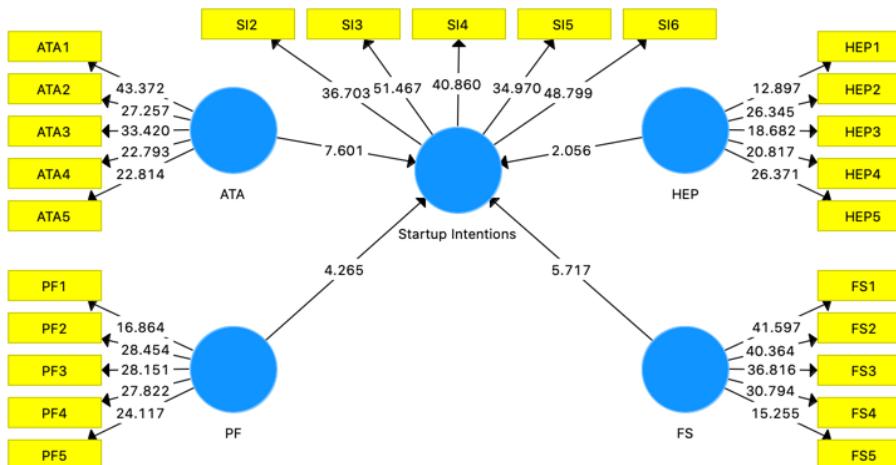


Figure 3.
Results for direct hypotheses test

Note: ATA = Attitude toward the act to a Startup, PF = Perceived Feasibility, HEP = Higher Education Program, FS = Financial Support, SI = Startup Intentions.

Consistent with these results, all these variables have a positive effect on startup intention. Additionally, the direct effect of attitude toward the act to startup, perceived feasibility, higher education program, financial support, and, respectively, startup intention has a significant positive effect on strategy alignment with a t-value of 7.601; β value 0.384, t-value 5.717 and β value 0.330, t-value 2.056 and β value 0.097, and t-value 4.265 and β value 0.173. These results support all the direct hypotheses.

Latent Variable Startup Intentions	R Square 0.603	R Square Adjusted 0.598
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Table 5.
R-square (R^2)

Latent Variable Startup Intentions	SSO 1580.000	SSE 941.133	Q^2 (=1-SSE/SSO) 0.404
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Table 6.
Predictive relevance (Q^2)

R-squared (R^2) and predictive relevance (Q^2) are shown in Tables 5 and 6, respectively. According to Chin (1998) recommendation, the R-squared value for startup intentions is 0.603, which is acceptable. Thus, all the exogenous latent variables are expected to bring a 60,3% change in startup intentions. Predictive relevance (Q^2) shows that the quality of the model has also achieved a satisfactory threshold level.

5. Conclusions

The purpose of this study was to investigate the startup intention of university students in the economic sector in Hanoi, Vietnam. The findings reveal that the startup intention questionnaire was found to be a valid instrument to measure the startup intention of university students in the research context. The results provide strong evidence that attitude toward the act to a startup, perceived feasibility, higher education program, and financial support predict the startup intention of university students in the economic sector. The findings support previous research regarding the use of the Theory of Planned Behaviour as a model for predicting startup intentions (Ajzen, 1991; Krueger and Brazeal, 1994; Krueger *et al.*, 2000; Miller *et al.*, 2009; Liñán and Chen, 2006), although there are differences in the environment and the research context. Research results also indicate the importance of higher education programs on startups and financial support from universities for students' startup intentions. Therefore, in the coming time, the government, the Ministry of Education and Training, and universities need to have a strategic orientation in renovating and perfecting higher education programs and boosting financial support for students' startups.

Although specific results have been achieved and some of the findings have both theoretical and practical value, the study still has some limitations: the study investigates the data only at one time, the scales all depend greatly on the perception of the people who fill out the survey form, this study was conducted in a number of economic universities in Hanoi.

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Appendix

Indicate your level of agreement with the following sentences.

Attitude toward the act of a startup

1. A startup implies more advantages than disadvantages to me.
2. Startups is attractive to me.
3. If I had the opportunity and resources, I'd like to startups.
4. Startups would entail great satisfaction for me.
5. Among various options, I would rather a startup.
6. Startups is easy.

Social norms for a startup

7. My family encourages me to a startup.
8. My friends encourage me to a startup.
9. I know many people in my university who have a startup.
10. People are encouraged to actively pursue their own startup ideas at my university.
11. I meet a lot of people with good ideas of startups at my university.

Perceived feasibility of a startup

12. I am prepared for a viable startup.
13. I can control the creation process of a startup.
14. I know the necessary practical details to a startup.
15. I know how to develop a startup project.
16. I have the skills and abilities needed to successfully startups.

Higher Education Program

17. University has helped me to gain knowledge and skills of a startup.
18. I discovered how to apply what I have learned in a startup.
19. I have combined theoretical knowledge with practical knowledge of a startup.
20. I accumulate knowledge that increases my ability to a startup.
21. I did or am going to have a startup's plan before I graduate.

Financial support

22. I believe money can solve any problem when startups.
23. I feel that money is the only thing I really need to a startup.
24. I will do whatever is legitimate to get money to a startup.
25. I take pride in my financial victories in my own firm and let my friends know about it.
26. I think about money to a startup more than most people I know.

Student's startup intention

27. I'm ready to do anything to a startup.
28. My professional goal is startup.
29. I will make every effort to a startup and run my own firm.
30. I'm determined to a startup in the future.
31. I have very seriously thought of a startup.
32. I have a firm intention to a start up someday.

Table A1.
Research
questionnaire

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