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FACTORS AFFECTING ENTREPRENEURIAL INTERNSHIP EFFECTIVENESS IN IT INDUSTRY: A STRUCTURAL EQUATION MODELING

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ABSTRACT

This study examines 324 tertiary students' entrepreneurial internship effectiveness and its influencing factors in IT industry to serve as a school reference for the development of entrepreneurial internship education measures. The results show that students' "entrepreneurial intention (EI)" has a significant direct effect on "entrepreneurial internship effectiveness (EIE)", and "internship satisfaction (IS)" has a significant effect on "entrepreneurial internship effectiveness" through "internship satisfaction." The influence pattern and empirical data of "internship satisfaction" and "entrepreneurial intention" on "entrepreneurial internship effectiveness" has a good fit.

Keywords: Entrepreneurial intention, Entrepreneurial internship effectiveness, Internship satisfaction, Entrepreneurial internship education, Tertiary student, Entrepreneurial venturing.

Contribution/ Originality

This study contributes in the existing literature that students' internship experiences of entrepreneurial intention and internship satisfaction have provided them with chances to learn entrepreneurial competence and attitude, which may be helpful for their future entrepreneurs.

1. INTRODUCTION

Entrepreneurial internship is becoming an important instrument to promote entrepreneurial competence and entrepreneurial attitude in the entrepreneurial education of Taiwan [1]. As the

domestic unemployment rate climbs, employment-oriented tertiary education programs urgently need to find the teaching resources for internship education in Taiwan.

Research results reveal that the demand of enterprises on the number of information workers is respectively 31169, 62779 and 183658 for year 1998, 2003 and 2010. The mean of the demand number per company is respectively 1.7, 3.5 and 10.1 (workers) [2]. The target group of the survey does not include non-commercial companies, government organizations and schools, therefore the total demand numbers of information workers in Taiwan are not only above values. This result reveals that the shortage of information workers is very high. The government should take action early to solve the shortage problems so that information industrial economy will be continually developed [3].

Entrepreneurial internship education plays the role of helping to reduce the unemployment rate in a country. Entrepreneurship internship effectiveness explores the students' entrepreneurship competence and entrepreneurship learning attitude on the internship of business field and at the same time providing entrepreneurial experiences in the process of learning internship independence and belief in the Entrepreneurship-embedded internship program [4]. Some research found students' internship experiences of learning entrepreneurial intention and internship satisfaction have provided them with chances to learn entrepreneurial competence and skills, which may be helpful for their future entrepreneurs [5, 6].

Entrepreneurial intention was defined as the attitude towards self-employment. Therefore, high entrepreneurial intention has actually verified towards self-employment. Entrepreneurial internship effectiveness and given feedback from the entrepreneurial internship education learning context in which self-employment processing is raised. Research suggests that internship satisfaction is important to affect entrepreneurial internship effectiveness [4, 5]. It is suggested that the concept of internship satisfaction, derived from cognition theory plays an important role in the development of entrepreneurial intentions and actions [6, 7].

The results showed that the effects of perceived learning from entrepreneurial internship programs on those entrepreneurial intentions were fully mediated by internship satisfaction [8-11]. The paper, analysis of factors in tertiary students' perceived internship satisfaction and entrepreneurial internship effectiveness, using entrepreneurial intention as a mediator variable, discussed the variables which may influence tertiary student's entrepreneurial internship effectiveness and found the relationships among the variables. The purposes of this study are to address the 2 following issues.

1. There is no significant correlation between tertiary students' internship satisfaction, entrepreneurial intention, and entrepreneurial internship effectiveness.
2. Influence models of tertiary students' internship satisfaction, entrepreneurial intention, and entrepreneurial internship effectiveness fit the data collected by this study.

2. LITERATURE REVIEW

It is important of Self-employment through entrepreneurship offers university graduates the

opportunity to create jobs for themselves and others [10]. Entrepreneurship is one of the options to reduce the unemployment rate and the social problems that are associated with unemployment.

