

DOES MANAGEMENT EDUCATION AFFECT THE ENTREPRENEURIAL TENDENCY OF STUDENTS?

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ABSTRACT

Entrepreneurship is an important contributor to the economic growth of a country. Entrepreneurship is a relatively young, but fast growing field of management research. Various attempts are made to enhance entrepreneurial activities through educational programmes and courses. Entrepreneurship education should give students the ability and vision to identify and act on different opportunities they encounter, and develop them to establish a new venture or rejuvenate an existing business. However, little research is conducted into the value of entrepreneurial education. This research report details an investigation into the effectiveness of entrepreneurship education.

A standardised test for entrepreneurship was applied to students who were subdivided into three groups, one group that have completed an entrepreneurship module, a group that is actively busy studying entrepreneurship and a third group that is still to complete the module. The test used was the General Entrepreneurial Tendency test, which evaluates the strength of personality traits that is strongly linked with entrepreneurs. The test was thus used as a tool to assess the effect of an entrepreneurship education programme on students.

The results of the study showed that there were no statistically significant differences in the test results for the students who have completed an entrepreneurship module versus those that still need to complete it. Students that are currently active with their entrepreneurship studies scored statistical significantly higher in their entrepreneurial trait measures. The study further showed that the General Entrepreneurial Tendency test is an accurate tool at identifying entrepreneurs and measuring entrepreneurial traits.

Keywords: Entrepreneurship, Education, Students, GET test

INTRODUCTION

South Africa like all countries aims to grow its economy and entrepreneurship could provide this economic injection. Economic growth will assist South Africa in addressing its social problems, including the problems of unemployment and poverty (Nieuwenhuizen & Groenewald, 2006). However, according to the Global Entrepreneurship Monitor (GEM) report (Turton & Herrington, 2013), South Africa has one of the lowest rates of entrepreneurship in the world.

A means of creating more entrepreneurs is through educational programmes. Although there are many entrepreneurship programmes that form part of management education curriculums, there appears to be little thought of the effectiveness of these programmes in adjusting the entrepreneurial mindset of students. Entrepreneurship programmes vary in scope and intensity as does the material and teaching methods (Kirby, 2004; Shane & Venkataraman, 2000). This would lead to the question: "What makes an entrepreneurship programme effective?" Only by measuring the effects of an entrepreneurship course on students would it be possible to determine the effectiveness of the course.

A strong entrepreneurship culture would lead to individual and collective business success (Refaat, 2009). The big question now would be what the most useful techniques are for identifying and training successful entrepreneurs. Entrepreneurship education is generally part of the academic discipline of management. There is a focus on applying tools or frameworks to screen opportunities. Most programmes are, however, small business orientated (Mazzarol, 2007).

While opportunity recognition is important (Shane & Venkataraman, 2000) students are not always equipped to undertake the self-evaluation to determine if they would want to take an entrepreneurial career or would utilise a business opportunity (Mazzarol, 2007).

What is an Entrepreneur?

There is very little agreement in literature about what defines an entrepreneur, what his actions are and what he does. The important determinants of their actions are their traits and there is significantly more agreement on this (Cromie, 2000). Koh (1996) shows that entrepreneurs have a high need for achievement, an internal locus of control, are moderate towards risk taking, have a high tolerance for ambiguity, have self-confidence, and are innovative. Caird (1991) considers the need for achievement, locus of control, need for autonomy, creative tendency, and calculated risk taking as important traits that are common in entrepreneurs. Mueller and Thomas (2001) identified locus of control, innovativeness, individualism and uncertainty avoidance. They have also noted that the trait approach is a common solution to the study of entrepreneurs.

In psychology literature, intention was proven to be the best predictor of planned behaviour. This is particularly important when the behaviour is rare, has unpredictable timing or is hard to observe. Entrepreneurship would be a typical example of planned intentional behaviour (Souitaris *et al.*, 2007). The best way to predict planned behaviours, such as entrepreneurship, is "by observing intentions towards behaviour - not by attitudes, beliefs, personality or mere demographics" Krueger *et al.* (2000).

The Measurement of Entrepreneurial Tendencies

The use of psychometric tests within industry for assisting in making personnel decisions is a widely accepted behaviour. It is used to determine how employees will behave or to explain their existing behaviour. However, the specific application of psychometric testing to examine entrepreneurs is still in an early stage (Mazzarol, 2007).

Various psychological tests have been employed to explore the nature of entrepreneurs or to measure their characteristics. Most of the measures used are personality tests and not ability or aptitude tests. The validity of the measurement instrument is important to provide accurate results.

