

Factors Influencing The Entrepreneurial Orientation Of Students: An Exploratory Study

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Abstract: With entrepreneurship being an important catalyst in wealth creation, it is imperative that entrepreneurs be developed. The aim of this exploratory research is to contribute to our understanding of the development of entrepreneurs and to encourage further research in the area. This paper proposes a model of entrepreneurship and tests the influencing factors on this model. Based on the findings of this research, it appears that the entrepreneurial activity of family members influences the development of entrepreneurship more than gender, race, age or education. With education being a logical site for the development of entrepreneurship within society, this finding raises more questions than it provides answers, highlighting the need for educators to critically review the educational process if entrepreneurship is to be a realistic outcome.

Key words: Entrepreneurial characteristics, Entrepreneurship education

Introduction

The shortage of entrepreneurs in South Africa Louw, Du Plessis, Bosch and Venter (1997) highlights the need for research into what makes an entrepreneur and how the characteristics can be developed through education Gorman and Hanlon (1997). The main purpose of this paper is to contribute to educators' understanding of the development of entrepreneurship. To achieve the main purpose, the primary objectives of this paper are to measure the levels of students' entrepreneurial traits; establish whether these traits are interrelated; and to determine the influence of the level of education, biographical characteristics (gender, race and age) and family environmental factors on the development of entrepreneurial characteristics of undergraduate management students at Rhodes university in South Africa.

To give effect to the primary objectives of this paper, the following null hypotheses were posed, namely:

H₀¹ = There are no statistically significant relationships between the entrepreneurial traits of undergraduate students.

H₀² = There are no statistically significant relationships between biographical variables (gender, race, age) and the entrepreneurial characteristics of undergraduate students.

H₀³ = There are no statistically significant relationships between education (factors such as length of time at university and specifically length of time studying management) and the entrepreneurial characteristics of undergraduate students.

H₀⁴ = There are no statistically significant relationships between the entrepreneurial activity of family members and the entrepreneurial characteristics of undergraduate students.

Entrepreneurship contextualised: In light of the entrepreneurial needs of the South African economy, this paper proposes a definition of an entrepreneur as an individual who constantly searches for economic opportunities in the market and who utilises them in an innovative way to add value and increase prosperity by combining and managing the necessary resources in a business organisation which benefits society, Marx, Van Rooyen, Bosch and Reynders (1998). In line with the definition of entrepreneurship proposed in this, attention is placed primarily on individual characteristics, specifically those attitudes and behaviours that are shared to varying degrees by successful entrepreneurs as proposed by various authors as identified in Table 1. The categories of individual entrepreneurial traits, shown in Table 1 are included in the measuring instrument used in this research. Hansemark (1998) argues for the trait approach as the most promising approach in the educational situation. Gartner (1989) on the other hand argues that in addition to the personality related approach, there should also be a focus on

entrepreneurial behaviour. Entrepreneurial behaviour represents the activities that create the entrepreneurial event. After all, "entrepreneurship is a way of thinking, reasoning and acting ..." Timmons (1999) so an emphasis on the characteristics of entrepreneurs can be misleading, Du Plessis (1996).

Developing Entrepreneurship: Although "... many influences interact to cause a particular individual to become a business owner" (Jack and Anderson 1999:118), "... studies of entrepreneurship fail to provide a clear picture of the factors which encourage an individual to enter upon an entrepreneurial career" Bowen and Hisrich (1986). In an attempt to understand which factors could influence an individual to enter an entrepreneurial career, the career model of Sonnenfeld and Kotter's (1982) is used as the basis in this research. Following a life-cycle approach to career development which recognises that career stages reflect and interact with stages and events in an individuals life - past, present and future - Sonnenfeld and Kotter's (1982) career model, provides insight into the data that is required in career research. It is evident from their model that over time, personal factors such as gender, race and age interact with the environmental factors such as education environment and childhood family environment to contribute to the career ultimately chosen by a particular individual - the current or present situation of an adult.