Obschonka, et al. [11] proposed the benefits of internship programs to budding entrepreneurs are very obvious. Some of the internship benefits for entrepreneurs are stated here below [11]. First, internship gives the budding entrepreneur the opportunity to learn from successful entrepreneurs who have already experienced the ins and outs of business ventures. Their wisdom could help determine success. Second, internship programs for entrepreneurs can be a medium by which one can widen network. Network of entrepreneurs will come in handy because when it comes to managing a business or a venture, “influence” is important. Third, one can receive an allowance or stipend if they undergo internships. This means that get paid to broaden that knowledge and develop skills in entrepreneurship.

Entrepreneurial internship effectiveness has been depicted as prompting the search for active self-employment. The availability of a valid instrument to measure competence, abilities, attitudes and venturing towards entrepreneurship would be greatly beneficial [12]. Some research found that students’ experiences of entrepreneurial education and entrepreneurial internship program have provided them with chances to learn new entrepreneurial skills, which may be helpful for their future careers [11] [13].

Students’ entrepreneurial internship effectiveness regard to their internship satisfaction and entrepreneurial intention. It is emphasized that entrepreneurial internship effectiveness reflects an individual’s perception and ability to fulfill entrepreneurial intention and job requirements, which is related to practical entrepreneurial skills [11] [14].

Some research suggests that entrepreneurial intention may be an important factor related to the acquisition of entrepreneurial skills, attitude, and venturing in entrepreneurial education [11] [15]. A review of the literature indicates that Entrepreneurial internship effectiveness has been investigated in similar settings; however, it has not been thoroughly investigated as an additional assessment tool in this important entrepreneurial education context.

3. METHODOLOGY

3.1. Subjects

This study treats 324 students from tertiary schools as the population, and adopts random sampling and cluster sampling for survey.

3.2. Research Tools

The research tool is “Questionnaire of Factors Which Influence Tertiary Students’ Entrepreneurial internship effectiveness.” The questionnaire includes Entrepreneurial intention Scale, internship satisfaction Scale and Entrepreneurial internship effectiveness Scale [16] [17] [18].

The “Questionnaire of Factors Which Influence Tertiary Students’ Entrepreneurial internship effectiveness” was reviewed by five experts for subject contents’ suitability to ensure

the scale expert validation. Ten tertiary students were invited to answer the questionnaire to enhance the validity of the scales contents. In addition, seven tertiary schools were selected for a pre-test, and 125 students were selected as the pre-test objects in total. The scales used in this study are in self-assessment form, and a Likert 5-point scale is used as the scoring method. There are five levels of choices from “agree” to “do not agree,” five equal portions of 5, 4, 3, 2 and 1 are distinguished according to the extent of agreement, and 5 points, 4 points, 3 points, 2 points and 1 point are given in this order. The higher the score an individual receives, the larger extent of agreement the individual has. The scales’ factors, number of questions reliability and validity are shown in Table1.

Table-1. An overview of factors, number of questions, reliability and validity for tertiary students’ entrepreneurial intention, internship satisfaction and entrepreneurial internship effectiveness scale

internship satisfaction Scale				Entrepreneurial intention Scale				Entrepreneurial internship effectiveness Scale			
Factor name	No.	Cronbach α	Factor loading	Factor name	No.	Cronbach α	Factor loading	Factor name	No.	Cronbach α	Factor loading
Entrepreneurial competence	4	.88	25.14%	Self-employment	4	.91	23.04%	Entrepreneurial competence	4	.88	30.42%
Internship independence	4	.89	19.54%	Undertake risk	3	.87	21.14%	Entrepreneurial venturing	4	.87	19.11%
Social norms	3	.87	18.13%	Subjective norm	4	.83	19.23%	Entrepreneurial attitude	4	.83	16.02%
Total reliability Cronbach α	.92			Total reliability Cronbach α	.91			Total reliability Cronbach α	.92		
Accumulated explained variance	66.41%			Accumulated explained variance	64.81%			Accumulated explained variance	63.55%		

3.3. Data Analysis

In processing the survey data used in this study, the collected questionnaires were coded, and Statistical Package for Social Science (SPSS version 12.0) and linear structural analysis (LISREL version 8.5) were used to verify the correlation among the factors of “entrepreneurial intention”, “internship satisfaction” and “entrepreneurial internship effectiveness” variables and their effects in order to achieve the purpose of this study. In this study, the statistical test level $\alpha = 0.05$.