While entrepreneurial tests are generally not well validated, psychometric tests are usually (Caird, 1993).

Entrepreneurial tendency measurements should consider the most significant entrepreneurial characteristics, motivations and attitudes since entrepreneurs are not a homogenous group. Only a few well validated psychometric tests measure the characteristics associated with entrepreneurs (Caird, 1993). Caird's findings are still valid today as shown by Liñán and Chen (2009), which found a shortage of standardised, validated and psychometrically based tests for entrepreneurial tendencies in spite of the increase in the amount of research into entrepreneurial tendencies.

Research Objectives

To answer the research problem posed above, "Can the effects of an entrepreneurship education programme be measured?", the objective of this study is to determine through measurement what the outcomes are on students that are participating in an entrepreneurial education programme.

In order to address the research problem effectively it is hypothesised that:

- H1: The common entrepreneurial tendencies of students will increase while participating in an entrepreneurship programme.
- H2: The common entrepreneurial tendencies of students will increase after participating in an entrepreneurship programme.

METHODOLOGY

Quantitative Approach

A quantitative design was chosen as an ideal design for measuring the effects of the entrepreneurship education programme. A quantitative approach allows the researcher to survey as many students that are willing to respond versus being limited by the amount of people he can interact with. According to Welman *et al.* (2001) all survey type research would fall in the non-experimental research category, since there is no planned intervention. Non experimental research only gives a valid result if there is a great degree of orderliness in the subject of the study (Welman *et al.*, 2001). The researchers are interested in two primary variables namely:

- Have the respondents completed, are busy with or still need to do the entrepreneurial module?
- At what level are the respondent's entrepreneurial tendencies?

As the student receives immediate feedback on the test result, they have an opportunity to rate their perceived accuracy of the test.

GET Test

The General Enterprising Tendency test (Caird, 1991) is the primary measuring instrument used in this study. It is employed to determine the level of entrepreneurial thinking of the participants. The GET test was preferred because the test has multiple advantages over other tests. The test was developed to specifically evaluate some of the most important entrepreneurial tendencies

(Cromie, 2000). These tendencies, namely (i) need for achievement, (ii) locus of control, (iii) need for autonomy, (iv) creative tendency, and (v) calculated risk taking, are measured using questions from existing psychometrical tests (Caird, 1991).

Population and Sample

The population of the survey consisted of students of the Graduate School of Technology Management (GSTM) and the Gordon Institute of Business Science (GIBS), both from University of Pretoria in South Africa. The GSTM students were Honours students of the engineering management course for the Technological Entrepreneurship subject. The GIBS students included mainly students from the 10,000 women entrepreneurship programme and some from the social entrepreneurship programme.

The sample for this survey is self-selected. The researcher has no direct access to the test population and has to rely on the student's willingness to respond to his e-mail invitation and complete the survey to obtain survey results. To measure the effects of the entrepreneurship course, it is necessary to survey students before, during and after they have completed the course.

Participating students was contacted through e-mail correspondence. The data for the study were collected through an online survey tool, Google Forms (2014). A link to the online survey was provided in the e-mail. The Google Forms tool provided feedback to the test respondents on their GET test scores.

The test is divided into three sections, namely demographics, the GET tests, and feedback to the respondent. The latter test the perception of the participant on the validity of the GET test.

FINDINGS

Table 1 indicates the different populations and samples obtained with this study. The number of responses received for the pre and post groups were relatively low, but in line with expectations for web-based surveys.

Table 1: The Survey Population and Sample.

Abbreviation	Description	Population	Sample
GSTM pre	Registered students that have not attended the entrepreneurship course yet	181	26 (14%)
GSTM post	Students that have completed the entrepreneurship course.	328	19 (6%)
GSTM current	Students that are participating in the entrepreneurship course	220	190 (86%)
GIBS pre	Registered students that have not attended the entrepreneurship course yet	-	12
GIBS post	Students that have completed the entrepreneurship course.	-	17

The gender demographics of the GSTM students were approximately 75% male and 25% female, whereas of the GIBS students about 85% female and 15% male.

GET Test Results

The aggregate result of survey is listed in Table 2 according to the five entrepreneurship tendencies namely (i) need for achievement, (ii) need for autonomy, (iii) creative tendency, (iv) calculated risk taking, and (v) locus of control. The test maximum and averages shown in Table 2 is from Caird (1991) and confirm that the results obtained in this survey, are very typical for the GET test. This is an indication that the test was correctly implemented in the surveys and measures correctly in the environment that it was used.

