Relationship Between Creativity, Grade Point Average, Achievement Motivation, Age and Entrepreneurship among University Students

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Abstract: The aim of this study was to examine the relationship between creativity, grade point average (GPA), achievement motivation, age and entrepreneurship among Islamic Azad University students in Andimeshk. Participants (N=340) completed Creativity Questionnaire, Measuring Your Entrepreneurial Traits (MET) and Achievement Motivation Questionnaire (AMQ). A multiple regression analysis revealed that, creativity, age, GPA, and AMQ were predictor's entrepreneurship. The findings also showed a lower correlation between MET and research independent variables.

Key words: creativity, age, grade point average, achievement motivation, entrepreneurship

INTRODUCTION

Entrepreneurship is becoming and more acknowledged as an important driver of growth, innovation and job creation (e.g., Audretsch, 2002). A consequence of this is that policymakers are becoming increasingly interested in way of enhancing entrepreneurship (Lundstrom & Stevenson, 2001) in different ways not least through entrepreneurship education (See European Commission, 2004). The last two decades have also seen an explosion in the number of universities offering entrepreneurship courses and programmers, in the USA (Vesper & Gurtner, 1997) in Europe (Garavan & Ocinneide, 1994; Johannisson et al, 1998) as well as in Asia (Karadeniz & Ozdemiro, 2009 in Turkey and Shokrkon et al., 2004 in Iran). One reason for this increase is that the structure and teaching style of traditional business education has been accused of impairing entrepreneurship (Gibb, 1996).

In entrepreneurship education, an additional tension is added as entrepreneurial demands for creativity, novelty and synthesis often clash with the traditional academic focus on rigor and analysis. This tension is increasingly becoming clear as researchers now tend to distinguish between small firm management and entrepreneurship through concepts such as emergence, evolution and variation (Gartner, 1993). This issue also transcends academic discourse, as poor pedagogy and course content risks doing more harm than good to prospective entrepreneurs. (Gibb, 1996) preliminary psychometric creativity testing indicated greater differences between students with different disciplinary backgrounds, than between entrepreneurship students and non-entrepreneurship students (Wennberg et al., 2004). This pointed to a need for more detailed examinations of creativity in the context of entrepreneurship education.

Entrepreneurship research has long investigated the impacts of higher education entrepreneurship programs on developing entrepreneurial attitudes, intentions, and capabilities of students (Fayolle, Gaily & Lassas-Clerc, 2006; Linan et al., 2005; Segal, Borgia & Schoen Feld, 2005; Audit, 2002; Krueger, Reilly & Carsrud, 2000).

Creativity and innovation are considered to be overlapping construct between two stages of the creative process; both are necessary for successful enterprise (Martins & Terblanche, 2003). Creativity can be defined as "the production of novel and useful ideas" (Amabile et al, 1996).

While innovation refers to the implementation or "transformation of a new idea into a new product or service, or an improvement in organization or process" (Heye, 2006). By definition, creativity and innovation involve the creation of something new "... is central to the entrepreneurial process" (Barringer & Ireland, 2006). Creativity and innovation are considered to be inseparable from entrepreneurship, which is in turn manifested in the act of starting up and running an enterprise Pretorius, Millard and Krugar (2005) maintain that "creativity is clearly part and parcel of the entrepreneurial skills required to successfully start a venture".

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Entrepreneurs and their start-ups are considered to be "important agents of innovation" (Bosma & Harding, 2007), not simply terms of the products and services they provide, but also in terms of the technologies and processes that utilize them (Bosma & Harding, 2007; Watson et al, 1998). Entrepreneurs could be argued to be by their very nature the essence of creativity and innovation.

Entrepreneurs implement creative ideals to introduce innovative products or services, or to deliver products or services in a new, more efficient, and hence innovative way. Innovation in new product development could include upgrading an existing product or developing a totally new concept (Larsen & Lewi, 2007).

In case entrepreneurship is a dominant factor in the economy; researchers have examined a number of factors that may explain entrepreneurial activity, though a good deal of recent research has tended to focus on the characteristics of the business and industry environment or the characteristics of the entrepreneurial opportunity itself (Kaufman & Dant, 1998). Our understanding of entrepreneurship will not be complete unless we understand the motivation of the individuals involved (Venkataraman, 1997). Recent research suggests that motivational traits and creativity are important factors in entrepreneurial activity and success (Baum, Locke & Smith, 2000; Stewart & Roth, 2001). Research on the motivational traits of entrepreneurs seems especially promising for helping to identify those individuals that might be best suited for identifying and exploiting entrepreneurial opportunities in the market place (Shane & Venkata Raman, 2000). For example, individual traits and motives may be used by schools, career counselors, investors, government agencies, and so on to identify individuals that may be suited to undertake and succeed in entrepreneurial ventures. Despite the potential importance of individual characteristics, there are still many unanswered questions regarding the role that motivation and personal characteristics have on entrepreneurial activity (Shane & Venkataraman, 2000).