4. RESULT

The empirical results of tertiary students’ entrepreneurial internship effectiveness are shown in Figure 1, and are analyzed as follows:

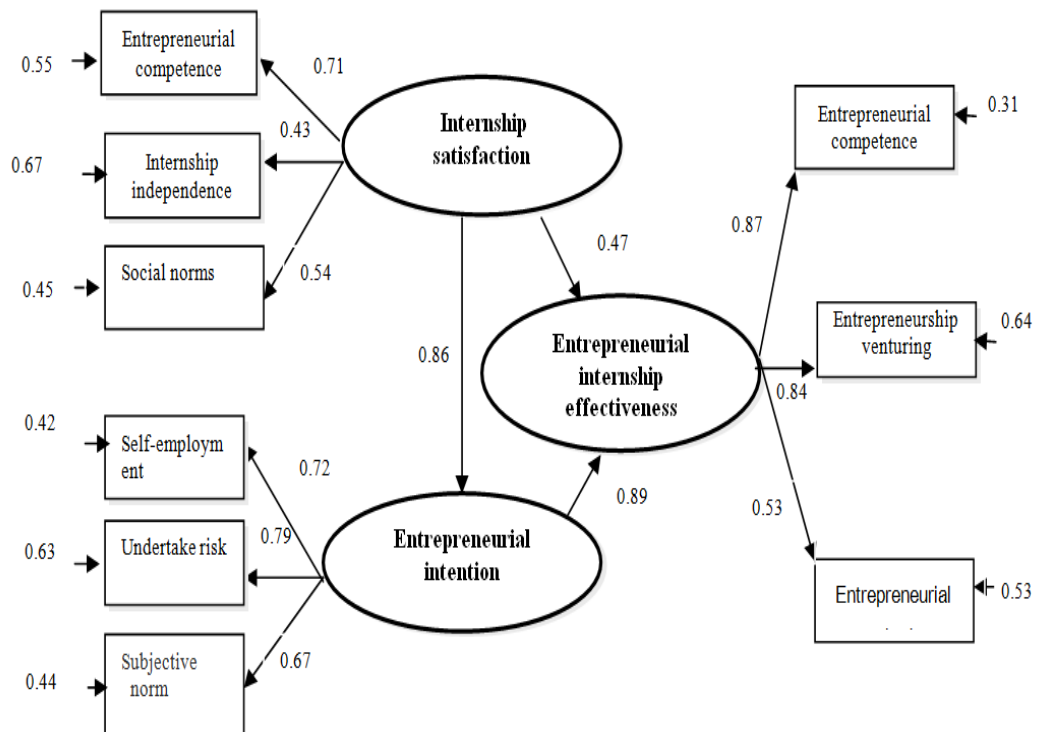
The estimated value of the direct affecting parameter between “entrepreneurial intention” and “internship satisfaction” is 0.86 ($t = 7.42, p < .05$). This means that “entrepreneurial intention” has a significant effect on “internship satisfaction”.

The estimated value of the direct affecting parameter between “entrepreneurial intention” and “entrepreneurial internship effectiveness” is 0.89 ($t = 4.22, p < .05$). This means that “entrepreneurial intention” does necessarily have a significant effect on “entrepreneurial internship effectiveness.”

The estimated value of the direct affecting parameter between “internship satisfaction” and “entrepreneurial internship effectiveness” is 0.47 ($t = 5.33, p < .05$). This means that “internship satisfaction” has a significant effect on “entrepreneurial internship effectiveness”.

In summary, in this study of tertiary students’ entrepreneurial internship effectiveness and its influence pattern, “internship satisfaction” has a significant effect on “entrepreneurial intention”, but does not have a significant effect on “entrepreneurial internship effectiveness”. “Entrepreneurial intention” has a significant effect on “entrepreneurial internship effectiveness”.

Fig-1. Path of tertiary students’ entrepreneurial internship effectiveness.