Table 2: Survey Results and Statistical Analysis.

	nAchieve	nAutonomy	nCreative	nRiskTaking	nLocus	nTotal
*Test Max	12	6	12	12	12	54
*Test Ave	9	4	8	8	8	37
GSTM1 Ave	9.2	2.8	8.0	8.6	8.7	37.3
GSTM1 SD	2.2	1.4	1.9	1.9	1.5	5.9
GIBS Ave	10.0	3.2	9.9	9.1	8.2	40.4
GIBS SD	1.6	1.3	1.9	1.6	1.8	4.9
P - 1	0.06	0.29	0.00	0.18	0.22	0.0
GSTM2 Ave	9.6	3.3	8.6	8.9	8.8	39.2
GSTM2 SD	1.5	1.3	1.8	1.9	1.6	5.1
P - 2	0.00	0.05	0.00	0.13	0.70	0.00
P - 3	0.86	0.57	0.03	0.75	0.11	0.81

**Caird (1991)*

GSTM1 = GSTM pre & post students; GSTM2 = GSTM current students; GIBS = GIBS pre & post students

The P-1 scores from the T-Test of the data show that the difference seen in Table 2 between the entrepreneurial tendency scores of GSTM1 and GIBS data sets is statistically significant. While the significance of the difference in specific traits is not statistically significant, except on creativity. The total result is sufficient to show that there is a difference in entrepreneurial tendency between the two groups of students surveyed.

The P-2 scores from the T-Test of the data show that the difference seen in Table 2 between the entrepreneurial tendency scores of GSTM1 and GSTM2 data sets is statistically significant.

There are statistically significant differences in entrepreneurial tendencies visible between these two groups. The GSTM2 group had remarkably higher achievement and creativity measurements, and also scored higher on the autonomy measure than the GSTM1 group.

The P-3 scores from the T-Test of the data show that there is no significant difference between the GSTM2 and GIBS data set. The differences between GSTM1 and GSTM2 and lack of differences between the GIBS and GSTM2 data sets are indicative of an effect on entrepreneurship tendency of GSTM students when they are busy with the course.

The difference in the data is the lower entrepreneurial tendency measure of the GSTM students versus the GIBS students. One of the courses from which most of the GIBS sample was taken, is a course specifically targeting female entrepreneurs who are business owners for at least one year. This would be the primary reason for this large difference visible in the data.

Does Entrepreneurship Education Increase Students' Enterprising Traits?

The test results were broken down according to whether students completed their entrepreneurship course as part of their studies. The data collected from GSTM students contained in Table 3, show that instead of the expected increase in entrepreneurial tendencies scores the students that have completed an entrepreneurship course have lower scores than those who have yet to do the course. However, the P scores computed with a T-Test for the data show that the difference is not sufficiently large to be statistically significant. Note should also be taken that the samples do not represent the same population, as surveys were sent at the same time to pre and post students. Ideally the same students should be evaluated before and after the course to obtain a more representative sample.

Table 3: Results obtained from the Pre- and Post GSTM students (GSTM1).

	N	nAchieve	nAutonomy	nCreative	nRiskTaking	nLocus	nTotal
Pre	26	9.0	3.0	8.2	8.7	8.7	37.8
Post	19	9.3	2.5	7.7	8.3	8.6	36.5
P		0.73	0.24	0.40	0.48	0.83	0.47

While the data captured from GIBS students in Table 4 do show a slight improvement in entrepreneurial skills, as with the GSTM data, the results are not statistically significant.

Table 4: Results obtained from the Pre- and Post GIBS students.

	N	nAchieve	nAutonomy	nCreative	nRiskTaking	nLocus	nTotal
Pre	12	10.3	3.2	9.3	9.0	8.4	40.2
Post	17	9.9	3.2	10.2	9.2	8.0	40.6
P		0.561	0.984	0.219	0.695	0.603	0.824

Comparisons

Since the GET test is an older measurement tool, several comparative data sets have been published. Table 5 below shows some of the comparative data. Good comparison exists in general between the results of the present study, which only includes post-graduate students, and those of the literature for business owners and MBA students. Interesting to note is the lower tendency score for achievement and risk taking for undergraduate students – last two rows in Table 5.

Table 5: Comparison of Results with Other Published Data.