Regarding family environment, research Brockhaus (1980); Brockhause and Nord (1979); Cooper and Dunkelberg (1984); Jacobowitz and Vidler (1982); Shapero and Sokol (1982); Hisrich and Brush (1983); Mescon and Stevens (1982); Sexton and Kent (1981); Waddeil (1983); Watkins and Watkins (1983) indicates that entrepreneurs tend to have self-employed parents. For Shapero and Sokol (1982), the family, particularly the father and mother, plays the most powerful role in establishing the desirability and credibility of entrepreneurial action for the individual". Scarborough and Zimmerman (1996) state that "entrepreneurship is not a genetic trait; it is a learned skill". For Kent, Cronje, Du Toit and Motlatla (2000) "although one should accept that there are probably specific personality traits, deep-seated urges and even genetic factors that predispose people to become entrepreneurs, ample proof exists that management education and training develop people's entrepreneurial skills to a much greater extent than spontaneous development of such skills". Although some do argue that entrepreneurship cannot be trained/educated, Ede, Panigrahi, and Calcich, *et al.*, (1998) point out that it is an accepted tenet in academic circles that entrepreneurship can be successfully trained Brockhaus (1991). While it is acknowledged that entrepreneurship can be taught, there is a concern is that the educational system in general does not promote an entrepreneurial

culture. Hansemark (1998) argues that "the area of entrepreneurship education suffers from how to define what an entrepreneurship education really is" while McMullan and Long (1987) point out that the instructional methodology is ill suited to entrepreneurship.

Materials and Methods

The modified version of the measuring instrument, used for the first time in South Africa in a study by Louw and Du Plessis, *et al.*, (1997) on a sample of undergraduate students at the University of Port Elizabeth, was used in this study. The measuring instrument consisted of two parts. Section A, the self-assessment section, consisted of 95 items assessing entrepreneurial traits. The entrepreneurial trait categories are summarised in Table 1. Based on the previous study by Louw and Venter, *et al.*, (2000), entrepreneurial category J, tolerance for ambiguity, was excluded from this study because of its poor reliability results. The items were phrased as statements with the possible response continuum linked to a Likert five-point scale (1 = strongly disagree to 5 = strongly agree). These statements have been excluded for copyright purposes. Part B accesses biographical and other data relevant to the purpose of this research.

Research sample: A one-shot case study design was followed whereby questionnaires were administered to undergraduate students registered in the Department of Management at the Rhodes University in 1999. Of the 803 students registered in the Department, 767 completed the questionnaire towards the end of the first semester of 1999, obtaining a response rate of 95,5 per cent. The sample consisted of 52,2 per cent males and 46,4 per cent females. Of the total number of participants 40,8 per cent were Whites; 36,8 per cent were Blacks; 16,8 per cent Asian; and 3,9 per cent Coloured. First-year students accounted for 58,3 per cent of the sample, second-years 24,3 per cent and third-years 9,4 per cent. The majority of respondents (72,6%) indicated that family members owned their own business. These family members were mostly the father/mother (53,9%). Most respondents were the oldest in the family (36,4%) while 30,4 per cent the second child, 27,5 per cent the third child and 4,7 per cent the only child. Incomplete responses account for totals not equaling 100.

Data analysis: The data analysis occurred in three phases:

To inspect the data, descriptive statistics such as the mean, standard deviation (Table 2) and Pearson Product Moment correlations (Table 3) were calculated for individual items by means of Statistica, Statsoft Inc (1999). Because of space limitations the detailed statistics are not reported but are available upon request.

The second phase of the statistical analysis of the data was to generate factors using a factor loading model/sub scale supplied by Louw and Du Plessis, *et al.*, (1997) and to assess the internal reliability of the measuring instrument by calculating Cronbach's coefficient alpha values using program BMDP 4M Frane, Jennrich and Sampson (1990). The sum scale's for the entrepreneurial traits were calculated and the Cronbach alpha coefficients associated with factor groupings of each trait category is given in Table 2. In total, 93 of the original 95 items were loaded on fourteen factors. Items 53 and 86 were removed to generate a positive Cronbach alpha coefficient for risk taking (Category G). The measuring instrument had an overall Cronbach alpha value of 0.937017 (Standardised alpha: 0.941514) with an average inter-item correlation of 0.146378. The Cronbach alpha values increased to 0.938723 (Standardised alpha: 0.942278) with the removal of items 28,32,39,53, 54 and 66. As the increase was considered marginal these items were included in the analysis. Reliability coefficients less than 0.50 are deemed to be unacceptable, those above 0.70 as acceptable Nunnally (1978) and Peterson (1994) and coefficients greater than 0.80 as good Sekaran (1992). Besides risk taking, all the alpha coefficients are greater

than 0.5, with seven of the fourteen in excess of 0.70. Based on this, the internal reliability of the measures used in this study can be regarded acceptable.