5. DISCUSSION

Students’ “entrepreneurial intention” has a significant direct effect on “entrepreneurial internship effectiveness”, and “internship satisfaction” has a significant effect on “entrepreneurial internship effectiveness” through “entrepreneurial intention”. The influence pattern and empirical data of “internship satisfaction” and “entrepreneurial intention” on “entrepreneurial internship effectiveness” has a good fit. The influence effects of “entrepreneurial intention”, “internship satisfaction” and “entrepreneurial internship effectiveness” shows that for tertiary students, the influence of “internship satisfaction” on “entrepreneurial internship effectiveness” comes mainly through their awareness of “entrepreneurial intention.” In addition, “entrepreneurial intention” has a direct and significant effect on “entrepreneurial internship effectiveness”. From the influence of entrepreneurial intention, internship satisfaction and entrepreneurial internship effectiveness,

we can clearly see that compared with internship satisfaction, entrepreneurial intention has a greater influence on entrepreneurial internship effectiveness [17] [18] [19].

Regarding the test results, according to the goodness of fit test standard by Hair et al, the model in this study has a good overall fit [20]. In the absolute fitness and incremental fitness tests, all indices meet the standard, and have the best fit. Most of the parsimonious fitness indices meet the test standard, and have a good fit. Overall, in the entrepreneurial internship effectiveness and its influence model established in the study based on theories, both the model and the data have a good fit, and in the parameter estimation most of the estimated values are significant. This shows that all the indices of latent variables have their importance, and only the parameter value of “internship satisfaction” on “entrepreneurial internship effectiveness” is low. Overall, the empirical data have a good explanatory power.

Students’ “internship satisfaction” influences “entrepreneurial intention” and “Entrepreneurial competence” is an important factor which influences “internship satisfaction”. Students’ “internship satisfaction” influences “entrepreneurial internship effectiveness”, “Entrepreneurial learning result” and “Entrepreneurship toward venturing” are important factors which influence “entrepreneurial internship effectiveness” [19] [20].

The results show that among all latent variables in the model, the direct influence of “internship satisfaction” on “entrepreneurial internship effectiveness” is not significant, indicating that the assumed influence of “internship satisfaction” on students’ “entrepreneurial internship effectiveness” needs further testing; this is something worthy of a more in-depth study and validation in the future. Based on test results, although the overall result is acceptable, the model consistency level is not entirely satisfactory, and its entrepreneurial intention has a relatively low explanatory power for entrepreneurial internship effectiveness. The possible reasons are: (a) The measurement error variance of the three main variables in the model is too large. Although in the course of the investigation in this study each step was made following reasonable procedures, in a sample survey there are a survey bias and restrictions on the study objects in answering the questionnaire. These can result in a bias between the survey data and the actual situation [21] [22]. (b) The influence of test indices and method. Currently in the verifying calculation of structural equations, the index value is subject to the sample size, and sometimes the index value may influence each other. When the index is far greater than or much lower than the standard value, the judgment is more accurate; when the index is close to the standard value, we then need to consider the possible influence from the error. (c) The missing scope of variables. Although a complete research model was established in this study based on past researches and theories. There has been little domestic research on the topic of students’ entrepreneurial internship effectiveness.

6. IMPLICAITON

There may be undetected factors which resulted in a low explanatory power, and there are other variables which have not been identified [23, 24]. Regarding this model test results,

perhaps in the future a further study can be conducted to find the variables either missing in the theories or can be further added or deleted, or more comprehensive empirical data can be collected for testing to improve the consistency between this model and empirical data.