	N	nAchieve	nAutonomy	nCreative	nRiskTaking	nLocus	nTotal	Ref*
GSTM1	45	9.13	2.82	8.02	8.56	8.69	37.22	
GSTM2	190	9.58	3.33	8.60	8.89	8.84	39.24	
GIBS	29	10.03	3.17	9.86	9.14	8.21	40.41	
Business owner	73	9.92	4.14	8.77	8.75	9.51	41.04	1
Australian MBA	56	9.34	3.71	8.63	8.25	9.48	39.41	2
Egyptian under graduates		7.60	3.25	8.40	3.60	8.10	33.00	3
British under graduates		7.07	2.17	6.03	5.27	7.47	28.00	3

* 1 - (Caird, 1991)

2 - (Mazzarol, 2007)

3 - (Kirby & Ibrahim, 2011)

GET Validity

After completion of the survey the respondents were asked to rate the perceived accuracy of the feedback which was based on the scores that they received. The response was generally favourable of the test as shown in Figure 1. While the accuracy of the test subjects' self-perception on their entrepreneurial tendencies is not a scientific measure, it does provide a level of confidence in the GET test's ability to measure accurately.

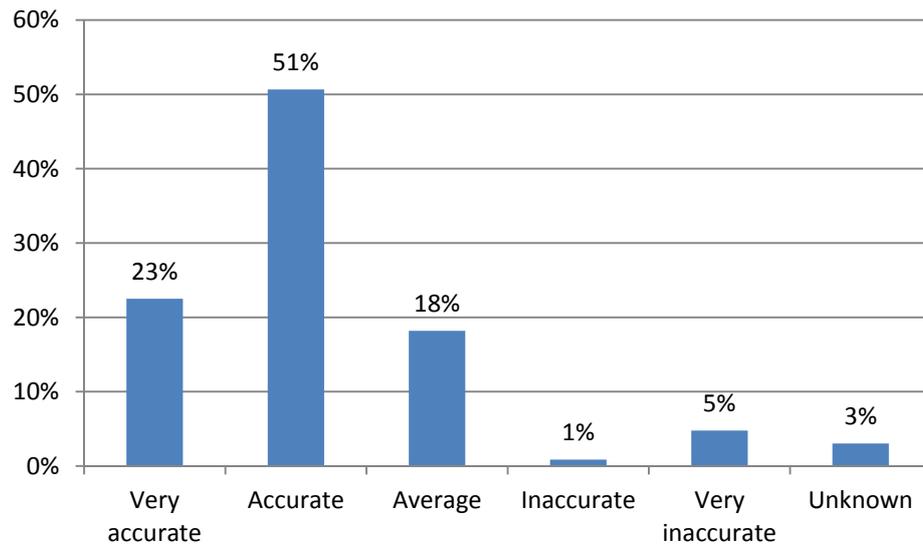


Figure 1: GSTM1&2 Students' Response Regarding the Validity of the GET Test.

CONCLUSIONS

The averages and standard deviations for test result data in the survey were very similar to the data published by the creator of the test (Caird, 1991). This is an indication that the test was correctly used within the environment.

There was a measurable difference in specific entrepreneurial tendencies of students that were busy with their entrepreneurial studies compared to the post and pre groups. This means that in the short term entrepreneurship education makes a definite change in the entrepreneurial outlook of the students.

If entrepreneurship education makes a long term difference then it is not measurable on a small scale. The differences in the results were not statistically significant, so the null hypothesis cannot be rejected.

H1: While participating in an entrepreneurship programme students would have increased the common entrepreneurial tendencies. - For hypotheses H1 the null hypothesis can be discarded. Thus there seems to be an effect on the entrepreneurial tendencies while participating in the entrepreneurship module.

H2: After participating in an entrepreneurship programme students would have increased the common entrepreneurial tendencies - For hypotheses H2 the null hypothesis cannot be discarded. Thus there seems to be no long term effect from taking the entrepreneurship module.

When the results of the GSTM students are compared with other results for the GET test, multiple conclusions can be made. Measured by their entrepreneurial tendencies, the GSTM students are slightly above average for the Pre and Post groups and the Current group shows even higher enterprising tendencies. The lowest tendency for the GSTM and Gibbs students is need for autonomy, which is well below average for all three groups tested in this study.

The feedback on the GET test was generally very positive and may indicate the GET test accuracy. While the test has been seen to be sufficient, the detailed analysis showed that there is some room for improvement on the questions used in the test.

While this research report does not answer the question of the effectiveness of entrepreneurial education, it definitively shows that it is possible. Future efforts with better data capturing methods and evaluating more courses would be able to provide a quality answer to this question.

Through measuring the effect of entrepreneurship courses, it is possible to focus on specific areas that need improvement and increase the long term effectiveness of these courses.

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