Thirdly, the BMDP program 2V was used to perform inferential statistical analysis such as the analysis of variance (ANOVA) to determine whether selected biographical variables, family environmental factors and the exposure to management education are statistically significantly related to the various entrepreneurial traits. The results of the ANOVA analysis (p-values) are shown in Table 4.

Results and Discussion

As can be seen from Table 2, all the entrepreneurial traits obtained high scores (above the threshold value of 3.4 on the five-point Likert scale), except for risk taking (G), taking initiative and seeking personal responsibility (H), the use of outside resource persons (L) and technical knowledge (M). Respondents regarded competing against self-imposed standards (D) as being the most well developed entrepreneurial trait. Risk taking (G) had the lowest mean score of 2.6278 on a Likert 5 point scale but also has a low Cronbach alpha score, with very low inter item correlation. This particular sub scale needs more development.

Table 3 indicates the Pearson Product Moment correlations between the entrepreneurial trait categories. As shown in Table 3 there are, with few exceptions, significant correlations between the entrepreneurial traits. Ignoring risk taking (G), the only other non-significant correlation is that between competing against self-imposed standards (D) and the use of outside resource persons (L).

On the basis of these results, Hypothesis H₁ stating that there are no significant relationships between the entrepreneurial trait categories can thus be rejected.

The p-values resulting from the ANOVA performed on the data set are reported in Table 4. Evident from Table 4 are significant relationships between biographical characteristics (such as gender, race and age) and environmental factors (such as education and family environment) and certain entrepreneurial characteristics of undergraduate students. In the case of gender significant relationships are evident for risk taking (G), the use of outside resource persons (L), technical knowledge (M) and money sense (O). For race, significant relationships are evident for competing against self-imposed standards (D) and technical knowledge (M) while for age significant relationships are evident for competing against self-imposed standards (D), the use of outside resources (L) and money sense (O). Hypothesis H₀² is thus rejected in these instances. These results are similar to those in the research done by Louw and Venter, *et al.* (2000).

With regards length of education time spent at university and management education, very few significant relationships were found with entrepreneurial characteristics. Length of education time spent at university and competing against self-imposed standards (D) are significantly related, while the study of management is significantly related to number sense (N) and money sense (O). Based on these findings, hypothesis H₀³ is rejected.

Of particular interest from Table 4 are the results indicating the significant relationship between family business and eight of the fourteen entrepreneurial characteristics, leading to the rejection of hypothesis H₀⁴. As mentioned in the literature review in Section 3, this finding that entrepreneurs tend to have self-employed parents is supported by previous research. What is evident is that family business as an environmental factor tends to have the greatest influence in developing entrepreneurial traits in this study.

Conclusion

The main objectives of this paper were to measure the levels of students' entrepreneurial traits; establish whether these traits are interrelated; and to determine the influence of the level of education, biographical characteristics (gender, race and age) and family

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Table 1: Selected previous research pertaining to entrepreneurial trait