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REFERENCES

- [1] V. Souitaris, S. Zerbinati, and A. Al-Laham, "Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources," *Journal of Business Venturing*, vol. 22, pp. 566–591, 2007.
- [2] C. C. Chang and J. B. Lee, "A study of demand of enterprises on the number and types of current and future information workers in Taiwan from 1998 to 2010," *Journal of National Taipei University of Technology*, vol. 34, pp. 225-253, 2001.
- [3] C. C. Chang and J. B. Lee, "A study on the demand assessment and relevant problems of information workers from year 1998 to 2010," *National Taipei University of Science and Technology*, vol. 34, pp. 1-53, 2004.
- [4] D. Forbes, "The effects of strategic decision making on entrepreneurial self-efficacy," *Entrepreneurship Theory and Practice*, vol. 29, pp. 599-626, 2005.
- [5] F. Wilson, J. Kickul, and D. Marlino, "Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education," *Entrepreneurship Theory and Practice*, vol. 31, pp. 387-406, 2007.
- [6] J. H. Dyer, H. B. Gregersen, and C. Christnesen, "Entrepreneur behaviors, opportunity, recognition, and the origins of innovative ventures," *Strategic Entrepreneurship Journal*, vol. 2, pp. 317–338, 2008.
- [7] M. Haynie and D. Sepherd, "A measure of adaptive cognition for entrepreneurship research," *Entrepreneurship Theory and Practice*, vol. May, pp. 695-714, 2009.
- [8] K. W. Kuehn, "Entrepreneurial intentions research: Implications for entrepreneurship education," *Journal of Entrepreneurship Education*, vol. 11, pp. 87-98, 2008.
- [9] P. Van Der Zwan, Z. Zuurhout, and H. Jolanda, "Entrepreneurship education and self-employment: The role of perceived barriers," *SCALES, SCientific Analysis of Entrepreneurship and SMEs*. Available <http://www.ondernemerschap.nl/pdf-ez/H201301.pdf>, 2013.
- [10] O. Fatoki, "The entrepreneurial intention of undergraduate students in South Africa: The influences of entrepreneurship education and previous work experience," *Mediterranean Journal of Social Sciences*, vol. 5, pp. 294–299, 2014.
- [11] M. Obschonka, R. K. Silbereisen, E. Schmitt-Rodermund, and M. Stuetzer, "Nascent entrepreneurship and the developing individual: Early entrepreneurial competence in adolescence and venture creation success during the career," *Journal of Vocational Behavior*, vol. 79, pp. 121–133, 2009.

- [12] J. Kickul, L. K. Gundry, S. D. Barbosa, and L. Whitcanack, "Intuition versus analysis? Testing differential models of cognitive style on entrepreneurial self-efficacy and the new venture creation process," *Entrepreneurship Theory and Practice*, vol. 33, pp. 439-453, 2009.
- [13] J. H. Dyer, H. B. Gregersen, and C. Christnesen, "Entrepreneur behaviors, opportunity, recognition, and the origins of innovative ventures," *Strat. Entrepreneurship J.*, vol. 2, pp. 317-338, 2008.
- [14] V. Souitaris, S. Zerbinati, and A. Al-Laham, "Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources," *Journal of Business Venturing*, vol. 22, pp. 566-591, 2007.
- [15] M. Mansor and N. Othman, "Consulting-based entrepreneurship education in Malaysian higher education institutions," *2011 International Conference on Social Science and Humanity*, vol. 5, pp. 351-355, 2011.
- [16] J. E. McGee, M. Peterson, S. L. Mueller, and J. M. Sequeira, "Entrepreneurial entrepreneurship self-efficacy: Refining the measure," *Entrepreneurship Theory and Practice*, vol. July, pp. 965-988, 2009.
- [17] M. M. Mars and S. Garrison, "Socially-oriented ventures and traditional entrepreneurship education models: A case review," *Journal of Education for Business*, vol. May/June, pp. 209-296, 2009.
- [18] I. M. Kirzner, "The alert and creative entrepreneur: A clarification," *Small Business Economic*, vol. 32, pp. 145-152, 2009.
- [19] S. Kristiansen and N. Indarti, "Entrepreneurial intention among Indonesian and Norwegian students," *Journal of Enterprising Culture*, vol. 12, pp. 55-78, 2004.
- [20] J. F. J. Hair, R. E. Anderson, R. L. Tatham, and W. C. Black, *Multivariate data analysis*, 5th ed. Englewood Cliffs: Prentice-Hall, 1998.
- [21] P. M. Bentler and D. G. Bonett, "Significance tests and goodness of fit in the analysis of covariance structures," *Psychological Bulletin*, vol. 88, pp. 588-606, 1980.
- [22] J. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate data analysis*, 7th ed. New Jersey: Pearson Prentice Hall, 2010.
- [23] J. Sequeira, S. L. Mueller, and J. E. McGee, "The influence of social ties and self-efficacy in forming entrepreneurial intentions and motivating nascent behavior," *Journal of Developmental Entrepreneurship*, vol. 12, pp. 275-293, 2007.
- [24] R. Shinnar, M. Pruett, and B. Toney, "Entrepreneurship education: Attitudes across campus," *Journal of Education*, vol. 84, pp. 151-159, 2009.

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