Therefore, in this article, we seek to better understand how one important motivating factor, need for achievement, is related to both the choice of entrepreneurship as a career and performance in entrepreneurial roles.

Since Spangler (1992) conducts a previous meta-analysis of achievement motivation studies, some key differences between his study and ours need to be mentioned. First, in Spangler's (1992) study, only 5 out of 115 or 4% of the studies he used involved entrepreneurs or entrepreneurial activity. In addition, Spangler's studies included a very heterogeneous array of dependent variables, including IQ test scores, attitudes, sensation seeking, and enrollment in an academic honors program, performance on a ring toss game, GPA, and industrial output. This Meta-analysis was restricted to only studies involving entrepreneurs and entrepreneurial performance. Entrepreneurship and innovative business behavior have long been associated with creativity (Amabile, 1996, Nystrom, 1979; Watton, 2003) and the two are often used interchangeably. In the business context creative novelty and appropriateness is often translated into idea development (Ward, 2004), new product innovations (Amabile, 1996) and adapting or improving existing innovations (Kirton, 1987). Methodologically, creativity in entrepreneurship and innovation has been explained through cognitive processes, attitudes, motivation, existing knowledge, work environment and personality traits (Amabile, 1996; Walton, 2003; Ward, 2004). Research on academic achievement of young students (Komarrajv, Karau & Schmeck, 2008), provides no reliable and consistent indication concerning the extent of creativity, age and gender on academic achievement. A research on academic achievement studies revealed that various variables had been identified as correlates of academic achievement (Abar, Carter, & Winsler, 2008; Liew, Mctigue, Barrios, & Hughes, 2008, Mizuno et al, 2008; Molar, Steams, Blau & Land, 2006; Parker et al, 2004; Schlee, Mullis & Shrimer, 2008; Thompson & Zamboanga, 2004; Zhang, 2004. One of the areas of bias study that have been particularly dynamic in recent years is scoring differences that correlate with gender (David et al., 2001). Probably the most publicized differences are in the area of college aptitude where test scores are supposed to predict the applicants, subsequent college – level performance. Generally, the tests work well, but there are exceptions. In another study (Kesel & Linn, 1996) found that, in some instances, sat data may under predict college – grade for women in mathematics. The scores suggest that females' performance in college – level mathematics will be lower than they turn out to be. Age is also an independent variable for the present study. Major objective of this study was to examine academic achievement, achievement motivation, creativity, age and gender as predictors of undereducated students in entrepreneurship. The present study may provide a better estimate of the true association between mentioned above variables. Hence, the following question is examined this study: Is there relationship between creativity, age, grade point average, achievement motivation and entrepreneurship?
MATERIALS AND METHODS

In the percent study we select randomly stratified students from Islamic Azad University-Andimesk branch, who were tested at ages of page 17 to page 38 years old. Thus 54.4% of females and 45.6% of males were recruited as respondents in this study through the Measuring Your Entrepreneurial Traits (MET) instrument.

The MET was demonstrated by Kenyon (1999) and was translated into Persian by Shokrkon and Broomandnasb (2004). The MET comprises 125 items, scored by endorsing each item rang is one to ten. It has high internal consistency ($\alpha=0.93$) and good test retest reliability ($r = 0.79$).

Creativity Questionnaire:

Creativity questionnaire is a paper and pen test demonstrate by Abedi (Shokrkon et al., 2004). This test is based upon the rationale that creative functioning is reflected in the personality characteristics of the individual, in the way they thinks or the kind of thinking strategies they employ, and it products that emerge as a result of their creative strivings. The creativity questionnaire consists of 60 items for some thinks.

Achievement Motivation Questionnaire (AMQ):

This questionnaire was developed by Hermans (1970) which included 29 items which uncompleted sentences. In the present study, the criterion validity was met by evaluating the questionnaire scores. The criterion validity was ($r = 0.68$) at the significant level ($p<0.001$). Cronbach Alpha and Split-half methods were used the evaluate the reliability of AMQ. The results showed that the former ($r= 0.86$) and the latter ($r= 0.81$).

Grade Point Average (GPA):

For the purposes of this study, Grade Point Average (GPA) has been used as a proxy of academic achievement. The GPA is calculated by dividing the total amount of Grade Points earned by the total amount of credit hours attempted. The range GPA is from 0 to 20.

Results:

The descriptive results of the data analysis are shown in Table 1.