| Entrepreneurial Traits | Selected Research |
|---|---|
| Category A: Goal setting/perseverance (Realistic and attainable goals, long-term commitment and determination) | Kroon and Moolman (1991); Naffziger, Hornsby and Kuratko (1994); Bowler (1995); Timmons (1999) |
| Category B: Human relations ability (Ability to convince others to move in a specific direction, characteristics such as cheerfulness, co-operation and tact) | Baumback and Lawyer (1979); Van Vuuren (1997) |
| Category C: Communications ability (Ability to communicate ideas to others, verbal and written) | Barrier (1995); Marx and Van Rooyen, et al. (1998) |
| Category D: Competing against self-imposed standards (Compete against high yet realistic self-imposed standards, accept responsibility, accountable) | Siropolis (1990); Marx and Van Rooyen, et al. (1998) |
| Category E: Dealing with failure (Failure to be regarded as a learning experience) | Gerdes (1988); Burns and Dewhurst (1989); Goodman (1994a; 1994b) |
| Category F: Self-confidence / belief in self-determination (Belief in own ability to achieve goals that are self-determined, high need for autonomy) | Mushonga (1981); Goodman (1994a; 1994b); Zimmerer and Scarborough (1998); Kreitner and Kinicki (1998) |
| Category G: Risk taking (Predisposition for taking moderate, calculated risks providing a reasonable chance for success) | McClelland (1967); Schackie (1979); Siropolis (1990); Kroon and Moolman (1991); Mariani (1994); Zimmerer and Scarborough (1998) |
| Category H: Taking initiative / seeking personal responsibilities (Need to use own initiative, make important decisions and determine action steps. Accept consequences) | Gerdes (1988); Goodman (1994a; 1994b); Kreitner and Kinicki (1998); Marx and Van Rooyen, et al. (1998) |
| Category I: Drive and energy level (Ability to work long hours, vigour, good health and persistence) | McClelland (1967); Burns and Dewhurst (1989); Casson (1991); Goodman (1994a; 1994b); Mariani (1994) |
| Category J: Tolerance for ambiguity (Ability to live with modest to high levels of uncertainty concerning job and career security, perform different tasks simultaneously) | Bowler (1995); Zimmerer and Scarborough (1998) |
| Category K: Thinking ability (Need for original thinking, creativity and critical analysis of situations) | McClelland (1967); Gerdes (1988); Casson (1991); Hjelle and Ziegler (1992); Kreitner and Kinicki (1998) |
| Category L: Use of outside resource persons (Seek expertise and assistance of others in the accomplishment of goals) | McClelland (1967); Mushonga (1981); Bowler (1995) |
| Category M: Technical knowledge (Developed skills, experience and resources in known territory) | Kroon and Moolman (1991); Hellriegel, Jackson and Siocum (1999) |
| Category N: Number sense (Ability to understand and/or interpret financial statements /performance) | Marx and Van Rooyen, et al. (1998); Zimmerer and Scarborough (1998) |
| Category O: Money sense (Ability to recognise that money is an important factor, correct appropriation) | Kuriloff and Hemphill (1981); Kroon and Moolman (1991); Burns and Dewhurst (1989) |

Table 2: Summary measures of entrepreneurial traits

| No | Trait | Mean | Standard Deviation | Cronbach Alpha |
|----|---|----------|--------------------|----------------|
| 1 | Goal setting and perseverance (A) | 3.822833 | .580270 | .7501 |
| 2 | Human relations ability (B) | 3.852066 | .566997 | .6655 |
| 3 | Communications ability (C) | 3.430084 | .540458 | .6853 |
| 4 | Competing against self-imposed standards (D) | 4.101239 | .819453 | .6556 |
| 5 | Dealing with failure (E) | 3.748250 | .584726 | .6034 |
| 6 | Self-confidence and belief in self-determination (F) | 3.874529 | .540153 | .5086 |
| 7 | Risk-taking (G) | 2.627787 | .530497 | .3658 |
| 8 | Taking initiative and seeking personal responsibility (H) | 3.394331 | .593550 | .7811 |
| 9 | Drive and energy level (I) | 3.849527 | .565481 | .6024 |
| 10 | Thinking ability (K) | 3.718700 | .564602 | .7099 |
| 11 | Use of outside resource persons (L) | 3.294023 | .658775 | .6352 |
| 12 | Technical knowledge (M) | 3.342847 | .679083 | .7584 |
| 13 | Number sense (N) | 3.727787 | .872779 | .7116 |
| 14 | Money sense (O) | 3.549677 | .845376 | .7127 |

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Table 3: Pearson Product-Moment correlations for entrepreneurial traits

| | A | B | C | D | E | F | G | H | I | K | L | M | N | O |
|---|-------|------|------|-------|------|-------|-------|------|------|-------|-------|------|-------|-------|
| A | 1.00 | 0.37 | 0.48 | 0.40 | 0.49 | 0.46 | 0.01* | 0.51 | 0.54 | 0.63 | 0.43 | 0.49 | 0.36 | 0.38 |
| B | 0.37 | 1.00 | 0.61 | 0.17 | 0.46 | 0.40 | 0.13 | 0.54 | 0.45 | 0.48 | 0.40 | 0.32 | 0.18 | 0.27 |
| C | 0.48 | 0.61 | 1.00 | 0.19 | 0.40 | 0.35 | 0.10 | 0.67 | 0.50 | 0.55 | 0.46 | 0.47 | 0.29 | 0.36 |
| D | 0.40 | 0.17 | 0.19 | 1.00 | 0.25 | 0.26 | -0.16 | 0.20 | 0.22 | 0.31 | 0.07* | 0.17 | 0.20 | 0.14 |
| E | 0.49 | 0.46 | 0.40 | 0.25 | 1.00 | 0.47 | 0.10 | 0.44 | 0.44 | 0.47 | 0.40 | 0.39 | 0.22 | 0.27 |
| F | 0.46 | 0.40 | 0.35 | 0.26 | 0.47 | 1.00 | 0.05* | 0.37 | 0.48 | 0.49 | 0.37 | 0.42 | 0.32 | 0.35 |
| G | 0.01* | 0.13 | 0.10 | -0.16 | 0.10 | 0.05* | 1.00 | 0.11 | 0.11 | 0.06* | 0.20 | 0.11 | 0.07* | 0.12 |
| H | 0.51 | 0.54 | 0.67 | 0.20 | 0.44 | 0.37 | 0.11 | 1.00 | 0.54 | 0.56 | 0.49 | 0.51 | 0.33 | 0.36 |
| I | 0.54 | 0.45 | 0.50 | 0.22 | 0.44 | 0.48 | 0.11 | 0.54 | 1.00 | 0.54 | 0.38 | 0.47 | 0.32 | 0.39 |
| K | 0.63 | 0.48 | 0.55 | 0.31 | 0.47 | 0.49 | 0.06* | 0.56 | 0.54 | 1.00 | 0.47 | 0.47 | 0.28 | 0.28 |
| L | 0.43 | 0.40 | 0.46 | 0.07* | 0.40 | 0.37 | 0.20 | 0.49 | 0.38 | 0.47 | 1.00 | 0.56 | 0.30 | 0.46 |
| M | 0.49 | 0.32 | 0.47 | 0.17 | 0.39 | 0.42 | 0.11 | 0.51 | 0.47 | 0.47 | 0.56 | 1.00 | 0.41 | 0.52 |
| N | 0.36 | 0.18 | 0.29 | 0.20 | 0.22 | 0.32 | 0.07* | 0.33 | 0.32 | 0.28 | 0.30 | 0.41 | 1.00 | 0.58 |
| O | 0.38 | 0.27 | 0.36 | 0.14 | 0.27 | 0.35 | 0.12 | 0.36 | 0.39 | 0.28 | 0.46 | 0.52 | 0.58 | 1.00* |

Not significant at the 95% confidence level

Table 4: Results of ANOVA's on entrepreneurial traits by selected demographical variables

| Trait | Gender | Race | Age | Study of management | Length of education | Family business |
|---|----------|----------|----------|---------------------|---------------------|-----------------|
| Goal setting and perseverance (A) | .503737 | .615715 | .349497 | .198369 | .588337 | .120729 |
| Human relations ability (B) | .624292 | .285991 | .881090 | .999545 | .868207 | .006160* |
| Communications ability (C) | .730186 | .292704 | .119577 | .634103 | .609644 | .000617* |
| Competing against self-imposed standards (D) | .136917 | .000009* | .000286* | .350830 | .027759* | .122556 |
| Dealing with failure (E) | .893678 | .814532 | .407708 | .501587 | .308442 | .144416 |
| Self-confidence and belief in self-determination (F) | .280706 | .329974 | .277620 | .581390 | .135374 | .298929 |
| Risk-taking (G) | .000282* | .056121 | .437323 | .137090 | .72620 | .938828 |
| Taking initiative and seeking personal responsibility (H) | .971507 | .377413 | .278193 | .444781 | .724279 | .002721* |
| Drive and energy level (I) | .977049 | .557187 | .722338 | .439640 | .845149 | .019317* |
| Thinking ability (K) | .692587 | .297979 | .436602 | .782242 | .506802 | .011944* |
| Use of outside resource persons (L) | .000014* | .091529 | .000025* | .296829 | .143992 | .000001* |
| Technical knowledge (M) | .000053* | .010343* | .152521 | .148697 | .254171 | .016182* |
| Number sense (N) | .102286 | .258191 | .379029 | .011858* | .645846 | .116103 |
| Money sense (O) | .001214* | .333117 | .003847* | .00298* | .083337 | .012477* |