<table>
<thead>
<tr>
<th>Variables</th>
<th>minimum</th>
<th>maximum</th>
<th>Mean</th>
<th>Std. deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>17</td>
<td>38</td>
<td>22.15</td>
<td>3.241</td>
</tr>
<tr>
<td>GPA</td>
<td>10.25</td>
<td>.19.60</td>
<td>15.078</td>
<td>1.794</td>
</tr>
<tr>
<td>MET</td>
<td>213</td>
<td>1241</td>
<td>830.13</td>
<td>178.016</td>
</tr>
<tr>
<td>AMQ</td>
<td>45</td>
<td>131</td>
<td>90.35</td>
<td>17.262</td>
</tr>
<tr>
<td>CREATIVITY</td>
<td>58</td>
<td>180</td>
<td>129.85</td>
<td>17.534</td>
</tr>
</tbody>
</table>

GPA = Grade Point Average  
MET = Measuring your Entrepreneurial Traits  
AMQ = Achievement Motivation Questionnaire (AMQ)

Finding this result has been shown that  
The mean and SD of Age is 22.15 & 3.241  
The mean and SD of GPA is 15.078 & 1.794  
The mean and SD of MET is 830.13 & 178.016  
The mean and SD of AMQ is 90.35 & 17.262  
The mean and SD of creativity is 129.85 & 17.534

MET predictors

The following tables show multiple regressions (standard ) between , GPA , AGE , AMQ , Creativity and entrepreneurial. Table 2 shows variables entered and removed.

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables entered</th>
<th>Variable removed</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Creativity, AGE, GPA, AMQ</td>
<td>Enter</td>
<td></td>
</tr>
</tbody>
</table>

A: all requested variables entered  
B: dependent Variable: MET

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R square</th>
<th>Adjusted R square</th>
<th>Std.error of the estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.329</td>
<td>0.108</td>
<td>0.097</td>
<td>169.342</td>
</tr>
</tbody>
</table>

A: Predicators: (constant), creating, AGE, GPA, AMQ  
B: Dependent Variable: MET
Table 4: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of square</th>
<th>df</th>
<th>Mean square</th>
<th>f</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>1089825</td>
<td>4</td>
<td>272456.351</td>
<td>9.501</td>
<td>0.000</td>
</tr>
<tr>
<td>Residual</td>
<td>9004526</td>
<td>314</td>
<td>28676.834</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10094351</td>
<td>318</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All independent variables (Creativity, AGE, GPA, and AMQ) explain 0.108 of variance (R squared) in entrepreneurial which is significant, as indicated by the F value of 9.501 in Table 4. Finding has been indicating lower correlation MET & independent variables this study (scores of the GPA, AGE, AMQ and Creativity).

Table 5: Multiple regressions

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>StandardizedCoefficients</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std.error</td>
<td>beta</td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>2.776</td>
<td>0.019</td>
<td>2.365</td>
<td>0.019</td>
</tr>
<tr>
<td>GPA</td>
<td>123.480</td>
<td>0.148</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMQ</td>
<td>2.899</td>
<td>0.027</td>
<td>-1.155</td>
<td>0.249</td>
</tr>
<tr>
<td>Creativity</td>
<td>-0.640</td>
<td>0.288</td>
<td>5.283</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a. dependent variable : MET
p < 0.05
p < 0.01

Table 5 shows t–values indicates that age contribute to the MET. There were significant relation creativity to MET (t=5.283, p= 0.000) and age to MET (T= 2.776, P = 0.019).

Discussion:
The main goal of the present study was to examine the relationship between creativity, Age, achievement motivation questionnaire (AMQ), grade point average and measuring your entrepreneurial traits (MET). We found Creativity, Age, GPA and AMQ were low predictors (R=0.329, R square=0.108) by MET in the sample, but there was significant relationship (F=9.501; sig = 000, p<0.01) between those variables and MET. another finding was the relationship between Age, creativity and MET our results support McClelland's theory that achievement motivation is significantly related to both occupational choice and performance in an entrepreneurial role. Although these results superficially agree with prior reviews (e.g. Spangler, 1992) in showing that need for achievement is related to action, our results were based on entrepreneurship. Although our finding is agree with other researchers (Schein, 1994; Shaver, Williams & Scott, 1990) that there was a significant relationship between creativity and entrepreneurship. Previous research has produced mixed results between creativity age, gender and academic achievement. Atiken and Harris (2004) found that there existed a small to moderate positive correlation with intelligence factor (which included the creativity scales); however, Asha (1980) suggested that the relation between creativity and academic achievement could be different for males and females.

Based on the findings, entrepreneurship in the university can develop students abilities in learning from experiences and social / and interaction through developing their reflective learning and creative thinking (Pittaway, Hannon, & Thompson, 2009). Moreover, students should learn how to recognize various opportunities for learning entrepreneurship, how to drive meaning from different learning opportunities (Rae & Carswell, 2000), and how to learn through the whole process of entrepreneurship (Corbett, 2005).

Conclusion:
In the present study, from demographic variable (age, grade point average) and psychological variables (Creativity, Achievement motivation and Entrepreneurship) were examined. However, there are many other variables that could affect. the preference for entrepreneurship which should be studies in the future : these variables include internal and external locus of control and others are self esteem, self efficacy and cognitive ones (e.g. fluid and crystallized intelligence , emotional intelligence). To conclude the current study shows that creativity, age, grade point average and achievement motivation the predictors as entrepreneurial entrepreneurship although there were correlation between age (p<0.01), creativity (p<0.001) and entrepreneurship.

REFERENCES


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