* Significant at the 95% confidence level ($p \leq 0.05$)

environmental factors on the development of entrepreneurial characteristics of undergraduate management students at Rhodes university. The most important findings and concluding remarks can be summarised as follows:

Fourteen categories of entrepreneurial traits were used in the analysis. No category can be regarded as more important than the other, but certain categories of entrepreneurial traits are more developed in this sample of students. The most well developed trait in these respondents, indicated in Table 2, is competing against self-imposed standards, while risk taking was the least developed trait. The latter could suggest that more attention should be given to creating a learning environment where the taking of calculated risks is encouraged or that these respondents have not yet been exposed to the realities of the business world. This suggestion though, needs to be considered in light of the low Cronbach alpha score for the factor.

There are no statistically significant correlations between risk taking and goal setting/perseverance; self-confidence and belief in self determination; thinking ability; and number sense. The only other non-significant correlation is between competing against self-imposed standards and the use of outside resource persons. All the other entrepreneurial traits are significantly

correlated, meaning that development in one will influence development in another and that they are interrelated.

Based on the statistically significant differences of the ANOVA's in Table 4, the following differences were evident between various demographical variables and the development of entrepreneurial traits:

Gender: Significant relationships are evident for risk taking, the use of outside resource persons, technical knowledge and money sense.

Race: significant relationships are evident for competing against self-imposed standards and for technical knowledge.

Age: Significant relationships are evident for competing against self-imposed standards, the use of outside resources and money sense.

Length of education time spent at university and competing against self-imposed standards are significantly related.

The study of management is significantly related to number sense and money sense.

Entrepreneurial activity of family members is significantly related to eight of the fourteen entrepreneurial traits.

Based on the findings of this research, it appears that the entrepreneurial activity of family members influences

the development of entrepreneurial characteristics more than gender, race, age, length of time spent at university or the exposure of studying management.

A central question concerns what entrepreneurship is and whether entrepreneurship is developed by formal education or not. There remains a need for conceptual consensus regarding entrepreneurship to assist educators in determining educational objectives relevant to developing entrepreneurship, insight into the instructional methodology best suited to developing entrepreneurship and a need for a valid and reliable measure of what is being developed. Given the results of this research, it is questionable whether the "right" question is being asked with respect to the nature of entrepreneurship. As noted earlier, if "entrepreneurship is a way of thinking, reasoning and acting ..." (Timmons 1999:27) then a sole emphasis on the characteristics of entrepreneurs can be misleading (Du Plessis 1996). Also, there is a need for a framework of the pedagogical process and methods suitable for developing an entrepreneurial orientation within students. Not only are there lessons to be learnt from questioning what students are learning with respect to entrepreneurship which is summative in nature but perhaps more importantly a need for formative evaluation of the education process at various South African higher education institutions with respect to the development of entrepreneurship.

Practical Implications: On the basis of this exploratory research, the following recommendations need to be considered by educationalists and researchers.

- There is a need for further research to validate the findings of this initial exploratory study.
- Educationalists need to develop a conceptual framework of entrepreneurship to assist them in deciding on educational outcomes with respect to developing an entrepreneurial orientation within students. Entrepreneurship as a construct needs to be clearly understood and understood in relation to other subjects such as management and leadership.
- There is a need for a valid and reliable measure of entrepreneurship so that educational institutions are able to gauge when they are being successful in developing entrepreneurship.
- Educationalists need to understand and implement instructional methodology best suited to the development of entrepreneurship. There is need to identify educational institutions which are successfully developing entrepreneurial students and for research into the educational process (formative evaluation) of these educational institutions who are successful in developing entrepreneurial students. This research can provide insight into the instructional methodology best suited to developing entrepreneurship.
- Educationalists need to understand the students they are working with and utilise students with already developed abilities and skills in the education process. On the basis of this research, educationalists need to utilise those students with an entrepreneurial family background in the education process. These students can act as mediators to other students in a small group teaching situation.

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